

Table 9.1

Summary Table of Estimated Closure Costs - Keno Hill Mine Operations

SJCI NOVEMBER 2015

Description of Cost	Proposed Cost Current	Proposed Cost Year 2	Proposed Cost EOM
Closure Implementation			
General & Administration	\$724,000	\$724,000	\$724,000
Waste Rock Dumps/Storage Facilities	\$64,951	\$89,128	\$127,678
Underground Mines	\$472,682	\$630,924	\$687,260
Water and Solutions Management	\$432,284	\$432,284	\$453,684
DSTF	\$44,726	\$115,025	\$452,476
Mill and Infrastructure/Facilities	\$586,786	\$586,786	\$586,786
Haulage and Access Roads	\$189,730	\$198,296	\$198,296
Supporting Studies	\$87,500	\$97,500	\$125,000
Reclamation and Closure Research Program (during operations)	\$75,000	\$75,000	\$150,000
Interim Care and Maintenance	\$1,401,325	\$1,401,325	\$1,401,325
Sub-total	\$4,078,984	\$4,350,268	\$4,906,505
Indirect Costs (%)	15%	15%	15%
Indirect Costs	\$611,848	\$652,540	\$735,976
Cost Inflation ¹	\$93,817	\$200,112	\$451,398
Total Closure Implementation Costs	\$4,784,649	\$5,202,920	\$6,093,879
Post Closure Care, Maintenance, and Monitoring Costs			
Onsite Management	\$290,000	\$290,000	\$290,000
Mobilization and Demobilization	\$117,000	\$117,000	\$117,000
Transport Costs	\$75,000	\$75,000	\$75,000
Water Treatment Costs			
Active Treatment			
Capital Costs	\$0	\$0	\$0
Capital Replacement Costs	\$0	\$0	\$0
Operating Costs	\$198,186	\$198,186	\$198,186
Passive Treatment			
Capital Costs	\$110,000	\$110,000	\$110,000
Operation and Maintenance Costs	\$130,000	\$130,000	\$130,000
Reclamation & Closure Research Plan (Post Closure)	\$0	\$0	\$0
Monitoring & Reporting	\$1,190,840	\$1,190,840	\$1,190,840
Sub-Total	\$2,111,026	\$2,111,026	\$2,111,026
Sub-Total NPV (2.5% DROR)	\$1,735,211	\$1,692,889	\$1,441,571
Indirect Costs (%)	15%	15%	15%
Indirect Costs	\$260,282	\$253,933	\$216,236
Total (NPV)	\$1,995,492	\$1,946,822	\$1,657,807
Total Financial Security (incl. Indirect Costs)	\$6,780,141	\$7,149,742	\$7,751,686
Contingency Allowance on "Monitoring and Reporting"	10%	10%	10%
Contingency Amount on "Monitoring and Reporting"	\$119,084	\$119,084	\$119,084
Contingency Allowance on All Remaining Items	25%	25%	25%
Contingency Amount	\$1,397,325	\$1,489,726	\$1,640,212
Total Financial Security (Plus Contingency)	\$8,296,550	\$8,758,552	\$9,510,982
¹ Cost inflation is calculated at a rate of 2% per year to the midpoint of active closure			

Table 9.2

Keno Hill Mine Operations Unit Rates

SJCI November 2015

Equipment Rates		
Equipment	Unit Rates	Per Unit
D9H Dozer	\$350	per hr
D8K Dozer	\$300	per hr
Haul Truck D250E	\$200	per hr
Tandem Dump Truck	\$150	per hr
Cat 235 Excavator	\$240	per hr
Cat 235 Excavator w hammer	\$275	per hr
Cat 14H grader	\$270	per hr
988B Loader	\$300	per hr
Tractor Trailer (lowbed)	\$195	per hr
Vacuum Truck	\$150	per hr
30 ton Crane	\$190	per hr
Hiab Flatdeck truck	\$180	per hr
Underground LHD 4-6yd Scooptram (load, haul & dump)	\$219	per hr
Cat 950 loader	\$180	per hr
Vibratory Roller (84" packer)	\$190	per hr
Pickup Truck	\$2,500	per mo

Personnel Rates		
Personnel	Unit Rates	Per Unit
Blaster	\$68	per hr
General Labourer	\$52	per hr
Trades Labourer	\$91	per hr
Site Supervisor	\$110	per hr
Design Engineer	\$150	per hr
Environmental Scientist	\$110	per hr
Project Manager	\$10,670	per mo
Camp Labourer	\$4,400	per mo
Site Caretaker	\$6,710	per mo
Environmental Monitor	\$110	per hr
Environmental Monitor	\$7,000	per mo

Revegetation Rates		
	Unit Rates	Per Unit
Revegetation Seed Mix	\$17.50	per kg
Revegetation Seed Mix - 50kg/ha	\$875	per ha
Fertilizer	\$1.10	per kg
Fertilizer - 250kg/ha	\$275	per ha
Tree Seedlings (1,000 seedlings per ha)	\$2,000	per ha
Seed/Fertilizer Application	\$1,700	per ha
Erosion Barrier	\$3	per sq.m
Revegetation cost per ha. Including application cost	\$2,850.00	per ha

Contractor Unit Rates, Camp & WQ Analysis Costs		
	Unit Rates	Per Unit
Custom Rate A (Load, haul and place overburden cover on P-AML Waste Rock)	\$4.64	per cu.m
Custom Rate B (Load, haul and dump mineralized rock stockpile in BK East Decline)	\$4.77	per cu.m
Compact and Contour Cover	\$2.00	per cu.m
Excavation of Soil	\$5.00	per cu.m
Supply and place Geotextile	\$7.00	per cu.m
Load, haul and place soil cover	\$8.00	per cu.m
Haul & Place rock cover	\$8.00	per cu.m
Drill, Blast and Screen Rip Rap	\$22.00	per cu.m
Load and Haul and Place Rip Rap	\$13.00	per cu.m
HDPE Liner Install	\$12.00	per sq. m
Erosion barriers	\$3.00	per sq. m
Freight run to Whitehorse	\$1,000	per load
Camp Cost	\$75	per day per person
Power and Heat	\$5,500	per month
Employee Transport Costs	\$2,500	per month
Analytical Cost-Surface Water Quality	\$300.00	per sample

Notes:

Table 9.3

General and Administration Costs

SJCI November 2015

Item No.	Work Item Description	Equipment / Labour	Units	Quantity	Unit Rates	Current Total	Year 2 Total	EOM Total
3.1	Onsite Management-Active Closure							
	Project Management and Engineering - Included in PME Costs in each Closure Component							
	Pre-closure planning and organization	Project Manager	monthly	4	\$10,670	\$42,680	\$42,680	\$42,680
	Pickup truck (2 trucks, 7 months per year, 2 years)	Pickup Truck	monthly	28	\$2,500	\$70,000	\$70,000	\$70,000
	Sundry equipment maintenance	Unit Cost Basis	annually	2	\$5,000	\$10,000	\$10,000	\$10,000
	Power and heat (7 months per year, 2 years)	Power and Heat	monthly	14	\$5,500	\$77,000	\$77,000	\$77,000
	General Administrative expenses (7 months per year, 2 years)	Unit Cost Basis	monthly	14	\$2,000	\$28,000	\$28,000	\$28,000
	Camp Costs (2 year period)	Camp Cost	man-day	6,300	\$80	\$504,000	\$504,000	\$504,000
					Sub-Total	\$689,000	\$689,000	\$689,000
3.2	Transport Costs -Active Closure							
	Employee transport costs (7 months per year, 2 years)	Employee Transport Costs	monthly	14	\$2,500	\$35,000	\$35,000	\$35,000
					Sub-Total	\$35,000	\$35,000	\$35,000
Total Estimated Cost for General & Administration During Active Closure						\$724,000	\$724,000	\$724,000

Note:

