

**Cameco Resources
Smith Ranch Highland Uranium Project
2018-2019 Surety Estimate Update**

(submitted June 2018)

2017-2018 Approved Total = \$219,685,500

Itemized changes in 2018-2019 surety bond calculation

2017 adjustments		2017-2018	2018-2019 Difference		\$219,685,500
Subtract Contingency		\$28,654,636			\$191,030,864
GWR-WF		\$47,000,236	\$44,907,183	-\$2,093,053	\$188,937,811
	Adjusted Pore Volumes to left to restore and fixed masterpore volume calculation error on HUP and power estimate was reduced to reflect current costs.				
GWR-SITE	Adjusted timelines per new waterbalance. Timelines decreased due to adjusted pore volume to complete restoration on MU 4, adjustment of MU 10 and MU7 pore volumes to HH inproduction, and increasing RO online time to 95% due to operational experience. Overall restoration period decreased 5 yrs.	\$96,402,130	\$82,073,034	-\$14,329,096	\$174,608,715
WA	Increased due to CPI adjustment and Guidline 12 adjustment.	\$23,115,468	\$23,159,308	\$43,840	\$174,652,555
WF BLDGS	Increased due to CPI adjustment and Guidline 12 adjustment.	\$8,760,518	\$8,994,547	\$234,029	\$174,886,583
WF REC	Increased due to CPI adjustment and Guidline 12 adjustment.	\$996,377	\$1,002,459	\$6,082	\$174,892,666
EQUIP	Increased due to CPI adjustment and Guidline 12 adjustment.	\$1,615,084	\$1,676,345	\$61,261	\$174,953,927
BLDGS	Decreased due to Guidline 12 adjustment.	\$5,529,629	\$5,427,489	-\$102,140	\$174,851,787
MISC REC	Increased due to CPI adjustment and Guidline 12 adjustment.	\$7,611,465	\$7,659,400	\$47,935	\$174,899,720
Contingency			\$26,234,958		\$174,899,720
		2017-2018 Surety Estimate			\$201,134,700

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Total Restoration and Reclamation Cost Estimate			
I.	Groundwater Restoration (GWR-WF and GWR-SITE Sheets)		\$126,980,217
II.	Well & Drill Hole Abandonment (WA Sheet)		\$23,159,308
III.	Wellfield Buildings & Equipment Removal & Disposal (WF BLDGS Sheet)		\$8,994,547
IV.	Wellfield and Satellite Surface Reclamation (WF REC Sheet)		\$1,002,459
V.	Equipment Removal & Disposal (EQUIP Sheet)		\$1,676,345
VI.	Building Removal & Disposal (BLDGS Sheet)		\$5,427,489
VII.	Miscellaneous Reclamation (MISC REC Sheet)		\$7,659,355
	Subtotal Restoration and Reclamation Cost Estimate		\$174,899,720
	Contractor Profit & Overhead (10%)¹	See Master Costs	
		15%	\$26,234,958
		TOTAL³	\$201,134,700
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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Ground Water Restoration - Site Wide											
I.	Building Utility Costs	CPP	Main Office	Maint Shop	Pumphouse	Sat SR-1	Sat SR-2	Sat Reynolds	Satellite No.2	Selenium Plant	Satellite No.3
	Electricity Unit Cost (\$/yr)	\$30,947	\$26,038	\$5,855	\$10,265	\$42,019	\$42,019	\$42,019	\$29,006	\$41,614	\$29,006
	Propane (\$/yr)	\$0	\$0	\$0	\$0	\$0	\$23,117	\$23,117	\$0	\$0	\$38,674
	Natural Gas (\$/yr)	\$28,000	\$0	\$0	\$0	\$5,261	\$0	\$0	\$8,750	\$8,750	\$0
	Number of Years	23	25	25	22	17	23	0	15	22	16
	Subtotal Utility Cost per Building	\$1,355,772	\$650,943	\$146,387	\$225,822	\$803,754	\$1,498,120	\$0	\$566,336	\$1,108,007	\$1,082,875
	*Yrs for Satellite SR-1 assumes end of restoration for MU-7										
	Total Building Utility Costs	\$7,438,016									
II.	Deep Disposal Well Utility Costs	SR-1	SR-2	REY-1	SRHUP #6	SRHUP #7	SRHUP #10	Morton 1-20	Vollman 33-27	SRHUP #9	
	Electricity Unit Cost (\$/yr)	\$4,672	\$4,672	\$4,672	\$4,672	\$4,672	\$4,672	\$4,672	\$4,672	\$4,672	\$4,672
	Propane (\$/yr)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Natural Gas (\$/yr)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
	Number of Years	22	22	22	22	22	22	22	22	22	22
	Subtotal Utility Cost per Building	\$102,778	\$102,778	\$102,778	\$102,778	\$102,778	\$102,778	\$102,778	\$102,778	\$102,778	\$102,778
	Total Deep Disposal Well Utility Costs	\$924,998									
III.	Booster Pump Operation Costs	SRH									
	Restoration Period (yrs)	22									
	<u>Booster Pump Operating Cost (\$/yr)</u>	\$210,861.38									
	Total Booster Pump Operating Cost	\$4,638,950									
IV.	Infrastructure, Equipment Maintenance, Replacement and Repair Costs	SRH									
	Annual Maintenance Cost	\$195,718	Based on planned expenditures in 2013 (\$184640) plus 2013-2016 Escalator.								
	Restoration Period (yrs)	22									
	Total Cost	\$4,305,805									
V.	Deep Disposal Well MIT Costs	SRH									
	<u>Five-year MIT Costs for Disposal Wells</u>	\$18,116.33									
	Number of DDWs	8									
	Number of MITs per DDW	5.5									
	Total DDW MIT Cost	\$797,119									
VI.	Capital Costs	SRH									
	*Estimates based on planned expenditures (2017)	\$0									
	Total Capital Costs	\$0									
VII.	Vehicle Operation Costs	SRH									
	Number of Pickup Trucks (Gas)	20									
	<u>Truck Cost (\$/hr)</u>	\$22.22									
	Average Operating Time (hrs/yr)	1000									
	Restoration and Stability Period (yrs)	23									
	Total Vehicle Operation Cost	\$10,221,021									
VIII.	Labor Costs	SRH									

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Assumptions:														
	Number of Environmental Managers/RSOs	1												
	\$/hr	\$71.15												
	Number of Restoration Managers	1												
	\$/hr	\$61.87												
	Number of Environmental Techs/HPTs	4												
	\$/hr	\$46.40												
	Number of Operators/Laborers	14												
	\$/hr	\$40.22												
	Number of Maintenance Technicians	4												
	\$/hr	\$35.58												
	Hrs/yr	2080												
	Restoration and Stability Period (yrs)	23												
	Total Labor Cost	\$48,986,122												
IX.	Irrigation Maintenance and Monitoring	Irrigator No. 1A	Irrigator No. 2											
	A. Harvesting Costs													
	Irrigation Area (acres)	55	106											
	Harvesting Costs (\$/acre)	\$83	\$83											
	Restoration Period (yrs)	21												
	Subtotal Harvesting Costs per Irrigator	\$96,188	\$185,381											
	B. Irrigation Monitoring													
	# of Irrigation Fluid Samples/Year	6	6											
	\$/sample	\$200	\$200											
	# of Vegetation Samples/Year	5	5											
	\$/sample	\$270	\$270											
	# of Soil Samples/Year	30	34											
	\$/sample	\$335	\$335											
	# of Soil Water Samples/Year	12	2											
	\$/sample	\$150	\$150											
	Restoration Period (yrs)	23												
	Subtotal Monitoring Costs per Irrigator	\$331,200	\$327,520											
	Subtotal Monitoring and Harvesting Costs per Irrigator	\$427,388	\$512,901											
	Total Maintenance and Monitoring Costs	\$940,290												
X.	Selenium Plant Operation Costs	SRH												
	Restoration Period (yrs)	23												
	<u>Selenium Plant Operating Cost (\$/yr)</u>	\$166,118												
	Total Selenium Plant Operating Cost	\$3,820,714												
	TOTAL SITE-WIDE RESTORATION COSTS	\$82,073,034												

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Well and Drill Hole Abandonment	Mine Unit 1	Mine Unit 2	Mine Unit 3 / 3 Ext	Mine Unit 4/4A	Mine Unit 15	Mine Unit 15A	Mine Unit K	K-North	Mine Unit 9	Mine Unit 10	Mine Unit 10-Ext	Mine Unit 27	Mine Unit 21	Mine Unit 7	Mine Unit 8	A-Wellfield	B-Wellfield	C-Wellfield	C-22 Pattern	C abandoned UG workings	D-Wellfield	D-Extension	E-Wellfield	F-Wellfield	H-Wellfield	I-Wellfield	J-Wellfield	Other
I. Well Abandonment (Wellfields)																												
A. Sealing Costs	Inc in MU-15											Inc in MU-C											Inc in MU-D					
Total # of Wells per Wellfield	292	472	557	666	1414	0	486	327	731	584	333	88	0	445	128	8	392	452	0	0	286	0	403	1394	520	379	411	24
Production, Injection and Perimeter Well Average Depth (ft)	500	850	750	850	450	450	950	864	950	900	930	800	600	825	668	500	450	550	550	550	600	600	550	650	500	650	540	900
Well Abandonment (Sealing) Costs (\$/ft)	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75	\$2.75
Subtotal Sealing Costs per Wellfield	\$401,500	\$1,103,300	\$1,148,813	\$1,556,775	\$1,749,825	\$0	\$1,269,675	\$776,952	\$1,909,738	\$1,445,400	\$851,648	\$193,600	\$0	\$1,009,594	\$235,136	\$11,000	\$485,100	\$683,650	\$0	\$0	\$471,900	\$0	\$609,538	\$2,491,775	\$715,000	\$677,463	\$610,335	\$59,400
B. Casing Removal and Disposal Costs																												
Total # of Wells per Wellfield (In Service)	292	472	557	666	1414	0	486	327	731	584	333	88	0	445	128	8	392	452	0	0	286	0	403	1394	520	379	411	24
# of Previously Abandoned Wells Pending Release	124	101	93	94	136	0	143	12	92	7	0	19	0	0	0	54	118	189	0	0	89	0	275	345	53	54	33	0
Total # of Wells for Casing Removal and Disposal	416	573	650	760	1550	0	630	339	823	591	333	107	0	445	128	62	510	641	0	0	375	0	678	1739	573	433	444	24
Remove and Dispose Casing (\$/well)	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33	\$33
Subtotal Casing Removal and Disposal Costs per Wellfield	\$13,728	\$18,909	\$21,450	\$25,080	\$51,150	\$0	\$20,790	\$11,187	\$27,159	\$19,503	\$10,989	\$3,531	\$0	\$14,685	\$4,224	\$2,046	\$16,830	\$21,153	\$0	\$0	\$12,375	\$0	\$22,374	\$57,387	\$18,909	\$14,289	\$14,652	\$792
Subtotal Well Abandonment Costs per Wellfield	\$415,228	\$1,122,209	\$1,170,263	\$1,581,855	\$1,800,975	\$0	\$1,290,465	\$788,139	\$1,936,897	\$1,464,903	\$862,637	\$197,131	\$0	\$1,024,279	\$239,360	\$13,046	\$501,930	\$704,803	\$0	\$0	\$484,275	\$0	\$631,912	\$2,549,162	\$733,909	\$691,752	\$624,987	\$60,192
Total Well Abandonment Costs	\$20,890,307																											
II. Removal of Contaminated Soil Around Wells																												
# of Production and Injection Wells	245	419	514	574	1286	0	435	273	655	534	266	0	0	381	0	1	327	331	0	0	231	0	351	1220	436	345	349	
Removal of Contaminated Soil Around Wells (\$/well)	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68	\$87.68
Subtotal Contaminated Soil Removal/Disposal Costs per Wellfield	\$21,481	\$36,737	\$45,066	\$50,327	\$112,753	\$0	\$38,140	\$23,936	\$57,428	\$46,820	\$23,322	\$0	\$0	\$33,405	\$0	\$88	\$28,670	\$29,021	\$0	\$0	\$20,253	\$0	\$30,775	\$106,966	\$38,227	\$30,249	\$30,599	
Total Contaminated Soil Removal/Disposal Costs	\$804,261																											
III. Delineation Hole Abandonment																												
A. Subsurface Retained Abandonment Cost																												
# of Drill Holes Pending Bond Release																												
2012-13	689																											
2013-14	1022																											
2014-2015	776																											
2015-2016	375																											
2016-2017	8	MU-1 core holes																										
Total # of Drill Holes	2870																											
Mobilization Fee	\$1,100.00																											
Reclamation Cost per hole (grading/seedling, cap, site location)	\$77.00																											
40% of Reclamation Costs (GL 12 Appendix L, footnote 6)	\$30.80																											
Subtotal Subsurface Retained Abandonment Cost	\$89,496.00																											
B. Drill Hole Plug and Abandonment																												
# of Projected Drill Holes																												
2016-2017	0																											
Hole Abandonment (\$/ft)	\$3.30																											
Projected Drill Hole Abandonment, ave depth 860ft	\$0																											
C. Incidental Costs																												
Total # of Drill Holes	0																											
Mobilization Fee	\$0.00																											
Site Location (\$/hole)	\$11																											
Capping (\$/hole)	\$11																											
Small Site Grading and Seeding (\$/site)	\$55																											
Subtotal Incidental Costs	\$0																											
Total Delineation Hole Abandonment	\$89,496																											
IV. Waste Disposal Well Abandonment																												
A. Well Sealing																												
Total Depth of Well	10,097	9,996	9,600	9,900	9,550	9,950	9,206	14,412	9,500																			
Sealing Cost Per Foot	\$14.47	\$14.47	\$14.47	\$14.47	\$14.47	\$14.47	\$13.62	\$13.62	\$13.62																			
*Sealing costs per foot includes surface reclamation costs																												
Subtotal Plugging Costs per Well	\$146,113	\$144,652	\$138,921	\$143,263	\$138,198	\$143,986	\$125,386	\$196,291	\$129,390																			
B. Pump Dismantling and Decontamination																												
Number of Pumps	2	2	2	2	2	2	2	2	2																			
Pump Dismantling and Disposal Cost	\$2,896	\$2,896	\$2,896	\$2,896	\$2,896	\$2,896	\$2,810	\$2,810	\$2,810																			
Subtotal Dismantling and Decon Costs per Well	\$5,792.10	\$5,792.10	\$5,792.10	\$5,792.10	\$5,792.10	\$5,792.10	\$5,619.34	\$5,619.34	\$5,619.34																			
C. Tubing String Disposal (NRC-Licensed Facility)																												
Length of Tubing String (ft)	8,271	8,257	8,910	9,100	8,800	8,217	8,498	8,869	8,820																			
Diameter of Tubing String (inches)	2,875	2,875	2,875	2,875	2,875	2,875	2,875	2,875	2,875																			
Volume of Tubing String (ft³)	193	192	207	212	205	191	383	400	397																			
Transportation and Disposal Unit Cost (\$/ft³)	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32																			
Subtotal Tubing String Disposal Costs per Well	\$1,410	\$1,408	\$1,519	\$1,552	\$1,501	\$1,401	\$2,804	\$2,927	\$2,911																			
Subtotal Cost per Well	\$153,315	\$151,852	\$146,232	\$150,607	\$145,491	\$151,179	\$133,809	\$204,838	\$137,920																			
Total Waste Disposal Well Abandonment Costs	\$1,375,243																											
TOTAL WELL AND DRILL HOLE ABANDONMENT COSTS	\$23,159,308																											

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Wellfield Buildings and Equipment Removal and Disposal		Mine Unit 1	Mine Unit 2	Mine Unit 3/3 Ext	Mine Unit 4/4A	Mine Unit 15	Mine Unit 15A	Mine Unit K	K-North	Mine Unit 9	Mine Unit 10	Mine Unit 10-Ext	Mine Unit 27	Mine Unit 21	Mine Unit 7	A-Wellfield	B-Wellfield	C-Wellfield	C-22 Pattern	C abandoned UG workings	D-Wellfield	D-Extension	E-Wellfield	F-Wellfield	H-Wellfield	I-Wellfield	J-Wellfield	
	Total Chipped Volume (ft³)	2325	2153	1472	5918	19108	4028	2608	14057	10617	5748	2773	0	0	2494	3006	0	3781	0	0	7691	1045	0	20366	22977	7964	1057	
	Volume for Disposal Assuming Void Space (ft³)	2558	2368	1620	6509	21019	4431	2869	15463	11678	6323	3050	0	0	2743	3306	0	4159	0	0	8460	1150	0	22403	25275	8761	1162	
	<u>Transportation and Disposal Unit Cost (\$/ft³)</u>	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77
	Subtotal Trunkline Transport and Disposal Costs	\$14,759	\$13,663	\$9,347	\$37,555	\$121,275	\$25,566	\$16,553	\$89,218	\$67,379	\$36,482	\$17,598	\$0	\$0	\$15,826	\$19,075	\$0	\$23,996	\$0	\$0	\$48,812	\$6,635	\$0	\$129,260	\$145,831	\$50,549	\$6,704	
	Trunkline Decommissioning Costs per Wellfield	\$31,630	\$38,928	\$25,271	\$79,325	\$184,720	\$50,498	\$56,445	\$146,390	\$105,825	\$66,567	\$24,562	\$0	\$0	\$33,777	\$40,683	\$0	\$43,610	\$0	\$0	\$88,704	\$24,919	\$0	\$168,155	\$189,712	\$86,286	\$15,015	
	Total Trunkline Decommissioning Costs	\$1,501,022																										
IV. Wellhead Cover Removal		Mine Unit 1	Mine Unit 2	Mine Unit 3/3 Ext	Mine Unit 4/4A	Mine Unit 15	Mine Unit 15A	Mine Unit K	K-North	Mine Unit 9	Mine Unit 10	Mine Unit 10-Ext	Mine Unit 27	Mine Unit 21	Mine Unit 7	A-Wellfield	B-Wellfield	C-Wellfield	C-22 Pattern	C Haul Drifts	D-Wellfield	D-Extension	E-Wellfield	F-Wellfield	H-Wellfield	I-Wellfield	J-Wellfield	
	Number of Wells	245	419	514	574	1286	0	435	273	655	534	266	0	0	381	1	327	331	Inc in MU-C	Inc in MU-C	0	231	0	351	1220	436	345	349
	<u>Well Head Removal, Decontamination, and Disposal Cost</u>	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23	\$13.23
	Subtotal Wellhead Removal Costs	\$3,241	\$5,542	\$6,799	\$7,592	\$17,010	\$0	\$5,754	\$3,611	\$8,663	\$7,063	\$3,518	\$0	\$0	\$5,039	\$13	\$4,325	\$4,378	\$0	\$0	\$3,055	\$0	\$4,643	\$16,137	\$5,767	\$4,563	\$4,616	
	Total Well Head Removal and Disposal Costs	\$121,329																										
V. Header Houses (Includes Booster Stations)		Mine Unit 1	Mine Unit 2	Mine Unit 3/3 Ext	Mine Unit 4/4A	Mine Unit 15	Mine Unit 15A	Mine Unit K	K-North	Mine Unit 9	Mine Unit 10	Mine Unit 10-Ext	Mine Unit 27	Mine Unit 21	Mine Unit 7	A-Wellfield	B-Wellfield	C-Wellfield	C-22 Pattern	C Haul Drifts	D-Wellfield	D-Extension	E-Wellfield	F-Wellfield	H-Wellfield	I-Wellfield	J-Wellfield	
	Booster Houses	0	0	1	1	6	0	3	0	1	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	0
	Total Quantity	6	5	11	12	24	5	12	7	14	9	4	0	0	7	5	18	21	0	0	4	3	15	43	11	6	9	
	Average Header House Volume (ft³)	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	1600	
A.	Removal																											
	Total Volume (ft³)	9600	8000	17600	19200	38400	8000	19200	11200	22400	14400	6400	0	0	11200	8000	28800	33600	0	0	6400	4800	24000	68800	17600	9600	14400	
	<u>Demolition Cost</u>	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	\$0.308	
	Subtotal Building Demolition Costs	\$2,957	\$2,464	\$5,421	\$5,914	\$11,827	\$2,464	\$5,914	\$3,450	\$6,899	\$4,435	\$1,971	\$0	\$0	\$3,450	\$2,464	\$8,870	\$10,349	\$0	\$0	\$1,971	\$1,478	\$7,392	\$21,190	\$5,421	\$2,957	\$4,435	
B.	Survey and Decontamination																											
	<u>Cost per Header House</u>	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	\$694	
	Subtotal Survey and Decontamination Costs	\$4,162	\$3,469	\$7,631	\$8,325	\$16,650	\$3,469	\$8,325	\$4,856	\$9,712	\$6,244	\$2,775	\$0	\$0	\$4,856	\$3,469	\$12,487	\$14,569	\$0	\$0	\$2,775	\$2,081	\$10,406	\$29,831	\$7,631	\$4,162	\$6,244	
C.	Disposal																											
	Total Volume for Disposal - Incl. 33% Factor (cy)	117	98	215	235	469	98	235	137	274	176	78	0	0	137	98	352	411	0	0	78	59	293	841	215	117	176	
	Volume for Disposal Assuming Void Space (cy)	129	108	237	258	516	108	258	151	301	194	86	0	0	151	108	387	452	0	0	86	65	323	925	237	129	194	
	<u>Disposal Cost, Landfill (cy)</u>	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	\$42.17	
	Subtotal Off-Site County Landfill Disposal Costs	\$5,440	\$4,554	\$9,994	\$10,879	\$21,758	\$4,554	\$10,879	\$6,367	\$12,692	\$8,180	\$3,626	\$0	\$0	\$6,367	\$4,554	\$16,319	\$19,059	\$0	\$0	\$3,626	\$2,741	\$13,620	\$39,004	\$9,994	\$5,440	\$8,180	
	Headerhouse Soil Removal Volume (assumes 10'Wx20'Lx2.5'D)	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	
	<u>11e.(2) Disposal Cost (ft³)</u>	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	\$5.80	
	Subtotal 11e.(2) Disposal Costs	\$17,414	\$14,512	\$31,926	\$34,829	\$69,658	\$14,512	\$34,829	\$20,317	\$40,634	\$26,122	\$11,610	\$0	\$0	\$20,317	\$14,512	\$52,243	\$60,951	\$0	\$0	\$11,610	\$8,707	\$43,536	\$124,804	\$31,926	\$17,414	\$26,122	
	Subtotal Header House Removal and Disposal Costs per Wellfield	\$29,973	\$24,999	\$54,972	\$59,947	\$119,893	\$24,999	\$59,947	\$34,990	\$69,937	\$44,981	\$19,982	\$0	\$0	\$34,990	\$24,999	\$89,919	\$104,928	\$0	\$0	\$19,982	\$15,007	\$74,954	\$214,829	\$54,972	\$29,973	\$44,981	
	Total Header House Removal and Disposal Costs	\$1,254,154																										
	TOTAL REMOVAL AND DISPOSAL COSTS PER WELLFIELD	\$217,680	\$215,407	\$353,520	\$447,092	\$792,922	\$194,883	\$367,902	\$370,903	\$540,823	\$368,539	\$140,319	\$4,483	\$0	\$265,280	\$185,341	\$535,708	\$646,171	\$0	\$0	\$218,493	\$111,556	\$452,473	\$1,484,106	\$506,319	\$280,518	\$294,109	
	TOTAL WELLFIELD BUILDINGS AND EQUIPMENT REMOVAL	\$8,994,547																										