Table 9.4
Waste Rock Dumps, Quarries and Borrow Pits
SJCI November 2015

Item No.	Work Item Description	Area (ha) / Length (m)	Equipment / Labour	Units	Quantity	Unit Rates	Current Total	Year 2 Total	EOM Total
4.1	Bellekeno East Temporary P-AML WRSF	1.80							
	Rehandle underground:								
	250 m3 from exploration program @ 24m3/hr cycle time to underground (vol estimate, earlier estimate by Alexco)		Underground LHD 4-6yd Scooptram (load, haul & dump)	hrs.	10	\$219	\$2,190	\$2,190	\$2,190
	Remove liner and haul to solid waste facility		Haul Truck D250E	hrs	2	\$200	\$400	\$400	\$400
			Cat 235 Excavator	hrs	4	\$240	\$960	\$960	\$960
			General Labourer	hrs.	8	\$52	\$416	\$416	\$416
	Site Recontouring		D8K Dozer	hrs.	12	\$300	\$3,600	\$3,600	\$3,600
			Cat 235 Excavator	hrs	4	\$240	\$960	\$960	\$960
	Revegetation	1.80	Revegetation cost per ha. Including application cost	ha	0.2	\$2,850	\$570	\$570	\$570
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$637	\$637	\$637
							Sub-Total	\$9,733	\$9,733
4.2	Bellekeno N-AML WRDA (Sec. 7.3.1.2)	0.25							
	Pull back crests		Cat 235 Excavator	hrs					
	Place soil cover (0.15m thickness)		Load, haul and place soil cover	cu.m.					
	Revegetation	0.25	Revegetation cost per ha. Including application cost	ha					
	Project Management & Engineering		7% of Total Cost	%		7.00%			
							Sub-Total	\$0	\$0
4.3	Bellekeno Historic WRDAs (Sec. 7.3.1.3, Fig. 7-19)	2.00							
	Recontour crests		Cat 235 Excavator	hrs	40	\$240	\$9,600	\$9,600	\$9,600
	Toe Buttress		D8K Dozer	hrs	6	\$300	\$1,800	\$1,800	\$1,800
	Up-slope Diversion Ditch-no lining specified		Cat 235 Excavator	hrs	8	\$240	\$1,920	\$1,920	\$1,920
	Downslope Diversion Ditch-armoring Thunder Gulch w riprap (250mx8mx1m)		Cat 235 Excavator	hrs	-	\$240	\$0	\$0	\$0
			Drill, Blast and Screen Rip Rap	cu.m.	-	\$22	\$0	\$0	\$0
			Load and Haul and Place Rip Rap	cu.m.	-	\$13	\$0	\$0	\$0
	Place soil cover (0.5m thickness) (considered out of scope of this RCP)		Load, haul and place soil cover	cu.m.	-	\$8.00	\$0	\$0	\$0
	Revegetation	2.00	Revegetation cost per ha. Including application cost	ha	0.3	\$2,850	\$855	\$855	\$855
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$992	\$992	\$992
							Sub-Total	\$15,167	\$15,167
4.4	Onek P-AML WRSF	0.25							
	Remove impounded water		Vacuam Truck	hrs	2	\$150	\$300	\$300	\$300
			General Labourer	hrs	2	\$52	\$104	\$104	\$104
	Remove P-AML rock & place underground at Onek		Underground Scooptram (Load, Haul & Dump)	hrs	12	\$219	\$2,628	\$2,628	\$2,628
	Remove liner and haul to landfill		Haul Truck D250E	hrs	2	\$200	\$400	\$400	\$400
			Cat 235 Excavator	hrs	4	\$240	\$960	\$960	\$960
			General Labourer	hrs	8	\$52.00	\$416	\$416	\$416
	Revegetation (full disturbance only at EOM)	0.25	Revegetation cost per ha. Including application cost	ha	0.26	\$2,850	\$148	\$148	\$148
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$347	\$347	\$388
							Sub-Total	\$5,303	\$5,303
4.5	Onek N-AML WRDA								
	This has not been constructed and Onek is not in the current LOM plan and therefore no plan to construct an Onek N-AML WRDA			hrs					
				hrs					
				%					
							Sub-Total	\$0	\$0
4.6	Lucky Queen P-AML WRSF	0.25							
	Remove impounded water		Vacuam Truck	hrs	2	\$150	\$300	\$300	\$300
			General Labourer	hrs	2	\$52	\$104	\$104	\$104
	Recontour P-AML rock inside lined WRSF (no rock placed)		D8K Dozer	hrs	12	\$300	\$720	\$720	\$3,600
	Place soil cover		Custom Rate A (Load, haul and place overburden cover on P-AML Waste Rock)	cu.m.	1,250	\$4.64	\$1,160	\$5,800	\$5,800
	Revegetation	0.25	Revegetation cost per ha. Including application cost	ha	0.26	\$2,850	\$148	\$148	\$741
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$170	\$738	\$738
							Sub-Total	\$0	\$11,283
4.7	Lucky Queen N-AML WRDA (includes historic WRDA)								
	Recontour crests		Cat 235 Excavator	hrs	20	\$240	\$4,800	\$4,800	\$4,800
	Scarify surface		D8K Dozer	hrs	6	\$300	\$900	\$1,800	\$1,800
	Revegetation		Revegetation cost per ha. Including application cost	ha	0.4	\$2,850	\$570	\$1,140	\$1,140
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$271	\$542	\$542
							Sub-Total	\$0	\$8,282
4.8	Flame and Moth Temporary P-AML WRSF	0.25							
	Rehandle underground								
	1500 m3 @ 24m3/hr cycle time to underground (vol estimate based on Alexco LOM Plan)		Underground LHD 4-6yd Scooptram (load, haul & dump)	hrs.	63	\$219	\$4,599	\$13,797	\$13,797
	Remove liner and haul to solid waste facility		Haul Truck D250E	hrs	2	\$200	\$400	\$400	\$400
			Cat 235 Excavator	hrs	12	\$240	\$2,880	\$2,880	\$2,880
			General Labourer	hrs	8	\$52	\$416	\$416	\$416
	Site Recontouring		D8K Dozer	hrs	20	\$300	\$2,000	\$6,000	\$6,000
			Cat 235 Excavator	hrs	24	\$240	\$5,760	\$5,760	\$5,760
	Revegetation	0.25	Revegetation cost per ha. Including application cost	ha	0.25	\$2,850	\$238	\$713	\$713
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$1,140	\$2,098	\$2,098
							Sub-Total	\$0	\$32,063
4.9	Flame and Moth N-AML WRDA								
	All of the Flame and Moth N-AML waste is scheduled to be used for construction purposes or backfill therefore there is no N-AML WRDA			hrs					
				hrs					
				cu.m.					
				cu.m.					
			7% of Total Cost	%		7.00%			
							Sub-Total	\$0	\$0
4.10	Borrow Areas (2ha current & Yr2, 4ha by EOM)	4.00							
	Stabilize slopes		Cat 235 Excavator	hrs	24	\$240.00	\$2,880	\$2,880	\$5,760
			D8K Dozer	hrs	8	\$300.00	\$1,200	\$1,200	\$2,400
	Revegetation	4.00	Revegetation cost per ha. Including application cost	ha	4	\$2,850.00	\$5,700	\$5,700	\$11,400
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$685	\$685	\$1,369
							Sub-Total	\$10,465	\$20,929
4.11	Coarse Ore Pad	1.00							
	Concrete Demolition and Burial		Cat 235 Excavator w hammer	hrs	16	\$275.00	\$4,400	\$4,400	\$4,400
			D8K Dozer	hrs	16	\$300.00	\$4,800	\$4,800	\$4,800
	Dismantle Sprung Structure over Coarse ore stockpile		Misc.	i.s.	1	\$10,000.00	\$10,000	\$10,000	\$10,000
	Haul contaminated soils/materials to DSTF or underground		Cat 235 Excavator	hrs	6	\$240.00	\$1,440	\$1,440	\$1,440
			Haul Truck D250E	hrs	6	\$200.00	\$1,200	\$1,200	\$1,200
	Revegetation	1.00	Revegetation cost per ha. Including application cost	ha	0.3	\$2,850.00	\$855	\$855	\$855
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$1,589	\$1,589	\$1,589
							Sub-Total	\$24,284	\$24,284
Total Estimated Cost in Reclaiming Overburden and Waste Rock Dumps							\$64,951	\$89,128	\$127,678

Note:

Table 9.5
Mine Workings - Underground
SJCI November 2015

Item No.	Work Item Description	Area (ha) / Length (m)	Equipment / Labour	Units	Quantity	Unit Rates	Current Total	Year 2 Total	EOM Total
5.1	Bellekeno East Portal and Undergorund	1.6							
	Remove underground equipment		6 yd LHD	hrs	60	\$219	\$13,140	\$13,140	\$13,140
			A30 Haul Truck	hrs	60	\$250	\$15,000	\$15,000	\$15,000
			Trades Labourer	hrs	120	\$91	\$10,920	\$10,920	\$10,920
			General Labourer	hrs	120	\$52	\$6,240	\$6,240	\$6,240
	Remove shop and other buildings (trailers, explosives and cap magazine, etc)			lump sum	1	\$25,000	\$25,000	\$25,000	\$25,000
	Load/Haul and place rip rap for portal cover			cu.m.	700	\$13	\$9,100	\$9,100	\$9,100
	Drill, blast and screen rip rap			cu.m.	700	\$22	\$15,400	\$15,400	\$15,400
	Labour for portal barrier		General Labourer	hrs	40	\$52	\$2,080	\$2,080	\$2,080
	Characterize settling ponds sediments analytical costs			unit cost	2	\$300	\$600	\$600	\$600
	Remove pond water/sediments		Vacuum Truck	hrs	16	\$150	\$2,400	\$2,400	\$2,400
			General Labourer	hrs	16	\$52	\$832	\$832	\$832
	Remove settling ponds liners to landfill		A30 Haul Truck	hrs	2	\$250	\$500	\$500	\$500
			Cat 235 Excavator	hrs	4	\$240	\$960	\$960	\$960
			General Labourer	hrs	8	\$52	\$416	\$416	\$416
	Clean out fuel tank residue			lump sum	1	\$1,000	\$1,000	\$1,000	\$1,000
	Haul fuel tank and liner for reuse or landfill		Cat 235 Excavator	hrs	6	\$240	\$1,440	\$1,440	\$1,440
			A30 Haul Truck	hrs	6	\$250	\$1,500	\$1,500	\$1,500
			General Labourer	hrs	16	\$52	\$832	\$832	\$832
	Area cleanup and haul debris to landfill		Cat 235 Excavator	hrs	20	\$240	\$4,800	\$4,800	\$4,800
			A30 Haul Truck	hrs	20	\$250	\$5,000	\$5,000	\$5,000
			General Labourer	hrs	40	\$52	\$2,080	\$2,080	\$2,080
	Test area soils for contamination		Environmental Monitor	hrs	8	\$110	\$880	\$880	\$880
	Laboratory Analysis for soils testing		Soil Analysis	unit cost	4	\$300	\$1,200	\$1,200	\$1,200
	Haul any contaminated soils to nearest Land Treatment Facility		Cat 235 Excavator	hrs	16	\$240	\$3,840	\$3,840	\$3,840
			A30 Haul Truck	hrs	16	\$250	\$4,000	\$4,000	\$4,000
	Recontour and scarify area and slopes to establish drainage		D8K Dozer	hrs	24	\$300	\$7,200	\$7,200	\$7,200
			Cat 14H grader	hrs	20	\$270	\$5,400	\$5,400	\$5,400
	Revegetation		Revegetation Cost-all in	ha	1.6	\$2,850	\$4,560	\$4,560	\$4,560
	Install Signage		Misc.	lump sum	1	\$500	\$500	\$500	\$500
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$10,277	\$10,277	\$10,277
							Sub-Total	\$157,097	\$157,097
									\$157,097
5.2	Bellekeno 625 Adit Area	0.3							
	Remove electrical substation		Misc.	lump sum	1	\$20,000	\$20,000	\$20,000	\$20,000
	Remove electrical transmission line (Keno City to BK 625)		Misc.	lump sum	1	\$25,000	\$25,000	\$25,000	\$25,000
	Remove shop/loadout facility, compressor station		Misc.	lump sum	1	\$20,000	\$20,000	\$20,000	\$20,000
	Remove lab (3 trailers & associated structures)		Misc.	lump sum	1	\$10,000	\$10,000	\$10,000	\$10,000
	Area cleanup and haul debris to landfill		Cat 235 Excavator	hrs	20	\$240	\$4,800	\$4,800	\$4,800
			A30 Haul Truck	hrs	20	\$250	\$5,000	\$5,000	\$5,000
			General Labourer	hrs	40	\$52	\$2,080	\$2,080	\$2,080
	Test area soils for contamination		Environmental Monitor	hrs	8	\$110	\$880	\$880	\$880
	Laboratory Analysis for soils testing			unit cost	4	\$300	\$1,200	\$1,200	\$1,200
	Haul any contaminated soils to nearest Land Treatment Facility		Cat 235 Excavator	hrs	16	\$240	\$3,840	\$3,840	\$3,840
			A30 Haul Truck	hrs	16	\$250	\$4,000	\$4,000	\$4,000
	Recontour and scarify area and slopes to establish drainage		D8K Dozer	hrs	24	\$300	\$7,200	\$7,200	\$7,200
			Cat 14H grader	hrs	25	\$270	\$6,750	\$6,750	\$6,750
	Revegetation		Revegetation Cost-all in	ha	0.3	\$2,850	\$855	\$855	\$855
	Install Signage		Misc.	lump sum	1	\$500	\$500	\$500	\$500
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$7,847	\$7,847	\$7,847
							Sub-Total	\$119,952	\$119,952
									\$119,952
5.3	Bellekeno 200 Level Vent Raise								
	Engineering for Concrete Cap		Misc.	l.s.	1	\$10,000	\$10,000	\$10,000	\$10,000
	Concrete Batch		Misc.	l.s.	1	\$10,000	\$10,000	\$10,000	\$10,000
			988B Loader	hrs	12	\$300	\$3,600	\$3,600	\$3,600
			Tractor Trailer (lowbed)	hrs	48	\$195	\$9,360	\$9,360	\$9,360
	Labour for cap		General Labourer	hrs	40	\$52	\$2,080	\$2,080	\$2,080
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$2,453	\$2,453	\$2,453
							Sub-Total	\$37,493	\$37,493
									\$37,493
5.4	Onek 990 Portal and Underground								
	Remove underground equipment		6 yd LHD	hrs	30	\$219			\$6,570
			A30 Haul Truck	hrs	30	\$250			\$7,500
			Trades Labourer	hrs	60	\$91			\$5,460
			General Labourer	hrs	60	\$52			\$3,120
	Project Management & Engineering		7% of Total Cost	%		7.00%			\$1,586
							Sub-Total	\$0	\$24,236
									\$24,236
5.5	Onek 990 Portal Site and Infrastructure								
	Remove current buildings (incl explosives and cap magazine)		Misc.	l.s.	1	\$2,500	\$2,500	\$2,500	\$2,500
	Remove additional surface facilities once mine is in operation (shop, wash str.,)		Misc.	l.s.	1	\$5,000	\$0	\$0	\$0
	Supply rockfill for portal barrier		Load and Haul and Place Rip Rap	m3	700	\$13	\$9,100	\$9,100	\$9,100
	Labour for portal barrier		General Labourer	hrs	40	\$52	\$2,080	\$2,080	\$2,080
	Back-up french drain system to drain adit		Misc.	l.s.	1	\$5,000	\$5,000	\$5,000	\$5,000
	Area cleanup and haul debris to landfill		Cat 235 Excavator	hrs	20	\$240	\$2,400	\$4,800	\$4,800
			Haul Truck D250E	hrs	20	\$200	\$2,000	\$4,000	\$4,000
			General Labourer	hrs	40	\$52	\$1,040	\$2,080	\$2,080
	Sample and test area soils for contamination		Environmental Monitor	hrs	8	\$110	\$880	\$880	\$880
	Laboratory Analysis for soils testing		Analytical Costs	Unit Cost	4	\$300	\$1,200	\$1,200	\$1,200
	Haul any contaminated soils to nearest Land Treatment Facility		Cat 235 Excavator	hrs	16	\$240	\$1,920	\$3,840	\$3,840
			Haul Truck D250E	hrs	16	\$200	\$1,600	\$3,200	\$3,200
	Recontour and scarify area and slopes to establish drainage		D8K Dozer	hrs	24	\$300	\$7,200	\$7,200	\$7,200
			Cat 14H grader	hrs	20	\$270	\$5,400	\$5,400	\$5,400
	Install Signage		Misc.	l.s.	1	\$500	\$500	\$500	\$500
	Remove electrical substation (not yet upgraded, not part of LOM Plan))		Misc.	l.s.	1	\$0	\$0	\$0	\$0
	Remove electrical transmission line (not yet constructed, not part of LOM Plan)		Misc.	l.s.	1	\$0	\$0	\$0	\$0
	Characterize settling pond sediments/sludge (not yet constructed)		Analytical Costs	Unit Cost	2	\$300			
	Remove sludge from settling pond (not in service yet)		Vacuum Truck	hrs	40	\$140			
			General Labourer	hrs	40	\$52			
	Remove settling ponds liners to landfill (not yet constructed)		Haul Truck D250E	hrs	4	\$200			
			General Labourer	hrs	8	\$52			
	Recontour and scarify area and slopes to establish drainage		D8K Dozer	hrs	20	\$300	\$6,000	\$6,000	\$6,000