**Cameco Resources
Smith Ranch Highland Uranium Project
2018-2019 Surety Estimate Update**

Wellfield and Satellite Surface Reclamation			Mine Unit 1	Mine Unit 2	Mine Unit 3/ 3 Ext	Mine Unit 4/4A	Mine Unit 15	Mine Unit 15A	Mine Unit K	K-North	Mine Unit 9	Mine Unit 10	Mine Unit 10- Ext	Mine Unit 27	Mine Unit 21	Mine Unit 7	Mine Unit-A/B	Mine Unit-C	Mine Unit-D	Mine Unit-E	Mine Unit-F	Mine Unit-H	D-Extension	Mine Unit-I	Mine Unit-J
I. Wellfield Pattern Area, and Road Reclamation																									
Area (acres)			50.9	104.3	99.8	125.1	117.3	44.5	83.3	65.4	88.7	99.5	15.8	0.0	0.0	43.9	37.9	63.9	14.9	44.6	157.6	56.1	9.3	52.7	52.7
*Assume wellfield pattern area X 2																									
Discing/Seeding Unit Cost (\$/acre)			\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330
Subtotal Pattern Area and Road Reclamation Costs			\$16,790	\$34,412	\$32,947	\$41,290	\$38,702	\$14,698	\$27,482	\$21,589	\$29,264	\$32,842	\$5,214	\$0	\$0	\$14,494	\$12,500	\$21,094	\$4,924	\$14,725	\$52,001	\$18,526	\$3,056	\$17,378	\$17,404
Total Wellfield Area Reclamation Costs			\$471,332																						
II. Wellfield Road Reclamation																									
Road Construction																									
Length of Wellfield Roads (1000 ft)			6.2	10.1	11.2	92.4	19.8	13.6	9.6	2.8	12.7	16.2	2.9	0	0	16.2	12.8	11.3	2.4	13.3	18	15.7	5	5	5
Wellfield Road Reclamation Unit Cost (\$/1000 ft)			\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016	\$1,016
Subtotal Wellfield Road Reclamation Costs			\$6,300	\$10,262	\$11,380	\$93,886	\$20,118	\$13,819	\$9,754	\$2,845	\$12,904	\$16,461	\$2,947	\$0	\$0	\$16,461	\$13,006	\$11,482	\$2,439	\$13,514	\$18,289	\$15,952	\$5,080	\$5,080	\$5,080
Total Wellfield Road Reclamation Costs			\$307,059																						
III. Laydown area reclamation																									
Area of Disturbance (acres)			1	1	2	2	1	1	2	2	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1
Average Depth of Stripped Topsoil (ft)			0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67	0.67
Surface Grade: Level Ground																									
Average Length of Topsoil Haul (ft)			500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
A. Ripping Overburden with Dozer																									
Ripping Cost (per acre)			\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911
Subtotal Ripping Costs			\$911	\$911	\$1,823	\$1,823	\$911	\$911	\$1,367	\$1,367	\$911	\$911	\$911	\$0	\$0	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911	\$911
B. Topsoil Application with Scraper																									
Volume of Topsoil Removed (cy)			1,081	1,081	2,162	2,162	1,081	1,081	1,621	1,621	1,081	1,081	1,081	0	0	1,081	1,081	1,081	1,081	1,081	1,081	1,081	1,081	1,081	1,081
Moving Materials (0% Grade)			\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89	\$0.89
Subtotal Topsoil Application Costs			\$960	\$960	\$1,919	\$1,919	\$960	\$960	\$1,439	\$1,439	\$960	\$960	\$960	\$0	\$0	\$960	\$960	\$960	\$960	\$960	\$960	\$960	\$960	\$960	\$960
C. Discing and Seeding																									
Discing/Seeding Unit Cost (\$/acre)			\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330
Subtotal Discing/Seeding Costs			\$330	\$330	\$660	\$660	\$330	\$330	\$495	\$495	\$330	\$330	\$330	\$0	\$0	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330	\$330
Subtotal Surface Reclamation Costs per WF laydown area			\$2,201	\$2,201	\$4,402	\$4,402	\$2,201	\$2,201	\$3,301	\$3,301	\$2,201	\$2,201	\$2,201	\$0	\$0	\$2,201	\$2,201	\$2,201	\$2,201	\$2,201	\$2,201	\$2,201	\$2,201	\$2,201	\$2,201
Total Wellfield Laydown Area Reclamation Costs			\$52,823														\$19,809								
SUBTOTAL SURFACE RECLAMATION COSTS PER WELLFIELD			\$25,291	\$46,875	\$48,729	\$139,578	\$61,021	\$30,718	\$40,537	\$27,735	\$44,369	\$51,504	\$10,362	\$0	\$0	\$33,156	\$27,707	\$34,777	\$9,564	\$30,440	\$72,491	\$36,679	\$10,337	\$24,659	\$24,685
TOTAL WELLFIELD SURFACE RECLAMATION COSTS			\$831,214																						
IV. Fence Removal																									
Length of Fencing (ft)			16,487	11,580	7,388	26,009	7,074	0	23,271	23,271	21,887	21,595	9,661	19,732	0	8,674	13,720	18,694	14,060	18,426	29,540	9,680	0	9,977	10,000
Fence Removal Costs			\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35	\$0.35
Subtotal Fence Removal Costs per Wellfield			\$5,803	\$4,076	\$2,601	\$9,155	\$2,490	\$0	\$8,191	\$8,191	\$7,704	\$7,601	\$3,401	\$6,946	\$0	\$3,053	\$4,829	\$6,580	\$4,949	\$6,486	\$10,398	\$3,407	\$0	\$3,512	\$3,520
Total Fence Removal Costs			\$112,896																						
V. Satellite Area Reclamation																									
Assumptions:																									
Area of Disturbance (acres)			2.70	5.00	5.00	1.00	3.00	2.50	2.00																
Average Depth of Stripped Topsoil (ft)			1	1	1	1	0.67	0.67	0.67																
Surface Grade: Level Ground																									
Average Length of Topsoil Haul (ft)			1000	500	500	1000	500	500	500																
A. Ripping Overburden with Dozer																									
Ripping Cost (per acre)			\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28	\$911.28
Subtotal Ripping Costs			\$2,460	\$4,556	\$4,556	\$911	\$2,734	\$2,278	\$1,823																
B. Topsoil Application with Scraper																									
Volume of Topsoil Removed (cy)			4356	8067	8067	1613	3243	2702	2162																
Moving Materials (0% Grade)			\$1.06	\$1.06	\$1.06	\$1.06	\$1.06	\$1.06	\$1.06																
Subtotal Topsoil Application Costs			\$4,619	\$8,554	\$8,554	\$1,711	\$3,439	\$2,866	\$2,292																
C. Discing and Seeding																									
Discing/Seeding Unit Cost (\$/acre)			\$330	\$330	\$330	\$330	\$330	\$330	\$330																
Subtotal Discing/Seeding Costs			\$891	\$1,650	\$1,650	\$330	\$990	\$825	\$660																
Subtotal Surface Reclamation Costs per Location			\$7,970	\$14,760	\$14,760	\$2,952	\$7,163	\$5,969	\$4,775																
Total Satellite Building Area Reclamation Costs			\$58,349																						
TOTAL WELLFIELD AND SATELLITE SURFACE RECLAMATION COSTS			\$1,002,459																						

Cameco Resources
Smith Ranch Highland Uranium Project
2018-2019 Surety Estimate Update

		CPP IX Plant	Central Plant	Dryer Building	Satellite SR-1	Pilot ISL	Pumphouse	Bone Yard	Satellite SR-2	Satellite Reynolds	CPP Lab Addition	CPP Control Room / Change Rooms	CPP Lab	CPP Maintenance Shop Addition	Sodium Hydroxide Addition	HUP Plant	Satellite No. 1	Satellite No. 2	Satellite No. 3	Selenium Plant
Equipment Removal and Loading																				
I. Removal and Loading Costs																				
A. Tankage																				
Number of Tanks		23	36	2	23	15	3	3	10	0	0	0	0	0	1	39	8	14	18	9
Volume of Tank Construction Material (ft³)		900	1340	300	920	260	164	164	397	0	0	0	0	0	32.5	1629	162	290	397	290
Tank Removal Cost		\$133.60	\$133.60	\$133.60	\$133.60	\$133.60	\$133.60	\$133.60	\$133.60	\$133.60	\$133.60	\$133.60	\$133.60	\$133.60	\$133.60	\$133.60	\$133.60	\$133.60	\$133.60	\$133.60
Subtotal Tankage Removal and Loading Costs		\$120,242	\$179,027	\$40,081	\$122,914	\$34,737	\$21,911	\$21,911	\$52,973	\$0	\$0	\$0	\$0	\$0	\$4,342	\$217,638	\$21,644	\$38,745	\$53,040	\$38,745
B. PVC/Steel Pipe																				
PVC Pipe Footage		4800	6000	350	7000	1500	0	0	4000	0	100	50	100	0	0	12996	1000	4000	4000	4000
Average PVC Pipe Diameter (inches)		3	3	2	3	3	3	0	3	3	2	2	2	0	0	3	3	3	3	3
Shredded PVC Pipe Volume Reduction (ft³/ft)		0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023	0.023
Volume of Shredded PVC Pipe (ft³)		112	140	8	163	35	0	0	93	0	2	1	2	0	0	303	23	93	93	93
Steel Pipe Footage		1100	1,000	300	250	0	80	0	0	25	50	25	15	25	645	0	0	0	0	0
Average Steel Pipe Diameter (inches)		6	0	0	6	0	8	0	0	0.5	0.5	0.5	0.5	0.5	0	0	0	0	0	0
Volume (ft³)		216	0	0	49	0	30	0	0	1	1	1	1	1	15	0	0	0	0	0
Pipe Removal Cost		\$8.67	\$8.67	\$8.67	\$8.67	\$8.67	\$8.67	\$8.67	\$8.67	\$8.67	\$8.67	\$8.67	\$8.67	\$8.67	\$8.67	\$8.67	\$8.67	\$8.67	\$8.67	\$8.67
Subtotal PVC/Steel Pipe Removal and Loading Costs		\$51,176	\$60,717	\$5,638	\$62,885	\$13,011	\$694	\$0	\$34,695	\$0	\$1,084	\$867	\$1,084	\$130	\$217	\$118,320	\$8,674	\$34,695	\$34,695	\$34,695
C. Pumps																				
Number of Pumps		23	67	6	23	12	2	0	13	0	0	0	0	0	2	52	10	14	13	14
Average Volume (ft³/pump)		4.93	4.93	0	4.93	4.93	4.93	4.93	4.93	4.93	4.93	4.93	4.93	4.93	4.93	4.93	4.93	4.93	4.93	4.93
Volume of Pumps (ft³)		113	330	0	113	59	10	0	64	0	0	0	0	0	10	256.36	49.3	69.02	64.09	69.02
Pump Removal Cost		\$104	\$104	\$104	\$104	\$104	\$104	\$104	\$104	\$104	\$104	\$104	\$104	\$104	\$104	\$104	\$104	\$104	\$104	\$104
Subtotal Pump Removal and Loading Costs		\$11,708.45	\$34,192.81	\$0.00	\$11,708.45	\$6,113.26	\$1,036.15	\$0.00	\$6,631.33	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,036.15	\$26,562.64	\$5,108.20	\$7,151.48	\$6,640.66	\$7,151.48
D. Dryer																				
Dryer Volume (ft³)		0	0	1,000	0	0	0	0	0	0	0	0	0	0	0	885	0	0	0	0
Dryer Removal Costs		\$15.26	\$15.26	\$15.26	\$15.26	\$15.26	\$15.26	\$15.26	\$15.26	\$15.26	\$15.26	\$15.26	\$15.26	\$15.26	\$15.26	\$15.26	\$15.26	\$15.26	\$15.26	\$15.26
Subtotal Dryer Dismantling and Loading Cost		\$0	\$0	\$15,258	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$13,503	\$0	\$0	\$0	\$0
E. RO Units																				
Number of RO Units (500 gpm)																				
Current		1	0	0	1	0	0	0	0.25	0	0	0	0	0	0	0	0	2.5	0	0
Planned		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.5	0
Number of Degasser Units																				
Current		0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Planned		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
RO/Degasser Average Volume (ft³/Unit)		250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250	250
RO and Degasser Removal Cost		\$5.06	\$5.06	\$5.06	\$5.06	\$5.06	\$5.06	\$5.06	\$5.06	\$5.06	\$5.06	\$5.06	\$5.06	\$5.06	\$5.06	\$5.06	\$5.06	\$5.06	\$5.06	\$5.06
Subtotal RO Unit Removal and Loading Costs		\$1,263.76	\$0.00	\$0.00	\$2,527.52	\$0.00	\$0.00	\$0.00	\$315.94	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3,159.39	\$631.88	\$1,263.76
Subtotal Equipment Removal and Loading Costs per Facility		\$184,390	\$273,937	\$60,976	\$200,035	\$53,861	\$23,641	\$21,911	\$94,616	\$0	\$1,084	\$867	\$1,084	\$130	\$5,595	\$376,024	\$35,426	\$83,751	\$95,008	\$81,855
Total Equipment Removal and Loading Costs		\$1,594,190																		
II. Transportation and Disposal Costs (NRC-Licensed Facility)																				
A. Tankage																				
Volume of Tank Construction Material (ft³)		900	1340	300	920	260	164	164	397	0	0	0	0	0	33	0	162	290	397	290
Volume for Disposal Assuming Void Space (ft³)		990	1474	330	1012	286	180	180	436	0	0	0	0	0	36	0	178	319	437	319
Transportation and Disposal Unit Cost (\$/ft³)		\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32
Subtotal Tankage Transportation and Disposal Costs		\$7,250	\$10,795	\$2,417	\$7,411	\$2,095	\$1,318	\$1,318	\$3,193	\$0	\$0	\$0	\$0	\$0	\$264	\$0	\$1,304	\$2,336	\$3,200	\$2,336
B. PVC / Steel Pipe																				
Volume of Shredded PVC Pipe (ft³)		111.8	139.7	8.2	163.0	34.9	0.0	0.0	93.1	0.0	2.3	1.2	2.3	0.0	0.0	0	23	93	93	93
Volume for Disposal Assuming Void Space (ft³)		123	154	9	179	38	0	0	102	0	3	1	3	0	0	0	25	102	102	102
Volume of Steel Pipe (ft³)		216	0	0	49.075	0	30	0	0	0	1	1	1	1	1	0	0	0	0	0
Volume for Disposal Assuming Void Space (ft³)		238	0	0	54	0	33	0	0	0	1	1	1	1	1	0	0	0	0	0
Transportation and Disposal Unit Cost (\$/ft³)		\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77	\$5.77
Subtotal PVC Pipe Transportation and Disposal Costs		\$2,083	\$889	\$52	\$1,344	\$219	\$190	\$0	\$589	\$0	\$23	\$12	\$23	\$6	\$6	\$0	\$144	\$589	\$589	\$589
C. Pumps																				
Volume of Pumps (ft³)		113	330	0	113	59	10	0	64	0	0	0	0	0	10	0	49	69	64	69
Volume for Disposal Assuming Void Space (ft³)		124	363	0	124	65	11	0	70	0	0	0	0	0	11	0	54	76	70	76
Transportation and Disposal Unit Cost (\$/ft³)		\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32
Subtotal Pump Transportation and Disposal Costs		\$908	\$2,658	\$0	\$908	\$476	\$81	\$0	\$513	\$0	\$23	\$12	\$23	\$6	\$6	\$0	\$395	\$557	\$513	\$557
D. Dryer																				
Dryer Volume (ft³)		0	0	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Volume for Disposal Assuming Dryer Remains Intact (ft³)		0	0	1,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Transportation and Disposal Unit Cost (\$/ft³)		\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32
Total Dryer Transportation and Disposal Costs		\$0	\$0	\$7,323	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
E. RO/Degasser Units																				
Volume of RO Units (ft³)		250	0	0	500	0	0	0	62.5	0	0	0	0	0	0	0	0	625	125	250
Volume for Disposal Assuming Volume Reduction (ft³)		275	0	0	550	0	0	0	68.75	0	0	0	0	0	0	0	0	687.5	137.5	275
Transportation and Disposal Unit Costs		\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32	\$7.32
Subtotal RO Unit Transportation and Disposal Costs		\$2,014	\$0	\$0	\$4,028	\$0	\$0	\$0	\$503	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$5,035	\$1,007	\$2,014
Subtotal Equipment Transportation and Disposal Costs per Facility		\$12,255	\$14,342	\$9,792	\$13,691	\$2,790	\$1,589	\$1,318	\$4,798	\$0	\$23	\$12	\$23	\$6	\$351	\$0	\$1,843	\$8,517	\$5,309	\$5,496
Total Equipment Transportation and Disposal Costs		\$82,155																		
III. Health and Safety Costs																				
Radiation Safety costs		Accounted for on GWR-SITE																		
Total Health and Safety Costs																				
SUBTOTAL EQUIPMENT REMOVAL AND DISPOSAL COSTS PER FACILITY		\$196,645	\$288,279	\$70,768	\$213,726	\$56,651	\$25,230	\$23,229	\$99,414	\$0	\$1,107	\$879	\$1,107	\$136	\$5,946	\$376,024	\$37,269	\$92,268	\$100,317	\$87,351
TOTAL EQUIPMENT REMOVAL AND DISPOSAL COSTS		\$1,676,345																		

**Cameco Resources
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Miscellaneous Reclamation															
I. CPP/Office Area/Pilot Plant/Maint. Shop/Chem. Storage/Yard Reclamation															
Concrete Pad= 0.3 acres															
Total Area = 10.57 acres															
A. Concrete Pad															
Area of Concrete Pad (ft ²) 13068															
Demolition Cost \$0.84															
Average Thickness of Concrete Floor (ft) 0.50															
Volume of Concrete Floor (ft ³) 6,534															
Volume of Concrete Floor (cy) 242															
Concrete Disposal On Site (\$/cy) \$9.27															
Subtotal Concrete Pad Demolition and Disposal Costs \$13,198															
B. Gravel Road Base Removal															
Average haul distance (ft) 1000															
Gravel Road Base Area (acres) 8.0															
Average Road Base Depth (ft) 0.5															
Volume of Road Base (cy) 6453															
Moving Materials \$1.06															
Subtotal Gravel Road Base Removal Costs \$6,843															
C. Ripping Overburden with Dozer															
Overburden Surface Area (acres) 10.6															
Ripping Cost (per acre) \$911.28															
Subtotal Ripping Overburden Costs \$9,632															
D. Topsoil Application															
Area of surface disturbance (ft ²) 460426															
Average thickness of topsoil (ft) 0.5															
Average haul distance (ft) 2000															
Surface grade (%)															
Volume of Topsoil (cy) 8,526															
Moving Materials \$1.06															
Subtotal Topsoil Application Costs \$9,041															
E. Discing/Seeding															
Surface Area (acres) 10.57															
Discing/Seeding Unit Cost (\$/acre) \$330															
Subtotal Discing/Seeding Costs \$3,488															
Total CPP/Office/Yard Area Reclamation \$42,202															
II. CPP/Office Area Reclamation (Highland)															
Concrete Pad= 0.3 acres															
Total Area = 10 acres															
A. Asphalt															
Area of Asphalt (acres) 3.4															
Ripping Cost (per acre) \$731.30															
Average Thickness (ft) 0.50															
Moving Materials (0% Grade) \$0.888															
Volume of Asphalt (cy) 2,743															
Disposal Cost \$42.17															
Subtotal Asphalt Ripping and Disposal Costs \$129,715															
B. Ripping Overburden with Dozer															
Overburden Surface Area (acres) 10.6															
Ripping Cost (per acre) \$911.28															
Subtotal Ripping Overburden Costs \$9,632															
C. Topsoil Application															
Area of surface disturbance (ft ²) 130680															
Average thickness of topsoil (ft) 0.5															
Average haul distance (ft) 2000															
Surface grade (%) 0%															
Volume of Topsoil (cy) 2,420															
Moving Materials (0% Grade) \$1.42															
Subtotal Topsoil Application Costs \$3,445															
D. Discing/Seeding															
Surface Area (acres) 13															
Discing/Seeding Unit Cost (\$/acre) \$330															
Subtotal Discing/Seeding Costs \$4,290															
\$147,082															
III. Access Road Reclamation (includes culverts)															
SR CPP Access Rd. CPP to SAT 3 Access to WF MU-15 Access SR2 Access Reynolds Access Access SRHUP 7 Access SRHUP 10 from MU-4 Highland CPP/Office Area Sat No. 1 Sat No. 3 Connecting Road Sat No. 2 to Rancher Rd															
A. Assumptions															
Surface grade 1% 5% 5% 0% 5% 0% 0% 0% 0% 5% 0% 0% 0% 0%															
Length of Road (ft) 5,173 15,827 15,557 10,560 8,500 2,500 1,500 2,500 13,200 15,840 5,280 10,560 2,640															
Width of Road (ft) 40 30 14 30 30 30 20 20 25 30 30 30 10															
Area of road (acres) 4.8 10.9 5.0 7.3 5.9 1.7 0.7 1.1 7.6 10.9 3.6 7.3 0.6															
B. Ripping and Hauling Asphalt															
Assumptions															
Average Haul Distance (feet) 500 500 500 500 500 500 500 500 5500 0 0 0 0															
Average Thickness of Asphalt (ft) 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5															
Ripping Cost (per acre) \$731.30 \$731.30 \$731.30 \$731.30 \$731.30 \$731.30 \$731.30 \$731.30 \$731.30 \$731.30 \$731.30 \$731.30 \$731.30															
Volume of Asphalt (cy) 3832 8793 4033 5867 4722 1389 556 926 6111 8800 2933 5867 489															
Moving Materials \$1.42 \$1.42 \$1.42 \$1.42 \$1.42 \$1.42 \$1.42 \$1.42 \$1.42 \$1.42 \$1.42 \$1.42 \$1.42															
Subtotal Ripping and Hauling Asphalt \$8,928 \$20,487 \$9,397 \$13,669 \$11,003 \$3,236 \$1,294 \$2,157 \$14,239 \$20,504 \$6,835 \$13,669 \$1,139															
B. Gravel Road Base Removal															
Average haul distance (ft) 1000 1000 1000 1000 1000 1000 1000 1000 0 1000 1000 1000 0															
Gravel Road Base Width (ft) 30 20 10 20 20 20 20 20 0 14 14 14 0															
Gravel Road Base Area (acres) 3.56 7.27 3.57 4.85 3.90 1.15 0.69 1.15 0.00 5.09 1.70 3.39 0.00															
Average Road Base Depth (ft) 0.75 0.5 0.5 0.5 0.5 0 0 0 0 0 0 0 0															
Volume of Road Base (cy) 4311 5862 2881 3911 3148 0 0 0 0 0 0 0 0															
Moving Materials \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06															
Subtotal Gravel Road Base Removal Costs \$4,571 \$6,216 \$3,055 \$4,147 \$3,338 \$0 \$0 \$0 \$0 \$0 \$0 \$0 \$0															
C. Ripping Overburden with Dozer															
Overburden Surface Area (acres) 4.8 10.9 5.0 7.3 5.9 1.7 0.7 1.1 0.0 10.9 3.6 7.3 0.6															
Ripping Cost (per Acre) \$911.28 \$911.28 \$911.28 \$911.28 \$911.28 \$911.28 \$911.28 \$911.28 \$911.28 \$911.28 \$911.28 \$911.28 \$911.28															
Subtotal Ripping Overburden Costs \$4,329 \$9,933 \$4,556 \$6,628 \$5,335 \$628 \$1,046 \$0 \$0 \$9,941 \$3,314 \$6,628 \$552															
D. Topsoil Application															
Average haul distance (ft) 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500 1500															
Topsoil Surface Area (ft ²) 206920 474810 217798 316800 25000 75000 30000 50000 330000 475200 158400 316800 26400															
Depth of Topsoil (ft) 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5															
Volume of Topsoil (cy) 3832 8793 4033 5867 4722 1389 556 926 6111 8800 2933 5867 489															
Moving Materials \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06 \$1.06															
Subtotal Topsoil Application Costs \$4,063 \$9,324 \$4,277 \$6,221 \$5,007 \$1,473 \$589 \$982 \$6,480 \$9,332 \$3,111 \$6,221 \$518															
E. Discing/Seeding															
Surface Area (acres) 4.8 10.9 5.0 7.3 5.9 1.7 0.7 1.1 7.6 10.9 3.6 7.3 0.6															
Discing/Seeding Unit Cost (\$/acre) \$330 \$330 \$330 \$330 \$330 \$330 \$330 \$330 \$330 \$330 \$330 \$330 \$330															
Subtotal Discing/Seeding Costs \$1,584 \$3,597 \$1,650 \$2,400 \$1,952 \$568 \$227 \$379 \$2,500 \$3,600 \$1,200 \$2,400 \$200															
Multiplier for Projected Additions 0 0 1 0 0 0 0 0 0 0 0 0 0															
Subtotal Reclamation Costs per Access Road \$23,459 \$49,557 \$45,871 \$33,065 \$26,615 \$6,846 \$2,738 \$4,564 \$23,219 \$43,377 \$14,460 \$28,918 \$2,409															
Total Access Road Reclamation Costs \$305,098															
IV. Trunk Lines															
Trunk Line #1 (CPP) Trunk Line #2 (CPP) Trunk Line #3 (MU- Included in MU 15) Trunk Line #4 (O- Trunk Line (SR- WF 4 to CPP - Waste Transfer SR2 Waste Transfer SR1 SR-1 to Sat 2 SAT2 to SAT1 / Mortu SAT3 to SAT2 PSR H-WF Rest. Bypass Vollman WW Pipeline SRHUP 9 WW Pipelin SAT3 to SAT2 Pipeline to Irrigator 1 SAT2 to PSR2 SRHUP 7 to Rey R. DDW															
Length of Trench (ft) 7750 8500 0 5500 2500 10000 12000 7000 39268 24000 22000 2200 13000 4000 10950 24000 5600 21570															
A. Removal and Loading															