Table 9.5
Mine Workings - Underground
SJCI November 2015

Item No.	Work Item Description	Area (ha) / Length (m)	Equipment / Labour	Units	Quantity	Unit Rates	Current Total	Year 2 Total	EOM Total
	Scrap hauled to solid waste facility		Cat 14H grader	hrs	12	\$270	\$3,240	\$3,240	\$3,240
			Cat 235 Excavator	hrs	8	\$240	\$1,920	\$1,920	\$1,920
			Haul Truck D250E	hrs	12	\$200	\$2,400	\$2,400	\$2,400
	Revegetation		Revegetation Cost-all in	ha	1	\$2,850	\$2,850	\$2,850	\$2,850
	Install Signage		Misc.	l.s.	1	\$500	\$500	\$500	\$500
	Misc. Supplies & Tools		Misc.	l.s.	1	\$5,000	\$5,000	\$5,000	\$5,000
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$5,158	\$5,158	\$5,158
							Sub-Total	\$69,888	\$78,848
5.6	Onek 990 Vent Raise (not in LOM Plan)								
	Engineering for Concrete Cap		Misc.	l.s.				\$0	\$0
	Concrete Batch		Misc.	l.s.				\$0	\$0
			988B Loader	hrs				\$0	\$0
			Tractor Trailer (lowbed)	hrs				\$0	\$0
	Labour for cap		General Labourer	hrs				\$0	\$0
	Project Management & Engineering		7% of Total Cost	%		7.00%		\$0	\$0
							Sub-Total	\$0	\$0
5.7	Lucky Queen Underground								
	Remove shop and other buildings (explosives and cap magazine)		Misc.	hrs	1	\$5,000	\$2,500	\$5,000	\$5,000
	Supply rockfill for portal barrier		Load and Haul and Place Rip Rap	m3	700	\$13	\$9,100	\$9,100	\$9,100
	Labour for portal barrier		General Labourer	hrs	40	\$52	\$2,080	\$2,080	\$2,080
	Clean out fuel tank residue		Misc.	l.s.	1	\$1,000	\$0	\$1,000	\$1,000
	Haul fuel tank and liner for reuse or landfill		Cat 235 Excavator	hrs	6	\$240	\$0	\$1,440	\$1,440
			Haul Truck D250E	hrs	6	\$200	\$0	\$1,200	\$1,200
			General Labourer	hrs	16	\$52	\$0	\$832	\$832
	Area cleanup and haul debris to landfill		Cat 235 Excavator	hrs	20	\$240	\$2,400	\$4,800	\$4,800
			Haul Truck D250E	hrs	20	\$200	\$2,000	\$4,000	\$4,000
			General Labourer	hrs	40	\$52	\$1,040	\$2,080	\$2,080
	Sample and test area soils for contamination		Environmental Monitor	hrs	8	\$110	\$880	\$880	\$880
	Laboratory Analysis for soils testing		Analytical Costs	Unit Cost	4	\$300	\$1,200	\$1,200	\$1,200
	Haul any contaminated soils to nearest Land Treatment Facility		Cat 235 Excavator	hrs	16	\$240	\$3,840	\$3,840	\$3,840
			Haul Truck D250E	hrs	16	\$200	\$3,200	\$3,200	\$3,200
	Recontour and scarify area and slopes to establish drainage		D8K Dozer	hrs	12	\$300	\$3,600	\$3,600	\$3,600
			Cat 14H grader	hrs	20	\$270	\$5,400	\$5,400	\$5,400
	Remove electrical substation (not yet upgraded)		Misc.	l.s.	1	\$15,000	\$0	\$0	\$15,000
	Remove electrical transmission cable (not yet constructed)		Misc.	l.s.	1	\$15,000	\$0	\$0	\$15,000
	Remove shop/loadout facility		Misc.	l.s.	1	\$5,000	\$5,000	\$5,000	\$5,000
	Install Signage		Misc.	l.s.	1	\$500	\$500	\$500	\$500
	Characterize settling pond sediments/sludge		Analytical Costs	Unit Cost	2	\$300	\$600	\$600	\$600
			Environmental Monitor	hrs	8	\$110	\$880	\$880	\$880
	Remove sludge from settling pond		Vacuum Truck	hrs	40	\$140	\$2,800	\$5,600	\$5,600
			General Labourer	hrs	40	\$52	\$2,080	\$2,080	\$2,080
	Remove settling ponds liners to landfill (not yet constructed)		Haul Truck D250E	hrs	4	\$200	\$0	\$800	\$800
	Site levelling		D9H Dozer	hrs	20	\$350	\$7,000	\$7,000	\$7,000
			Cat 14H grader	hrs	20	\$270	\$5,400	\$5,400	\$5,400
	Scrap hauled to solid waste facility		Cat 235 Excavator	hrs	8	\$240	\$1,920	\$1,920	\$1,920
			Haul Truck D250E	hrs	12	\$200	\$2,400	\$2,400	\$2,400
	Revegetation		Revegetation Cost-all in	ha	1	\$2,850	\$2,850	\$2,850	\$2,850
	Install Signage		Misc.	l.s.	1	\$500	\$500	\$500	\$500
	Misc. Supplies & Tools		Misc.	l.s.	1	\$5,000	\$5,000	\$5,000	\$5,000
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$6,313	\$6,313	\$8,413
							Sub-Total	\$80,483	\$96,495
5.8	Lucky Queen Vent Raise								
	Engineering for Concrete Cap		Misc.	l.s.	1	\$10,000		\$10,000	\$10,000
	Concrete Batch		Misc.	l.s.	1	\$10,000		\$10,000	\$10,000
			950 Loader	hrs	12	\$150		\$1,800	\$1,800
			Tractor Trailer (lowbed)	hrs	48	\$160		\$7,680	\$7,680
	Labour for cap		General Labourer	hrs	40	\$52		\$1,800	\$1,800
	Project Management & Engineering		7% of Total Cost	%		7.00%		\$2,190	\$2,190
							Sub-Total	\$0	\$33,470
5.9	Flame and Moth Underground								
	Remove shop and other buildings (explosives and cap magazine)		Misc.	hrs	1	\$5,000	\$0	\$5,000	\$5,000
	Supply rockfill for portal barrier		Load and Haul and Place Rip Rap	m3	700	\$13	\$0	\$9,100	\$9,100
	Labour for portal barrier		General Labourer	hrs	40	\$52	\$0	\$2,080	\$2,080
	Clean out fuel tank residue		Misc.	l.s.	1	\$1,000	\$0	\$1,000	\$1,000
	Haul fuel tank and liner for reuse or landfill		Cat 235 Excavator	hrs	6	\$240	\$0	\$1,440	\$1,440
			Haul Truck D250E	hrs	6	\$200	\$0	\$1,200	\$1,200
			General Labourer	hrs	16	\$52	\$0	\$832	\$832
	Area cleanup and haul debris to landfill		Cat 235 Excavator	hrs	10	\$240	\$0	\$2,400	\$2,400
			Haul Truck D250E	hrs	10	\$200	\$0	\$2,000	\$2,000
			General Labourer	hrs	40	\$52	\$0	\$2,080	\$2,080
	Sample and test area soils for contamination		Environmental Monitor	hrs	8	\$110	\$0	\$880	\$880
	Laboratory Analysis for soils testing		Analytical Costs	Unit Cost	4	\$300	\$0	\$1,200	\$1,200
	Haul any contaminated soils to nearest Land Treatment Facility		Cat 235 Excavator	hrs	16	\$240	\$0	\$3,840	\$3,840
			Haul Truck D250E	hrs	16	\$200	\$0	\$3,200	\$3,200
	Recontour and scarify area and slopes to establish drainage		D8K Dozer	hrs	12	\$300	\$1,800	\$3,600	\$3,600
			Cat 14H grader	hrs	16	\$270	\$2,160	\$4,320	\$4,320
	Remove electrical substation (included in mill facilities)		Misc.	l.s.	1	\$0	\$0	\$0	\$0
	Install Signage		Misc.	l.s.	1	\$500	\$500	\$500	\$500
	Characterize settling pond sediments/sludge		Analytical Costs	Unit Cost	2	\$300	\$0	\$600	\$600
	Remove sludge from settling pond		Vacuum Truck	hrs	30	\$140	\$0	\$4,200	\$4,200
			General Labourer	hrs	30	\$52	\$0	\$1,560	\$1,560
	Remove settling ponds liners to landfill		Haul Truck D250E	hrs	4	\$200	\$0	\$800	\$800
	Site levelling		D9H Dozer	hrs	16	\$350	\$2,800	\$5,600	\$5,600
	Scrap hauled to solid waste facility		Cat 235 Excavator	hrs	8	\$240	\$0	\$1,920	\$1,920