Cameco Resources
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Miscellaneous Reclamation			
Subtotal Soil Sampling and Monitoring Costs	\$3,350	\$3,350	
B. Leachate Collection System Removal Costs	\$5,000	\$0	
C. Topsoil/Subsoil Application			
Assumptions:			
Average haul distance (ft)	1000	150	
Surface grade (%)	0	0	
Volume of Topsoil/Subsoil (cy)	83000	74000	
Topsoil/Subsoil Unit Cost per WDEQ Guideline No.12, App.C (\$/cy)	\$1,060	\$0,000	
Topsoil/Subsoil Unit Cost per WDEQ Guideline No.12, App.E (\$/cy)	\$0,00	\$0,29	
Subtotal Topsoil/Subsoil Application Costs per Reservoir	\$88,013	\$21,571	
D. Discing/Seeding			
Surface Area (acres)	6	32	
Discing/Seeding Unit Cost (\$/acre)	\$330	\$330	
Subtotal Discing/Seeding Costs	\$1,980	\$10,560	
E. Well Abandonment			
Number of Wells	5	27	18 existing plus 9 planned
Average Depth (ft)	60	100	
Abandonment Cost	\$2,75	\$2,75	
Small Site Grading and Seeding (~1000 sq. feet)	\$55	\$55	
Remove and Dispose Casing (top few feet)	\$33	\$33	
Monitoring Well Concrete Pedestal Disposal	\$110	\$110	
Subtotal Well Abandonment Cost	\$1,815	\$12,771	
Subtotal Reclamation Costs per Reservoir	\$100,158	\$48,252	
Total Purge Storage Reservoir Reclamation Costs	\$148,410		
VI. Irrigation Area Reclamation	Irrigator No. 1A	Irrigator No. 2	
A. Irrigation Equipment Removal Costs	\$2,000	\$2,000	
B. Plowing			
Assumptions:			
Plowing Unit Cost (\$/acre)	\$100	\$100	
Irrigation Area (acres)	55	106	
Number of Cultivations	2	2	
Subtotal Plowing Costs	\$11,000	\$21,200	
C. Discing/Seeding			
Discing/Seeding Unit Cost (\$/acre)	\$330	\$330	
Subtotal Discing/Seeding Costs	\$18,150	\$34,980	
Subtotal Reclamation Costs per Irrigation Area	\$31,150	\$58,180	
Total Irrigation Area Reclamation Costs	\$89,330		
VII. Potential Subsoil Mitigation for Purge Storage Reservoirs	PSR-1	PSR-2	
A. Subsoil Removal and Loading			
Surface Area (acres)	6	32	
Depth (inches)	6	6	
Volume for Removal (cy)	4,840	25,813	
Liner and Subsoil Removal Cost	\$4,33	\$4,02	
Subtotal Removal and Loading	\$20,939	\$103,723	
B. Subsoil Transportation and Disposal to 11e(2) Facility			
Disposal Cost	\$156,73	\$156,73	
Subtotal Disposal Cost	\$758,573	\$4,045,724	
Subtotal Reclamation Costs per Reservoir	\$779,512	\$4,149,447	
Total Purge Storage Reservoir Mitigation Costs	\$4,928,959		
VIII. Revegetation of Excon Reclaimed Lands			
Surface Area (acres)	217		
Assumptions:			
10% Reseeding potential areas of erosion (\$/acre) 0.10 x 330	\$33		
Total Excon Reclaimed Lands Revegetation Costs	\$716		
IX. Potential Ground Water Mitigation for Casing Leak Investigation and PSR-2			
A. PSR-2 Investigation Costs (analytical and possible new well installation)	\$200,000	*\$200/sample x 6 wells, quarterly over 35 yrs, plus 9 shallow well installations @ \$3500/well.	
B. Ground Water Pump and Treat Costs			
Area (ft2)	1,000,000	*PSR-2 recovery at 3 wells.	
Sand Thickness (ft)	20		
Porosity (%)	20%		
Affected ground water (kgal)	29,920		
Wellfield Pumping Cost	\$0,21		
Reverse Osmosis Unit Cost (\$/kgal)	\$0,62		
Bleed to Deep Disposal Well (%)	25%		
Brine Volume for Disposal	7,480		
DDW Disposal Cost (\$/kgal)	\$1,18		
Permeate Volume for Re-Use	22,440		
Satellite Pumping Cost (\$/kgal)	\$0,73		
Subtotal Ground Water Pump and Treat Costs	\$49,907		
C. Well Abandonment (CLI Shallow Wells)			
# of Monitoring Wells (Current)	142		
Average Well Depth (ft)	156		
# of Monitoring Wells (Planned)	0		
Average Well Depth (ft)	250		
Total Well Depth (ft)	22,152		
Well Abandonment (\$/ft)	\$2,75		
Small Site Grading and Seeding (\$/site)	\$55,00		
Remove and Dispose Casing (\$/well)	\$33,00		
Concrete Pedestal Disposal (\$/each)	\$110,00		
Subtotal Well Abandonment Costs	\$89,034		
Total CLI and PSR-2 Ground Water Mitigation Costs	\$338,941		
X. Subsurface Release of Solutions Decommissioning Costs			
Number of trunkline failures	18		
Average cubic yards of contaminated soil estimated per event	8		
Removal cost of soil	\$160		
Subtotal of subsurface decommissioning costs	\$23,013.16		
XI. Surface releases of Solutions Decommissioning Costs			
Total surface acreage impacted	26		
Estimated % of soil contaminated	20%		
Cubic yards of soil for removal assuming 3" depth	2063		
Removal cost of soil per cy	\$160		
Subtotal of surface decommissioning costs	\$329,767.89		
TOTAL MISCELLANEOUS RECLAMATION COSTS Highland	\$7,659,355		

**Cameco Resources
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	Mine Unit-1	Mine Unit-2	Mine Unit-3/ 3 Ext	Mine Unit- 4/4A	Mine Unit-15	Mine Unit-15A	Mine Unit K	Mine Unit K-North	Mine Unit 9	Mine Unit 10	10-Extension	Mine Unit 27	Mine Unit 21	Mine Unit 7	Mine Unit 8	A-Wellfield	B-Wellfield	C-Wellfield	C-22 Pattern	C abandoned UG workings	D-Wellfield	D-Extension	E-Wellfield	F-Wellfield	H-Wellfield	I-Wellfield	J-Wellfield
Pore Volume Calculations																											
Flare Factor	1.56	1.05	1.16	1.14	1.48	1.68	1.21	1.30	1.52	1.45	1.45	1.82	0	1.74	0	4.13	4.13	2.46	2	0	2.88	2.78	2.9	2.1	2.3	1.83	1.92
Wellfield Area (ft2)	1,108,034	2,271,426	2,174,453	2,725,270	2,554,278	970,206	1,813,644	1,424,902	1,931,533	2,167,666	343,985	641,495	0	956,559	0	148600	676550	1067056	325000	0	326750	201509	971941	3431990	1222583	1146959	1148680
Wellfield Area (acres)	25.44	52.14	49.92	62.56	58.64	22.27	41.64	32.71	44.34	49.76	7.90	0.00	0.00	21.96	0.00	3.41	15.53	24.5	7.46	0	7.5	4.63	22.31	78.79	28.07	26.33	26.37
Affected Ore Zone Area (ft2)	1,108,034	2,271,426	2,174,453	2,725,270	2,554,278	970,206	1,813,644	1,424,902	1,931,533	2,167,666	343,985	641,495	0	956,559	0	148600	676550	1067056	325000	0	326750	201509	971941	3431990	1222583	1146959	1148680
Avg. Completed Thickness	18.0	23.0	30.0	19.0	18.0	16.0	19.0	21.0	23.0	30.0	30.0	23.0	0.0	20.0	20.0	15	15	16	15	0	17	17	16	16	16	20	15
Porosity	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27	0.27
Affected Volume (ft3)	31,113,595	54,854,938	75,670,964	59,029,348	68,045,966	26,079,137	41,695,676	38,899,825	67,526,394	94,293,471	14,963,348	26,852,981	0	33,288,253	0	9205770	41912273	41999324	9750000	0	15997680	9523315	45098062	1,15E+08	44991054	41978699	33081984
Kgallons per Pore Volume	62,837	110,785	152,825	119,216	137,426	52,669	84,209	78,562	136,376	190,435	30,220	54,232	0	67,229	0	18592	84646	84822	19691	0	32309	19233	91080	232890	90864	84780	66812
Restoration Schedule (Based on Annual Water Balance/Schedule Update)																											
Pre-Restoration Period (yrs)	0	8	13	0	2	6	6	9	15	17	17	0	0	11	0	0	0	0	0	0	0	0	0	10	0	0	4
Restoration Period (yrs)	0	4	5	4	5	3	4	4	6	5	2	0	0	3	0	0	0	10	0	0	9	8	11	6	6	4	3
Stability Period (yrs)	0	1	1	1	1	1	1	1	1	1	1	0	0	1	0	0	0	1	1	1	1	1	1	1	1	1	1
Total # of Years	0	13	19	5	8	10	11	14	22	23	20	0	0	15	0	0	0	11	1	1	10	9	12	17	7	5	8
End of Restoration (yrs)	22																										
End of Stability (yrs)	23																										
Number of Header Houses per Wellfield																											
Current	6	5	10	11	18	5	9	7	13	9	3	0	0	0	0	5	18	20	0	0	4	3	15	43	10	6	9
Planned	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Estimated	6	5	10	11	18	5	9	7	13	9	3	0	0	7	0	5	18	20	0	0	4	3	15	43	10	6	9
Average Header House Volume (ft3)	1600																										
Number of Wells (In Service) per Wellfield																											
Production Wells (P)																											
Current	83	134	204	186	407	0	163	99	258	196	113	0	0	134	15	0	133	100	0	0	91	0	117	417	125	110	101
Planned	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Estimated	83	134	204	186	407	0	163	99	258	196	113	0	0	134	15	0	133	100	0	0	91	0	117	417	125	110	101
Injection Wells (I)																											
Current	162	280	260	383	829	0	272	174	397	338	153	0	0	247	29	1	194	226	0	0	140	0	229	663	306	230	230
Planned	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Estimated	162	280	260	383	829	0	272	174	397	338	153	0	0	247	29	1	194	226	0	0	140	0	229	663	306	230	230
Restoration Wells (R)																											
Current	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	14	0	0	0
Planned	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Estimated	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	0	0	0	0	0	14	0	0	0
Monitor Wells (M, MO, MU, etc.)																											
Current	47	50	40	90	125	0	51	53	69	49	66	85	0	62	82	7	64	101	0	0	50	0	52	119	82	34	59
Planned	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Estimated	47	50	40	90	125	0	51	53	69	49	66	85	0	62	82	7	64	101	0	0	50	0	52	119	82	34	59
Other Wells (Pumping Wells, etc.)																											
Current	0	3	3	2	3	0	0	1	7	1	1	3	0	2	2	0	1	2	0	0	5	0	0	41	2	0	3
Planned	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Estimated	0	3	3	2	3	0	0	1	7	1	1	3	0	2	2	0	1	2	0	0	5	0	0	41	2	0	3
Wellfield Refurbishment (I or P)																											
Planned	0	5	50	5	50	0	0	0	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5	140	5	5	18
Number of In Service Wells per Wellfield	292	472	557	666	1414	0	486	327	731	584	333	88	0	445	128	8	392	452	0	0	286	0	403	1394	520	379	411
Total Number of Wells	10,768																										
Well Completion Details																											
Average Well Depth (ft)	500	850	750	850	450	500	950	864	950	900	930	800	600	825	668	500	450	550	550	550	600	600	550	650	500	650	540
Average Diameter of Casing (inches)	5	5	5	5	4.5	4.5	4.5	4.5	5	5	5	0	0	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Wellfield Fencing																											
Length of Fencing (ft)	16,487	11580	7388	26009	7074	0	23271	23271	21887	21595	9661	19732	0	8674	0	0	13720	18694	0	0	14060	0	18426	29540	9680	9977	10000

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Labor Costs	2013 Rate	Esc Rate (\$)	Net Benefits*	Units	Source	CPI Escalators (CPI-U, U.S. City Average)	
Environmental Manager/RSO	\$46.00	\$50.82	\$71.15	hour	2013 MSEC rates plus CPI Annual 2017	Denver CPI (2013 Annual)	230.8
Restoration Manager	\$40.00	\$44.19	\$61.87	hour	2014 MSEC rates plus CPI Annual 2017	Denver CIP (2017 Annual)	255.0
Environmental Tech/HPT	\$30.00	\$33.14	\$46.40	hour	2015 MSEC rates plus CPI Annual 2017	2017 Escalator Factor (2013 to 2017)	1.10
Operator/Laborer	\$26.00	\$28.73	\$40.22	hour	2016 MSEC rates plus CPI Annual 2017	Denver CPI (2014 Annual)	237.2
Maintenance Tech	\$23.00	\$25.41	\$35.58	hour	2017 MSEC rates plus CPI Annual 2017	Denver CPI (2017 Annual)	255.0
*Includes additional 40% net benefits based on InfoMine USA cost data for Surface Metal and Industrial Mineral Mines - Western U.S. (Table 5)						2017 Escalator Factor (2014 to 2017)	1.08
						Denver CPI (2015 Annual)	240.0
						Denver CPI (2017 Annual)	255.0
Utility Costs		Rate (\$)	Profit & Overhead	Units	Source	2017 Escalator Factor (2015 to 2017)	1.06
Electrical Costs		\$0.0660	included	kWhr	Actual Costs-2018		
Kilowatt to Horsepower		0.746	included	Kw/HP	N/A		
Efficiency - Downhole Pumps		80%	included	Percent	N/A		
Efficiency - Surface Pumps		90%	included	Percent	N/A		
Natural Gas - CPP/Main Office Area		\$28,000.00	included	year	Actual Costs-2017		
Natural Gas - Satellite SR-1		\$5,261.00	included	year	Actual Costs-2017		
Propane - CPP/Main Office Area		\$0.00	included	year	Actual Costs-2017		
Propane - Satellite SR-2		\$23,117.00	included	year	Actual Costs-2017		
Natural Gas - Satellite No. 2/Selenium Treatment Plant		\$17,500.00	included	year	Actual Costs-2017		
Propane - Satellite No. 2/Selenium Treatment Plant		\$0.00	included	year	Actual Costs-2017		
Propane - Satellite No. 3		\$38,674.00	included	year	Actual Costs-2017		
Chemical & Materials Costs		Rate (\$)	Profit & Overhead	Units	Source		
Antiscalant for RO (Hypersperse)		\$3.8400	included	pound	Actual Costs-2016		
Antiscalant for RO (ScaleTrol)		\$5.1300	included	pound	Actual Costs-2017		
Sodium Tripolyphosphate		\$1.0710	included	pound	Quote-2014 plus 2016 Escalator Factor		
EDTA Tetrasodium Dihydrate		\$1.7614	included	pound	Quote-2014 plus 2016 Escalator Factor		
Sodium Sulfide		\$0.5000	included	pound	Actual Costs-2016		
Hydrochloric Acid		\$0.1943	included	pound	Actual Costs-2017		
Barium Chloride		\$0.8600	included	pound	Actual Costs-2017		
Iron Aggregate		\$0.5900	included	pound	Actual Costs-2017		
Silica Sand		\$0.1392	included	pound	Actual Costs-2016		
Pea Gravel		\$0.0135	included	pound	Actual Costs-2017		
Analytical Costs		Rate (\$)	Profit & Overhead	Units	Source*		50
Guideline 8		\$372.00	included	analysis	Actual Costs-2017		
Excursion Parameters (UCL)		\$30.00	included	analysis	Fee Schedule-2017		1.25
Restoration Progress Parameters (UCL + U + Se)		\$50.00	included	analysis	Fee Schedule-2017		
Irrigator Fluid		\$200.00	included	analysis	Fee Schedule-2017		
Irrigator Vegetation		\$270.00	included	analysis	Actual Costs-2017		
Irrigator Soil		\$335.00	included	analysis	Actual Costs-2017		
Irrigator Soil Water		\$150.00	included	analysis	Fee Schedule-2017		
Other Lab Costs (Radon, Bioassay, DDW, PWS, etc.)		\$2,000.00	\$2,200.00	analysis	Cost Estimate per month	* over life of mine plan	
*All quotes, fee schedules and actual costs based on Energy Laboratories, Inc., Casper, WY							
Equipment Costs	2014 Rate	Rate (\$)	Profit & Overhead*	Units	Source	date	
Bandit 1290XP Trailer Mounted Brush Chipper	\$34.33	\$36.91	\$40.60	hour	Equipment Watch** plus CPI 2014 to 2017		
Bobcat S250 Skid Steer Loader	\$22.72	\$24.42	\$26.87	hour	Equipment Watch** plus CPI 2014 to 2017		
Cat 320C L Trackhoe - 1.25 cu yd bucket	\$69.44	\$74.65	\$82.11	hour	Equipment Watch** plus CPI 2014 to 2017		
Cat 416E Backhoe	\$27.17	\$29.21	\$32.13	hour	Equipment Watch** plus CPI 2014 to 2017		
Cat 924H Loader - 2.4 cu yd bucket	\$42.89	\$46.11	\$50.72	hour	Equipment Watch** plus CPI 2014 to 2017		
Concrete Jaws Labounty - CP-60	2013 Rate \$18.51	\$20.45	\$22.50	hour	Equipment Watch + CPI Escalator 2013 to 2017		
GEHL DL-8 Rough Terrain Lift Truck	\$46.78	\$50.29	\$55.32	hour	Equipment Watch** plus CPI 2014 to 2017		
Manlift	2013 Rate \$39.13	\$42.07	\$46.27	hour	Equipment Watch** plus CPI 2014 to 2017		
MIT Unit	\$30.09	\$33.24	\$36.57	hour	Equipment Watch** plus CPI 2014 to 2017		
Pick-up Truck 3/4 ton 4X4	\$18.79	\$20.20	\$22.22	hour	Equipment Watch** plus CPI 2014 to 2017		
Pulling Unit***	2013 Rate \$35.32	\$39.02	\$42.92	hour	Equipment Watch + CPI Escalator 2013 to 2017		
*Includes additional 10% Profit & Overhead per WDEQ/LQD Guideline No. 12, Section 12(b)							
**Equipment Watch Rental Rate Blue Book: Volume 1							
***1 3/4 Ton 4x4 Truck with Hoist							