Table 9.5
Mine Workings - Underground
SJCI November 2015

Item No.	Work Item Description	Area (ha) / Length (m)	Equipment / Labour	Units	Quantity	Unit Rates	Current Total	Year 2 Total	EOM Total
			Haul Truck D250E	hrs	12	\$200	\$0	\$2,400	\$2,400
	Misc. Supplies & Tools		Misc.	l.s.	1	\$7,500	\$0	\$7,500	\$7,500
							\$0		
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$508	\$4,848	\$4,848
						Sub-Total	\$7,768	\$74,100	\$74,100
5.10	Flame and Moth Vent Raise								
	Engineering for Concrete Cap		Misc.	l.s.	1	\$10,000	\$0	\$10,000	\$10,000
	Concrete Batch		Misc.	l.s.	1	\$10,000	\$0	\$10,000	\$10,000
			950 Loader	hrs	12	\$150	\$0	\$1,800	\$1,800
			Tractor Trailer (lowbed)	hrs	48	\$160	\$0	\$7,680	\$7,680
	Labour for cap		General Labourer	hrs	40	\$45	\$0	\$1,800	\$1,800
	Project Management & Engineering		7% of Total Cost	%		7%	\$0	\$2,190	\$2,190
						Sub-Total	\$0	\$33,470	\$33,470
	Total Estimated Cost in Reclaiming Underground Mines						\$472,682	\$630,924	\$687,260

Note:

Linear disturbances to be scarified / decompacted and allowed to naturally revegetate

Table 9.6

Water and Solutions Management
SICI November 2015

Item No.	Work Item Description	Area (ha) / Length (m)	Equipment / Labour	Units	Quantity	Unit Rates	Current Total	Year 2 Total	EOM Total
6.1	Mill Runoff Collection & Process Pond								
	Pump down collected water		General Labourer	hrs	36	\$52	\$1,872	\$1,872	\$1,872
			Pump	daily	3	\$300	\$300	\$300	\$300
	Misc. Supplies and Tools		Misc.	l.s.	1	\$1,000	\$1,000	\$1,000	\$1,000
	Characterize pond sediments/sludge		Analytical Costs	Unit Cost	2	\$300	\$600	\$600	\$600
			General Labourer	hrs	2	\$52	\$104	\$104	\$104
	Remove pond sediments/sludge		Vacuum Truck	hrs	16	\$150	\$2,400	\$2,400	\$2,400
			General Labourer	hrs	16	\$52	\$832	\$832	\$832
	Breach dyke		D8K Dozer	hrs	4	\$300	\$1,200	\$1,200	\$1,200
	Remove & bury HDPE liner		General Labourer	hrs	40	\$52	\$2,080	\$2,080	\$2,080
			Cat 235 Excavator	hrs	12	\$240	\$2,880	\$2,880	\$2,880
			Haul Truck D250E	hrs	4	\$200	\$800	\$800	\$800
	Backfill area & re-contour		Load, haul and place soil cover	cu.m.	3,000	\$4.64	\$13,920	\$13,920	\$13,920
			D8K Dozer	hrs	8	\$300	\$2,400	\$2,400	\$2,400
	Stabilize slopes with erosion barriers		Erosion barriers	cu.m.	3,000	\$3.00	\$9,000	\$9,000	\$9,000
	Remove discharge pipeline		Misc.	l.s.	1	\$5,000	\$5,000	\$5,000	\$5,000
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$2,885	\$2,885	\$2,885
							Sub-Total	\$47,273	\$47,273
6.2	Diversion Ditches								
	Recontour Diversion Ditch to Mill Pond	525	D8K Dozer	hrs	24	\$300	\$7,200	\$7,200	\$7,200
			Cat 235 Excavator	hrs	10	\$240	\$2,400	\$2,400	\$2,400
	Recontour Diversion Ditch above Mill Area	285	D8K Dozer	hrs	10	\$300	\$3,000	\$3,000	\$3,000
			Cat 235 Excavator	cu.m.	5	\$240	\$1,200	\$1,200	\$1,200
	Enhance Diversion Ditch above DSTF, to closure criteria	~300m	D8K Dozer	hrs	10	\$300	\$3,000	\$3,000	\$3,000
			Cat 235 Excavator	cu.m.	5	\$240	\$1,200	\$1,200	\$1,200
	Revegetate	1	Revegetation cost per ha. Including application cost	ha	1.00	\$2,850	\$2,850	\$2,850	\$2,850
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$1,460	\$1,460	\$1,460
							Sub-Total	\$22,310	\$22,310
6.3	Bellekeno 625 WTP - Mine Pool Treatment Transition								
	625 Adit Bulkhead (5.7.1.3)								
	Hydrogeologic study & engineering for concrete bulkhead		Misc.	lump sum	1	\$40,000	\$40,000	\$40,000	\$40,000
	Underground Rehab for bulkhead		Misc.	lump sum	1	\$50,000	\$50,000	\$50,000	\$50,000
	Construct concrete plug		General Labourer	hrs	120	\$52	\$6,240	\$6,240	\$6,240
			Trades Labourer	hrs	120	\$91	\$10,920	\$10,920	\$10,920
	Concrete Batch		Misc.	cu.m	31	\$1,750	\$54,880	\$54,880	\$54,880
			950 Loader	hrs	80	\$180	\$14,400	\$14,400	\$14,400
	Misc for concrete plug (anchors, drainage pipe, etc)		Misc.	lump sum	1	\$10,000	\$10,000	\$10,000	\$10,000
	Install instrumentation (e.g pressure gauge)		Misc.	lump sum	1	\$10,000	\$10,000	\$10,000	\$10,000
	Remove salvageable equipment		Cat 235 Excavator	hrs	16	\$240.00	\$3,840	\$3,840	\$3,840
			Trades Labourer	hrs	16	\$91	\$1,456	\$1,456	\$1,456
	Load & return extra reagents/chemicals		General Labourer	hrs	8	\$52	\$416	\$416	\$416
			Misc.	l.s.	1	\$2,000	\$2,000	\$2,000	\$2,000
	In mine pool treatment implementation		Misc.	l.s.	1	\$40,000	\$40,000	\$40,000	\$40,000
	Characterize settling ponds sediments/sludge		Analytical Costs	Unit Cost	2	\$300	\$600	\$600	\$600
	Remove sludge from settling ponds (to DSTF)		Vacuum Truck	hrs	80	\$150	\$12,000	\$12,000	\$12,000
			General Labourer	hrs	80	\$52	\$4,160	\$4,160	\$4,160
	Remove settling ponds liners to landfill		Haul Truck D250E	hrs	4	\$200	\$800	\$800	\$800
			General Labourer	hrs	8	\$52	\$416	\$416	\$416
	Complete final design of bioreactor, incl testwork, design report, permitting & approvals		Misc.	lump sum	1	\$10,000	\$10,000	\$10,000	\$10,000
	Construct Bellekeno 625 bioreactor		Haul Truck D250E	hrs	80	\$200	\$16,000	\$16,000	\$16,000
			Cat 950 loader	hrs	60	\$180	\$10,800	\$10,800	\$10,800
			General Labourer	hrs	60	\$52	\$3,120	\$3,120	\$3,120
			Environmental Monitor	hrs	8	\$110	\$880	\$880	\$880
	Operate Bellekeno 625 bioreactor (costed in T.9.11-P-C C&M)		Misc.	l.s.			\$0	\$0	\$0
	Site levelling		D8K Dozer	hrs	25	\$300	\$7,500	\$7,500	\$7,500
	Scrap hauled to solid waste facility		Haul Truck D250E	hrs	8	\$200	\$1,600	\$1,600	\$1,600
			Cat 235 Excavator	hrs	12	\$240	\$2,880	\$2,880	\$2,880
	Misc. Supplies & Tools		Misc.	l.s.	1	\$10,000	\$10,000	\$10,000	\$10,000
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$22,744	\$22,744	\$22,744
							Sub-Total	\$347,652	\$347,652
6.4	Mill Pond - Bioreactor Transition								
	Discharge mill pond inventory (3,500 m3)		Analytical Costs	Unit Cost	2	\$300	\$600	\$600	\$600
			General Labourer	hrs	20	\$52	\$1,040	\$1,040	\$1,040
	Construct outlet channel		Cat 235 Excavator	hrs	20	\$240	\$4,800	\$4,800	\$4,800
			D8K Dozer	hrs	20	\$300	\$6,000	\$6,000	\$6,000
			Place rip rap	cu.m.	5	\$13	\$65	\$65	\$65
			General Labourer	hrs	30	\$52	\$1,560	\$1,560	\$1,560
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$985	\$985	\$985
							Sub-Total	\$15,050	\$15,050
6.4	Flame and Moth Water Management								
	In Mine Pool treatment implementation - costs included in post closure care and maintenance								
	In mine pool treatment implementation-contingency		Misc.	l.s.	1	\$20,000	\$0	\$0	\$20,000
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$0	\$0	\$1,400
							Sub-Total	\$0	\$21,400
Total Estimated Cost in Constructing Primary Drainage Ditches							\$432,284	\$432,284	\$453,684