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Quoted Costs		Rate (\$)	Profit & Overhead	Units	Source					
Deep Disposal Well - Plug & Abandonment Costs 2015 estimate	\$13.62	\$14.47	included	foot	2015 estimate plus 2015 to 2017 CPI Escalator					
Deep Disposal Well - MIT Costs 2015 average cost	\$17,051.00	\$18,116	included	well	Ave Actual Costs-2015 + CPI Esc. 2015 to 2017					
Well Replacements (Restoration) 2014 actual cost	\$15,600.00	\$16,770	included	well	Actual Costs-2014 plus CPI Escalator 2014 to 2017					
Bellhole Refurbishment 2014 estimate	\$5,500.00	\$5,913	included	bellhole	Estimate cost 2014 plus CPI Escalator 2014 to 2017					
Header House Refurbishment 2014 estimate	\$10,000.00	\$10,750	included	header house	Estimate cost 2014 plus CPI Escalator 2014 to 2017					
WDEQ/LQD Guideline No. 12 Costs	Appendix	Rate (\$)	Profit & Overhead*	Units	Source					
Moving Materials: One-Way Distance 500 feet, 0% grade	Appendix C	\$0.807	\$0.888	bcy	Guideline-2/2018					
Moving Materials: One-Way Distance 1,000 feet, 0% grade	Appendix C	\$0.964	\$1.060	bcy	Guideline-2/2018					
Moving Materials: One-Way Distance 2,000 feet, 0% grade	Appendix C	\$1.294	\$1.423	bcy	Guideline-2/2018					
Moving Materials: One-Way Distance 50 feet, 0% grade	Appendix E	\$0.121	\$0.133	lcy	Guideline-2/2018					
Moving Materials: One-Way Distance 100 feet, 0% grade	Appendix E	\$0.204	\$0.224	lcy	Guideline-2/2018					
Moving Materials: One-Way Distance 150 feet, 0% grade	Appendix E	\$0.265	\$0.292	lcy	Guideline-2/2018					
Grading Operating Costs	Appendix G	\$58.38	\$64.22	acre	Guideline-2/2018					
Fencing Removal	Appendix H	\$0.32	\$0.35	foot	Guideline-2/2018					
Ripping Operating Costs (Asphalt)	Appendix I	\$664.82	\$731.30	acre	Guideline-2/2018					
Ripping Operating Costs (Overburden)	Appendix I1	\$828.44	\$911.28	acre	Guideline-2/2018					
Building Demolition - Mixture of Types	Appendix K	\$0.280	\$0.31	ft3	Guideline-2/2018					
Building Demo Disposal (Average)	Appendix K	\$9.91	\$10.90	cy	Guideline-2/2018					
Concrete (Floor) Demolition - 6" Thick with Rebar	Appendix K	\$0.76	\$0.84	ft2	Guideline-2/2018					
Concrete (Footing) Demolition - 2' Thick, 3' Wide	Appendix K	\$15.78	\$17.36	linear foot	Guideline-2/2018					
Concrete Disposal On-Site	Appendix K	\$8.43	\$9.27	cy	Guideline-2/2018					
Drill Hole Abandonment: Wet Exploration Holes >25 holes	Appendix L	\$3.00	\$3.30	foot	Guideline-2/2018					
Well Abandonment: Monitor, Production, and Injection Wells	Appendix L	\$2.50	\$2.75	foot	Guideline-2/2018					
Incidental Costs: Small Site Grading and Seeding (<1000 sq. feet)	Appendix L	\$50	\$55	site	Guideline-2/2018					
Incidental Costs: Capping	Appendix L	\$10	\$11	each	Guideline-2/2018					
Incidental Costs: Site Location	Appendix L	\$10	\$11	hole	Guideline-2/2018					
Incidental Costs: Remove Pump, Wiring, and Drop Pipe	Appendix L	\$0.40	\$0.44	foot	Guideline-2/2018					
Incidental Costs: Remove and Dispose Casing (top few feet)	Appendix L	\$30	\$33	well	Guideline-2/2018					
Incidental Costs: Monitoring Well Concrete Pedestal Disposal	Appendix L	\$100	\$110	each	Guideline-2/2018					
Mobilization Fee	Appendix L	\$1,000	\$1,100	Project	Guideline-2/2018					
Scarification Costs	Appendix P	\$53.55	\$58.91	acre	Guideline-2/2018					
Revegetation Costs-Total	Guideline 12A,II.-1	\$300.00	\$330.00	acre	Guideline-3/2018					
*Includes additional 10% Profit & Overhead per WDEQ/LQD Guideline No. 12, Section 12(b)										
Construction & Demolition Debris Transportation & Disposal Costs										
Building Volume for Disposal	0.33									
Void Factor (for disposal)	1.1									
	Disposal (\$/ton)	C&D (cy/ton)	Transport (\$/load)	C&D (cy/load)	Total (\$/cy)	Total (\$/ft3)				
C&D Debris (county landfill)	\$62.00	2	\$335.00	30	\$42.17	\$1.56				
*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.										
11e.(2) Byproduct Material Transportation & Disposal										
Load Correction Factor: Soil, sand, etc.	1.1									
Load Correction Factor: Process materials, etc.	0.42									
White Mesa	Disposal (\$/ton)	Disposal (\$/cy)	Volume (cy)	Transport (\$/cy)	Total (\$/cy)	Total (\$/ft3)				
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				
Pathfinder										
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				
*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.										

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GROUNDWATER RESTORATION UNIT COSTS		
Wellfield Pumping		
Equipment		
Wellfield Pump Sizes	5	hp
Wellfield Pump Flow Rate	25	gpm
kW to HP Conversion Factor	0.746	
Cost of Electricity	\$0.0660	kWhr
Efficiency	80%	
Wellfield Pumping Cost	\$0.21	per kgal
Satellite Pumping		
Equipment		
Satellite Pump Sizes	60	hp
Satellite Pump Flow Rate	75	gpm
kW to HP Conversion Factor	0.746	
Cost of Electricity	\$0.0660	kWhr
Efficiency	90%	
Satellite Pumping Cost	\$0.73	per kgal
Deep Disposal Well Injection		
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	\$0.0660	kWhr
Efficiency	90%	
Reagent		
Antiscalant Cost (Scaletrol)	\$5.1300	per lb
Density of Water	8.34	lbs/gal
Specific Gravity (Scaletrol)	1.284	
Antiscalant Cost (Scaletrol)	\$54.93	per gal
Antiscalant Dose (ScaleTrol)	0.000048	gal/gal
Deep Disposal Well Cost	\$1.18	per kgal
Total Groundwater Sweep Costs	\$2.11	per kgal
PSR2 & Irrigator		
Equipment		
Feed Water Pump	40	hp
Irrigator Pump	50	hp
Sampler	0.5	kW
Irrigator Flow Rate	200	gpm
kW to HP Conversion Factor	0.746	
Cost of Electricity	0.066	kWhr
Efficiency	90%	
PSR 2 & Irrigator Cost	\$0.41	per kgal
Total Groundwater Sweep Costs (highland)	\$1.35	per kgal
Reverse Osmosis		
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	\$0.0660	kWhr
Efficiency	90%	
Reagents		
Tripolyphosphate Usage Rate	0.0000130	lb/gal
Tripolyphosphate Cost	\$1.0710	per lb
EDTA Usage Rate	0.00000315	lb/gal
EDTA Cost	\$1.7614	per lb
Antiscalant Cost (Hypersperse)	\$3.8400	per lb
Density of Water	8.34	lbs/gal
Specific Gravity (Hypersperse)	1.124	
Antiscalant Cost (Hypersperse)	\$35.9968	per gal
Antiscalant Dose (Hypersperse)	0.0000036	gal/gal
Sodium Sulfide Usage Rate	0.00017	lb/gal

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	Sodium Sulfide Cost	\$0.5000	per lb							
	RO Cost (without Reductant)	\$0.62	per kgal							
	RO Cost (with Reductant)	\$0.71	per kgal							
	MIT Costs for Production Wells									
	Equipment									
	Pulling Unit Hours	4	hrs/day							
	Pulling Unit Cost	\$42.92	\$/hour							
	MIT Unit Hours	8	hrs/day							
	MIT Unit Cost	\$36.57	\$/hour							
	Labor									
	Required Hours	8	hrs/day							
	Required Laborers	1.5	per day							
	Labor Cost	\$35.58	\$/hour							
	Productivity	4	wells/day							
	MIT Cost for Production Wells	\$222.79	per well							
	MIT Costs for Injection Wells									
	Equipment									
	Pulling Unit Hours	0	hrs/day							
	Pulling Unit Cost	\$42.92	\$/hour							
	MIT Unit Hours	8	hrs/day							
	MIT Unit Cost	\$36.57	\$/hour							
	Labor									
	Required Hours	8	hrs/day							
	Required Laborers	1	per day							
	Labor Cost	\$35.58	\$/hour							
	Productivity	4	wells/day							
	MIT Cost for Injection Wells	\$144.29	per well							
	Selenium Plant Operating Costs									
	Plant Operation									
	Selenium Plant Media Change	4	times/year							
	Number of Columns in Plant	2	columns							
	Reagents									
	Barium Chloride	90,000	lb/year							
	BaCl Cost	\$0.8600	\$/lb							
	Materials									
	Iron	12,000	lb/column							
	Iron Cost	\$0.5900	\$/lb							
	Sand	18,000	lb/column							
	Sand Cost	\$0.14	\$/lb							
	Gravel	20,000	lb/column							
	Gravel Cost	\$0.0135	\$/lb							
	Disposal									
	ByProduct for Disposal	63	yd ³ /year							
	Disposal Cost (incl. Transport)	\$157	per yd ³							
	Selenium Plant Operating Cost	\$166,118.79	per year							
	Booster Pump Operating Cost Smith Ranch Highland									
	Equipment									
	Wellfield Pump Sizes	40	hp							
	Number of Pumps Running (avg.)	11	per year							
	Hours Running	24	per day							
	kW to HP Conversion Factor	0.746								
	Cost of Electricity	\$0.0660	kWhr							
	Efficiency	90%								
	Booster Pump Operating Costs	\$210,861.38	per year							
	WELL ABANDONMENT UNIT COSTS									
	Removal of Contaminated Soil Around Wells				Removal of Contaminated Soil					