Note:

Table 9.7

Dry Stack Tailings Facility

SJCI November 2015

Item No.	Work Item Description	Area (ha) / Length (m)	Equipment / Labour	Units	Quantity	Unit Rates	Current Total	Year 2 Total	EOM Total	
7.1	DSTF - Current	0.5								
	Recontour slopes to final design and compact		D8K Dozer	hrs	20	300	6,000			
			Vibratory Roller	hrs	8	190	1,520			
	Place soil cover and spread (0.5m thickness)		Load, haul and place soil cover	cu.m.	4,000	8	32,000			
	Revegetation		Revegetation cost per ha. Including application cost	ha	0.80	\$2,850	2,280			
	Project Management & Engineering		7% of Total Cost	%		7.00%	2,926			
						Sub-Total	\$44,726			
7.2	DSTF - Year 2	1.5								
	Recontour slopes to final design and compact		D8K Dozer	hrs	60	300		\$18,000		
			Vibratory Roller	hrs	20	190		\$3,800		
	Place soil cover and spread (0.5m thickness)		Load, haul and place soil cover	cu.m.	10,000	8		\$80,000		
	Revegetation		Revegetation cost per ha. Including application cost	ha	2.00	\$2,850		\$5,700		
	Project Management & Engineering		7% of Total Cost	%		7.00%		\$7,525		
						Sub-Total		\$115,025		
7.3	DSTF - EOM	6.0								
	Recontour slopes to final design and compact		D8K Dozer	hrs	240	300			\$72,000	
			Vibratory Roller	hrs	80	190			\$15,200	
	Construct N-AML toe berm below ultimate DSTF			l.s.	1	100,000			\$100,000	
	Place soil cover and spread (0.5m thickness)		Load, haul and place soil cover	cu.m.	27,500	8			\$220,000	
	Revegetation		Revegetation cost per ha. Including application cost	ha	5.50	\$2,850			\$15,675	
	Project Management & Engineering		7% of Total Cost			7.00%			\$29,601	
						Sub-Total			\$452,476	
Total Estimated Cost in Reclaiming Tailings Area								\$44,726	\$115,025	\$452,476

Note:

Table 9.8
Mill & Ancillary Facilities
SJCI November 2015

Item No.	Work Item Description	Area (ha) / Length (m)	Equipment / Labour	Units	Quantity	Unit Rates	Current Total	Year 2 Total	EOM Total
8.1	Mill and Ancillary Facilities								
	Remove equipment (crusher, conveyors, mill equipment, trailer units, other ancillary facilities - fine ore bin)		General Labourer	hrs	600	\$52	\$31,200	\$31,200	\$31,200
			Trades Labourer	hrs	400	\$91	\$36,400	\$36,400	\$36,400
			Cat 950 loader	hrs	150	\$180	\$27,000	\$27,000	\$27,000
			Cat 235 Excavator	hrs	50	\$240	\$12,000	\$12,000	\$12,000
			Tractor Trailer (lowbed)	hrs	120	\$195	\$23,400	\$23,400	\$23,400
	Load and return extra chemicals/reagents		General Labourer	hrs	75	\$52	\$3,900	\$3,900	\$3,900
			Misc.	l.s.	1	\$10,000	\$10,000	\$10,000	\$10,000
	Dismantle Mill Building		Cat 950 loader	hrs	70	\$180	\$12,600	\$12,600	\$12,600
			Tractor Trailer (lowbed)	hrs	70	\$195	\$13,650	\$13,650	\$13,650
			Trades Labourer	hrs	300	\$91	\$27,300	\$27,300	\$27,300
			General Labourer	hrs	1000	\$52	\$52,000	\$52,000	\$52,000
	Concrete demolition of all foundations & footings		Cat 235 Excavator w hammer	l.s.	80	\$275	\$22,000	\$22,000	\$22,000
			D9H Dozer	hrs	40	\$350	\$14,000	\$14,000	\$14,000
	Elec. substation (disconnect, remove from site)		Misc.	Unit Cost	1	\$20,000	\$20,000	\$20,000	\$20,000
	Dismantle/remove other area bldgs (dry, lab, MCCs, etc)		Misc.	Unit Cost	10	\$5,000	\$50,000	\$50,000	\$50,000
	Disconnect services		Misc.	Misc.	10	\$2,000	\$20,000	\$20,000	\$20,000
	Decommission buried infrastructure		Misc.	Misc.	1	\$5,000	\$5,000	\$5,000	\$5,000
	Dismantle/remove fresh water tank		Misc.	Misc.	1	\$10,000	\$10,000	\$10,000	\$10,000
	Remove diesel & propane Tanks (owned by vendors)								
	Disconnect services		Misc.	Misc.	2	\$1,000	\$2,000	\$2,000	\$2,000
	Crane support		30 ton Crane	hrs	200	\$190	\$38,000	\$38,000	\$38,000
	Haul scrap to Solid Waste Facility		Cat 235 Excavator	hrs	50	\$240	\$12,000	\$12,000	\$12,000
			Haul Truck D250E	hrs	100	\$200	\$20,000	\$20,000	\$20,000
	Misc. supplies and tools		Misc.	l.s.	1	\$5,000	\$5,000	\$5,000	\$5,000
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$32,722	\$32,722	\$32,722
							Sub-Total	\$500,172	\$500,172
8.2	Mill Pad								
	Test area soils for contamination	2.8	Environmental Monitor	hrs	16	\$110	\$1,760	\$1,760	\$1,760
	Laboratory Analysis for soils testing		Analytical Costs	Unit Cost	20	\$300	\$6,000	\$6,000	\$6,000
	Haul any contaminated soils to nearest Land Treatment Facility		Cat 235 Excavator	hrs	16	\$240	\$3,840	\$3,840	\$3,840
			Haul Truck D250E	hrs	16	\$200	\$3,200	\$3,200	\$3,200
	Regrade embankment shoulders		D8K Dozer	hrs	24	\$300	\$7,200	\$7,200	\$7,200
	Haul & place soil cover (0.15m aver. thickness)		Load, haul and place soil cover	cu.m.	4200	\$4.64	\$19,488	\$19,488	\$19,488
	Recontour area to bury any footings & provide drainage, in prep for revegetation		Cat 14H grader	hrs	24	\$270	\$6,480	\$6,480	\$6,480
	Revegetate		Revegetation cost per ha. Including application cost	hrs	2.8	\$2,850	\$7,980	\$7,980	\$7,980
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$3,916	\$3,916	\$3,916
							Sub-Total	\$59,864	\$59,864
8.3	Camp Downsize								
	Dismantle 5 trailer units and transport to Lot 960		Misc.	l.s.	1	\$25,000	\$25,000	\$25,000	\$25,000
	Project Management & Engineering		7% of Total Cost	%		7.00%	\$1,750	\$1,750	\$1,750
							Sub-Total	\$26,750	\$26,750
Total Estimated Cost in Reclaiming Mill and Ancillary Facilities							\$586,786	\$586,786	\$586,786

Table 9.9
Haulage and Access Roads
SJCI November 2015

Item No.	Work Item Description	Area (ha) / Length (km)	Equipment / Labour	Units	Quantity	Unit Rates	Current Total	Year 2 Total	EOM Total	
9.1	Bellekeno East Portal to Upper Laydown (0.5 km)									
	Culvert Excavation and install swales (2 ea)		Cat 235 Excavator	hrs	10	240	\$2,400	\$2,400	\$2,400	
			General Labourer	hrs	24	52	\$1,248	\$1,248	\$1,248	
	Reslope banks/remove safety berms		Cat 235 Excavator	hrs	24	240	\$5,760	\$5,760	\$5,760	
	Scarify road surface	0.5	Cat 14H grader	hrs	16	\$270	\$4,320	\$4,320	\$4,320	
	Erosion barrier (50% of length)		Misc.	m2	500	\$3	\$1,500	\$1,500	\$1,500	
	Project Management & Engineering		7% of Total Cost	%			\$1,066	\$1,066	\$1,066	
			Sub-Total					\$16,294	\$16,294	\$16,294
9.2	Bellekeno 625 Access (0.25 km)									
	Culvert Excavation and install swales (15 ea)		Cat 235 Excavator	hrs	6	\$240	\$1,440	\$1,440	\$1,440	
			General Labourer	hrs	12	\$52	\$624	\$624	\$624	
	Reslope banks/remove safety berms		Cat 235 Excavator	hrs	12	\$240	\$2,880	\$2,880	\$2,880	
	Scarify road surface	0.3	Cat 14H grader	hrs	16	\$270	\$4,320	\$4,320	\$4,320	
	Erosion barrier (50% of length)		Misc.	m2	250	\$3	\$750	\$750	\$750	
	Project Management & Engineering		7% of Total Cost	%			\$701	\$701	\$701	
			Sub-Total					\$10,715	\$10,715	\$10,715
9.3	Bellekeno East to BK 5 (3.0 km)									
	Culvert Excavation and install swales (20 ea)		Cat 235 Excavator	hrs	80	\$240	\$19,200	\$19,200	\$19,200	
			General Labourer	hrs	120	\$52	\$6,240	\$6,240	\$6,240	
	Reslope banks/remove safety berms		Cat 235 Excavator	hrs	40	\$240	\$9,600	\$9,600	\$9,600	
	Scarify road surface	3.0	Cat 14H grader	hrs	40	\$270	\$10,800	\$10,800	\$10,800	
	Erosion barrier (50% of length)		Misc.	hrs	3,000	\$3	\$9,000	\$9,000	\$9,000	
	Project Management & Engineering		7% of Total Cost	%			\$3,839	\$3,839	\$3,839	
			Sub-Total					\$58,679	\$58,679	\$58,679
9.4	Keno City Bypass Road (BK 5 to Crusher - 1.2 km)									
	Culvert Excavation and install swales (5 ea)		Cat 235 Excavator	hrs	20	\$240	\$4,800	\$4,800	\$4,800	
			General Labourer	hrs	24	\$52	\$1,248	\$1,248	\$1,248	
	Reslope banks/remove safety berms		Cat 235 Excavator	hrs	30	\$240	\$7,200	\$7,200	\$7,200	
	Scarify road surface	1.2	Cat 14H grader	hrs	16	\$270	\$4,320	\$4,320	\$4,320	
	Erosion barrier (50% of length)		Misc.	hrs	12	\$3	\$36	\$36	\$36	
	Remove Lightning Creek Bridge (Bellekeno)		Cat 235 Excavator	hrs	20	\$240	\$4,800	\$4,800	\$4,800	
			Tractor Trailer (lowbed)	hrs	12	\$195	\$2,340	\$2,340	\$2,340	
			Misc.	l.s.	1,200	\$3	\$3,600	\$3,600	\$3,600	
	Project Management & Engineering		7% of Total Cost	%			\$1,984	\$1,984	\$1,984	
			Sub-Total					\$30,328	\$30,328	\$30,328
9.5	Keno District Mill Access (Christal Lake Road - 1.9 km)									
	Culvert Excavation and install swales (5 ea)		Cat 235 Excavator	hrs	15	\$240	\$3,600	\$3,600	\$3,600	
			General Labourer	hrs	30	\$52	\$1,560	\$1,560	\$1,560	
	Reslope banks/remove safety berms		Cat 235 Excavator	hrs	12	\$240	\$2,880	\$2,880	\$2,880	
	Scarify road surface	1.9	Cat 14H grader	hrs	20	\$270	\$5,400	\$5,400	\$5,400	
	Erosion barrier (50% of length)		Misc.	l.s.	1,900	\$3	\$5,700	\$5,700	\$5,700	
	Project Management & Engineering		7% of Total Cost	%			\$1,340	\$1,340	\$1,340	
			Sub-Total					\$20,480	\$20,480	\$20,480
9.6	Flame and Moth Haul Road (Portal to Crusher - 175 m)									
	Culvert Excavation and install swales (3 ea)		Cat 235 Excavator	hrs	10	\$240	\$0	\$2,400	\$2,400	
			General Labourer	hrs	10	\$52	\$0	\$520	\$520	
	Reslope banks/remove safety berms		Cat 235 Excavator	hrs	10	\$240	\$0	\$2,400	\$2,400	
	Scarify road surface	0.175	Cat 14H grader	hrs	8	\$270	\$0	\$2,160	\$2,160	
	Erosion barrier (50% of length)		Misc.	l.s.	175	\$3	\$0	\$525	\$525	
	Project Management & Engineering		7% of Total Cost	%			\$0	\$560	\$560	
			Sub-Total					\$0	\$8,565	\$8,565
9.7	Onek Haul Road (Onek 990 Portal to BK9 - 2.1 km)									
	Culvert Excavation and install swales (5 ea)		Cat 235 Excavator	hrs	30	\$240	\$7,200	\$7,200	\$7,200	
			General Labourer	hrs	20	\$52	\$1,040	\$1,040	\$1,040	
	Reslope banks/remove safety berms		Cat 235 Excavator	hrs	10	\$240	\$2,400	\$2,400	\$2,400	
	Scarify road surface	2.1	Cat 14H grader	hrs	20	\$270	\$5,400	\$5,400	\$5,400	
	Erosion barrier (50% of length)		Misc.	l.s.	2,100	\$3	\$6,300	\$6,300	\$6,300	
	Remove Lightning Creek Bridge (Onek)		Cat 235 Excavator	hrs	20	\$240	\$4,800	\$4,800	\$4,800	
			Tractor Trailer (lowbed)	hrs	12	\$195	\$2,340	\$2,340	\$2,340	
	Project Management & Engineering		7% of Total Cost	%			\$2,064	\$2,064	\$2,064	
			Sub-Total					\$31,544	\$31,544	\$31,544
9.8	Lucky Queen Haul and Access Road (Werneck to Onek 990 - 1.2 km)									
	Culvert Excavation and install swales (2 ea)		Cat 235 Excavator	hrs	20	\$240	\$4,800	\$4,800	\$4,800	
			General Labourer	hrs	16	\$52	\$832	\$832	\$832	
	Reslope banks/remove safety berms		Cat 235 Excavator	hrs	10	\$240	\$2,400	\$2,400	\$2,400	
	Scarify road surface	1.2	Cat 14H grader	hrs	12	\$270	\$3,240	\$3,240	\$3,240	
	Erosion barrier (50% of length)		Misc.	l.s.	1,200	\$3	\$3,600	\$3,600	\$3,600	
	Project Management & Engineering		7% of Total Cost	%			\$1,041	\$1,041	\$1,041	
			Sub-Total					\$15,913	\$15,913	\$15,913
9.9	Other Roads and Trails (3 km)									
	Scarify road surface	3	Cat 14H grader	hrs	20	\$270	\$5,400	\$5,400	\$5,400	
	Project Management & Engineering		7% of Total Cost	%			\$378	\$378	\$378	
			Sub-Total					\$5,778	\$5,778	\$5,778
Total Estimated Cost for Haulage and Access Road Closure							\$189,730	\$198,296	\$198,296	