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Equipment			Equipment		
Cat 416 Backhoe Time	0.25	hours	Cat 416 Backhoe Time	0.03	hours
Cat 416 Backhoe Cost	\$32.13	per hour	Cat 416 Backhoe Cost	\$29.89	per hour
Labor			Labor		
Radiation Technician	0.25	hours	Radiation Technician	0.03	hours
Radiation Technician Cost	\$46.40	per hour	Radiation Technician Cost	\$35.74	per hour
Operator	0.25	hours	Operator	0.03	hours
Operator Cost	\$40.22	per hour	Operator Cost	\$37.16	per hour
Disposal			Disposal		
ByProduct Disposal	0.37	cubic yard	ByProduct Disposal	1	cubic yard
Disposal Cost (incl. Transport)	\$156.73	per cubic yard	Disposal Cost (incl. Transport)	\$156.73	per cubic yard
Removal of Contaminated Soil Cost	\$87.68	per well	Removal of Contaminated Soil Cost	\$159.81	per cubic yard
DDW Pump Dismantling and Disposal					
Labor					
Number of Laborers	2	per day			
Number of Pumps Dismanteled	0.5	per day			
Hours Per Day	8	hours			
Laborers Cost	\$35.58				
Disposal					
Volume of DDW Pump	240	ft ³			
ByProduct Disposal	\$7.32	per ft ³			
DDW Pump Dismanteling and Disposal	\$2,896.05	per pump			
WELLFIELD RECLAMATION COSTS					
Wellfield Piping Removal					
Equipment					
Trackhoe	1	per day			
Trackhoe Cost	\$82.11	per hour			
Loader	1	per day			
Loader Cost	\$50.72	per hour			
Pickup Truck	1	per day			
Pickup Cost	\$22.22	per hour			
Chipper Cost	\$40.60	per hour			
Labor					
Backhoe Operator	\$40.22	per hour			
Loader Operator	\$40.22	per hour			
Laborer	\$35.58	per hour			
Hours Per Day	8	per day			
Productivity	1500	ft/day			
Piping Removal Cost	\$1.66	per foot of pipe			
Piping Reduction					
2" Pipe	0.0107				
3" Pipe	0.0233				
4" Pipe	0.0385				
6" Pipe	0.0834				
8" Pipe	0.1413				
10" Pipe	0.2196				
12" Pipe	0.3088				
14" Pipe	0.3723				
16" Pipe	0.4864				
18" Pipe	0.6155				
Production Pump Volume					
Length	66.0000	inches			
Diameter	3.8000	inches			
Cubic Inch to Cubic Foot Conversion	0.0006				
Production Pump Volume	0.43	cubic feet			
Trunk Line Removal					
Equipment					
Trackhoe	1	per day			

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Trackhoe Cost	\$82.11	per hour								
Loader	1	per day								
Loader Cost	\$50.72	per hour								
Pickup Truck	1	per day								
Pickup Cost	\$22.22	per hour								
Chipper Cost	\$40.60	per hour								
Labor										
Trackhoe Operator	\$40.22	per hour								
Loader Operator	\$40.22	per hour								
Laborer	\$35.58	per hour								
Hours Per Day	8	per day								
Productivity	750	ft/day								
Buried Piping Removal Cost	\$3.32	per foot of pipe								
Production Pump Volume										
Length	66	inches								
Diameter	3.8	inches								
Cubic Inch to Cubic Foot Conversion	0.0006									
Production Pump Volume	0.43	cubic feet								
Removal of Well Head Covers										
Volume of Well Head Cover (ft ³)	1.86	cubic feet								
<u>Demolition Cost</u>	\$0.308	per cubic ft								
Decontamination										
Acid Usage	4.1	pounds per wellhead cover								
Acid Cost	\$0.19	per wellhead cover								
Labor										
Radiation Tech	\$46.40	per hour								
Operator	\$40.22	per hour								
Productivity	10	wellheads per hour								
Disposal										
Void space	10%									
<u>Transportation and Disposal Cost</u>	\$1.56	per cubic ft								
Removal of Well Head Cover Cost	\$13.23	per well								
Header House Decontamination										
Decontamination										
Acid Usage	20	pounds per header house								
Acid Cost	\$0.19	per pound								
Labor										
Radiation Tech	\$46.40	per hour								
Number of Operators	2	per day								
Operator	\$40.22	per hour								
Hours Per Day	8	per day								
Productivity	1	header house per day								
Header House Decontamination Cost	\$694	per header house								
Header House Heating										
Heater Power Usage	7.5	kW/day								
Days Used	180	days per year								
Electricity Cost	\$0.0660	kWhr								
Header House Heating Cost	\$1,069	per year								
WELLFIELD AND SATELLITE AND SURFACE RECLAMATION										
Wellfield Road Reclamation										
Gravel Road Base										
Average Depth	0.25	feet								
Average Width	10	feet								
<u>Material Moved (0% Grade)</u>	\$1.06	bcy								
Cubic Yard to Cubic Feet Conversion	0.04									
Scarification of Road										
Scarification Costs	\$59	per acre								
Average Width	25	feet								
Acre to Sq. Foot Conversion	2.29568E-05									
Grading Cost	\$64	per acre								
Topsoil Depth	0.67	feet								

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Discing/Seeding Costs	\$330									
Linear Feet for Unit Cost	1000	feet								
Wellfield Road Reclamation Cost	\$1,016.08	per 1000 feet								
EQUIPMENT COSTS										
Tank Removal										
Equipment										
Loader	\$50.72	per hour								
Trackhoe	\$82.11	per hour								
Manlift	\$46.27	per hour								
Pickup	\$22.22	per hour								
Lift Truck	\$55.32	per hour								
Labor										
Number of Operators	4									
Operator Cost	\$40.22	per hour								
Hours Per Day	8	per day								
Productivity	25	ft ³ /day								
Tank Removal Cost	\$134	per ft³								
Pipe Removal										
Equipment										
Manlift	\$46.27	per hour								
Pickup	\$22.22	per hour								
Lift Truck	\$55.32	per hour								
Chipper	\$40.60	per hour								
Labor										
Number of Operators	4									
Operator Cost	\$40.22	per hour								
Hours Per Day	8	per day								
Productivity	300	ft/day								
Pipe Removal Cost (Inside Buildings)	\$8.67	per ft								
Pump Removal										
Equipment										
Truck	\$22.22	per hour								
Skid Steer	\$26.87	per hour								
Labor										
Number of Operators	2									
Operator Cost	\$40.22	per hour								
Hours Per Day	8	per day								
Productivity	10	ft ³ /day								
Pump Removal	\$103.61	per ft³								
Dryer Removal										
Equipment										
Truck	\$22.22	per hour								
Lift Truck	\$55.32	per hour								
Labor										
Number of Operators	4									
Operator Cost	\$40.22	per hour								
Hours Per Day	8	per day								
Productivity	125	ft ³ /day								
Dryer Removal Cost	\$15.26	per ft³								
RO and Degasser Removal										
Equipment										
Truck	\$22.22	per hour								
Lift Truck	\$55.32	per hour								
Labor										
Number of Operators	2									
Operator Cost	\$40.22	per hour								
Hours Per Day	8	per day								
Productivity	250	ft ³ /day								
RO and Degasser Removal Cost	\$5.06	per ft³								
BUILDING COSTS										

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Acid Wash Walls		
Acid		
Acid Usage	0.05	per square foot
Acid Cost	\$0.19	per pound
Equipment		
Manlift	\$46.27	per hour
Labor		
Laborer	2	people
Laborer Cost	\$35.58	per hour
Productivity	125	square feet per hour
Acid Wash Walls Cost	\$0.95	per square foot
Acid Wash Floors		
Acid		
Acid Usage	0.05	per square foot
Acid Cost	\$0.19	per pound
Labor		
Laborer	2	people
Laborer Cost	\$35.58	per hour
Productivity	125	square feet per hour
Acid Wash Floors Cost	\$0.58	per square foot
Electrical Power		
*Pumping Costs for Operating DDWs, RO, and Wellfield are included in GW Rest Costs		
CPP		
Miscellaneous Pumps, Fans, Sumps, etc.	27.5	HP
Lighting	35.0625	kW (per square ft)
kW to HP Conversion Factor	0.746	
Electricity Cost	\$0.0660	per kWhr
Efficiency Factor	90%	
Operating Hours Per Year	8760	hours
CPP Power Cost	\$30,947	per year
SR 1 & SR 2 Power Costs		
Miscellaneous Pumps, Fans, Sumps, etc.	72.5	HP
Lighting	24	kW
kW to HP Conversion Factor	0.746	kW (per square ft)
Electricity Cost	\$0.0660	per kWhr
Efficiency Factor	90%	
Operating Hours Per Year	8760	hours
SR 1 & SR 2 Power Costs	\$42,019	per year
Reynolds Ranch Power Costs		
Miscellaneous Pumps, Fans, Sumps, etc.	72.5	HP
Lighting	24	kW
kW to HP Conversion Factor	0.746	kW (per square ft)
Electricity Cost	\$0.0660	per kWhr
Efficiency Factor	90%	
Operating Hours Per Year	8760	hours
Reynolds Ranch Power Costs	\$42,019	per year
*Pumping Costs for Operating DDWs, RO, and Wellfield are included in GW Rest Costs		
Satellite 2		
Miscellaneous Pumps, Fans, Sumps, etc.	22.5	HP
Lighting	35.0625	kW (per square ft)
kW to HP Conversion Factor	0.746	
Electricity Cost	\$0.0660	per kWhr
Efficiency Factor	90%	
Operating Hours Per Year	8760	hours
Satellite 2 Power Cost	\$29,006	per year
Satellite 3		
Miscellaneous Pumps, Fans, Sumps, etc.	22.5	HP
Lighting	35.0625	kW (per square ft)
kW to HP Conversion Factor	0.746	
Electricity Cost	\$0.0660	per kWhr
Efficiency Factor	90%	
Operating Hours Per Year	8760	hours
Satellite 3 Power Cost	\$29,006	per year

Cameco Resources
 Smith Ranch Highland Uranium Project
 2018-2019 Surety Estimate Update

Se Plant																				
Miscellaneous Pumps, Fans, Sumps, etc.	72.5	HP																		
Lighting	23.3	kW																		
kW to HP Conversion Factor	0.746	kW (per square ft)																		
Electricity Cost	\$0.0660	per kWhr																		
Efficiency Factor	90%																			
Operating Hours Per Year	8760	hours																		
Selenium Power Cost	\$41,614	per year																		
DDW - Typical																				
Miscellaneous Pumps, Fans, Sumps, etc.	2.0000	HP																		
Lighting	0.4875	kW																		
Heating	12.5000	kW																		
kW to HP Conversion Factor	0.7460	kW (per square ft)																		
Electricity Cost	0.0660	per kWhr																		
Efficiency Factor	0.9000																			
Operating Hours Per Year	8760.0000	hours																		
DDW Electrical Cost	4671.70625	per year																		
Maintenance Shop Power Costs																				
Miscellaneous Pumps, Fans, Sumps, etc.	2	HP																		
Lighting	8.785	kW																		
kW to HP Conversion Factor	0.746	kW (per square ft)																		
Electricity Cost	\$0.0660	per kWhr																		
Efficiency Factor	90%																			
Operating Hours Per Year	8760	hours																		
Maintenance Shop Power Costs	\$5,855	per year																		
Fresh Water Pumphouse Power Costs																				
Miscellaneous Pumps, Fans, Sumps, etc.	10	HP																		
Lighting	1.04	kW																		
Heating	10	kW																		
kW to HP Conversion Factor	0.746	kW (per square ft)																		
Electricity Cost	\$0.0660	per kWhr																		
Efficiency Factor	90%																			
Operating Hours Per Year	8760	hours																		
Fresh Water Pumphouse Power Costs	\$10,265	per year																		
Office Building Power Costs																				
Miscellaneous Pumps, Fans, Sumps, etc.	7.5	HP																		
Lighting	10	kW																		
Air Conditioning	30	kW																		
kW to HP Conversion Factor	0.746	kW (per square ft)																		
Electricity Cost	\$0.0660	per kWhr																		
Efficiency Factor	90%																			
Operating Hours Per Year	8760	hours																		
Office Building Power Costs	\$26,038	per year																		
MISCELLANEOUS RECLAMATION AND RESTORATION COSTS																				
Liner and Subsoil Removal Costs																				
Equipment																				
Trackhoe Cost	\$ 82.11	per hour																		
Loader Cost	\$ 50.72	per hour																		
Labor																				
Operator	40.22	per hour																		
Productivity	40	cubic yards/hour																		
Total Removal	\$ 4.33	per cubic yard																		

Mining and Reclamation Plan - Revised June 7, 2018

Smith Ranch/Highland Project

Permit 633, Highland Wellfields