Note:

Table 9.11
Post Closure Care, Maintenance, and Monitoring
SJCI November 2015

Item No.	Work Item Description	Equipment / Labour	Units	Quantity	Unit Rates	Annual Cost	Full Cost	NPV Current	NPV Year 2	NPV Year 9	
11.1	Onsite Management (Active Closure Phase covered in T.9.3-G&A)										
	Project Management and Engineering - Included in PME Costs in each Closure Component										
	Pickup trucks										
	Post Closure 10 Years (1 truck for Environmental Monitor , 6 mo/yr))			10		\$15,000	\$150,000				
	Sundry equipment maintenance										
	Post Closure (10 Years)			10		\$2,500	\$25,000				
	Power and heat (5 months per year)										
	Post Closure 10 Years			10		\$2,500	\$25,000				
	General Administrative expenses										
	Post Closure (10 Years)			10		\$4,500	\$45,000				
	Camp Costs										
	Post Closure (10 Years)	Unit Cost Basis	man-day	600	\$75	\$4,500	\$45,000				
	Subtotal - Post Closure 10 Years						\$29,000	\$290,000	\$241,580	\$235,688	\$198,276
11.2	Transport Costs										
	Employee transport costs										
	Post Closure (10 Years); 5yrs @ \$10K, 5yrs @ \$5K	Unit Cost Basis	Years	10			\$75,000				
	Subtotal - Post Closure 10 Years						\$75,000	\$63,762	\$62,206	\$52,332	
11.3	Water Treatment Costs										
11.3.1	Active Treatment (1 year as base case)	Misc.	monthly								
	Capital Costs	Misc.	annually								
	Capital Replacement Costs	Misc.	annually								
	Operating Costs	Misc.	annually	1	\$198,186	\$198,186	\$198,186	\$184,035	\$179,547	\$151,046	
11.3.2	Passive Treatment (Mill Area Bio-reactor)										
	Capital Costs	Misc.	annually				\$110,000	\$107,317	\$104,700	\$88,080	
	Operation and Maintenance Costs	Misc.	annually	11		\$11,818	\$130,000	\$113,469	\$110,702	\$93,129	
	Subtotal - Post Closure 10 Years						\$438,186	\$404,822	\$394,948	\$332,256	
11.4	Reclamation & Closure Research Plan										
	Reclamation & Closure Research Plan (covered in T.10)	Misc.	annually	-	\$0	\$0	\$0				
	Subtotal - Post Closure 10 Years						\$0	\$0	\$0	\$0	
11.5	Monitoring & Reporting										
11.5.1	Disbursements (non-labour/non-analytical) (Active & P-C phases)	Misc.	annually	12	\$5,000	\$5,000	\$70,000	\$61,300	\$59,805	\$59,805	
11.5.2	Water Quality Monitoring										
	Active Closure 2 year + Post Closure yrs1-5 (estimate ~280 samples/yr)	Misc.	annually	280	\$300	\$84,000	\$588,000	\$533,349	\$520,340	\$437,744	
	Post Closure yrs 6-10 (estimate ~115 samples/yr)	Misc.	annually	115	\$300	\$34,500	\$172,500	\$134,839	\$131,550	\$110,669	
11.5.3	EEM Monitoring										
	Biological Monitoring (Sediment, Benthos, Toxicity):										
	Active Closure 2 year + Post Closure yrs1-5	Misc.	annually	7	\$4,000	\$8,286	\$58,000	\$51,013	\$49,768	\$41,868	
	Post Closure yrs 6-10	Misc.	annually	5	\$4,000	\$4,000	\$50,000	\$41,652	\$40,636	\$34,185	
	Radiums (Quarterly at 3 mine final discharges for 2yrs Active Closure)		each	9	\$130	\$1,170	\$2,340	\$1,141	\$1,114	\$937	
11.5.4	Geotechnical Inspections										
	Post Closure yrs1-10	Misc.	annually	10	\$5,000	\$5,000	\$50,000	\$41,652	\$40,636	\$34,185	
11.5.5	Reclamation Inspections:										
	Post Closure yrs1-10	Misc.	annually	10	\$5,000	\$5,000	\$50,000	\$41,652	\$40,636	\$42,095	
11.5.6	Site Maintenance										
	Active Closure and Post Closure yrs1-10	Misc.	each	12	\$7,500	\$7,500	\$90,000	\$67,162	\$65,524	\$55,123	
11.5.7	Annual Inspection + report - Active and Post Closure yrs 1-10	Misc.	annually	12	\$5,000	\$5,000	\$60,000	\$51,289	\$50,038	\$42,095	
	Sub-Total						\$1,190,840	\$1,025,048	\$1,000,047	\$858,707	
Total Estimated Cost for Post Closure Site Management							\$1,994,026	\$1,735,211	\$1,692,889	\$1,441,571	

Note:

Table 9.12
Interim Care and Maintenance
SJCI November 2015

Item No.	Work Item Description	Equipment / Labour	Units	Quantity	Unit Rates	Annual Cost	Full Cost
12.1	Personnel						
	On-site Caretaker						
	Full time (2 people on alternate 7in-7out schedule, \$6,710 each per mo)	Site caretaker	\$/manmonth	24	\$6,710	\$161,040	\$161,040
	Extra Personnel						
	Electrician (estimate 1/2 mo/yr total)	Trades Labourer	\$/hr	88	\$91	\$8,008	\$8,008
	Mechanic (estimate 1/2 mo/yr total)	Trades Labourer	\$/hr	88	\$91	\$8,008	\$8,008
	Senior Operator/Supervisor (estimate 1 mo/yr total)	Unit Cost Basis	\$/hr	176	\$110	\$19,360	\$19,360
	Camp Costs						
	for above personnel (365+15+15+30)	Unit Cost Basis	mandays	425	\$75	\$31,875	\$31,875
	Employee Transport Costs						
	Driving in allowance (4 roundtrips per mo)	Unit Cost Basis	monthly	12	\$2,500	\$30,000	\$30,000
	Sub-Total - Personnel						\$258,291
12.2	Equipment						
	Small Excavator (1)	Misc.	annually	1	\$10,000	\$10,000	\$10,000
	Small Dozer (1)	Misc.	annually	1	\$10,000	\$10,000	\$10,000
	Small Loader (1)	Misc.	annually	1	\$10,000	\$10,000	\$10,000
	Pick-Up Truck (1)	Misc.	monthly	12	\$2,500	\$30,000	\$30,000
	Snow Machine & ATV	Misc.	annually	1	\$5,000	\$5,000	\$5,000
	Sub-Total - Equipment						\$65,000
12.3	Tasks						
	SNP/AEMP water sampling	Misc.	annually	1	\$97,286	\$97,286	\$97,286
	Interim water treatment (active BK-625)	Misc.	annually	1	\$198,186	\$198,186	\$198,186
	Geotechnical Assessments (2/yr)	Misc.	annually	1	\$15,000	\$15,000	\$15,000
	Enhanced Groundwater/Foundation monitoring	Misc.	annually	1	\$15,000	\$15,000	\$15,000
	Monitoring of piezometers and thermistors (3/yr)	Misc.	3/yr	3	\$3,000	\$9,000	\$9,000
	Communications & reporting	Misc.	annually	1	\$2,500	\$2,500	\$2,500
	Sub-Total - Tasks						\$336,972
12.4	Miscellaneous						
	Misc Supplies	Misc.	monthly	7	\$5,000	\$35,000	\$35,000
	Annual Fuel	Misc.	\$/litre	3,000	\$1.80	\$5,400	\$5,400
	Sub-Total - Miscellaneous						\$40,400
	Annual Cost for ICM						\$700,663
	Number of Years						2
	Total ICM Cost						\$1,401,325

Note:

Table 9.13
Mobilization and Demobilization
SJCI November 2015

Item No.	Work Item Description	Equipment / Labour	Units	Quantity	Unit Rates	Annual Cost	Full Cost
13.1	Mobilize Equipment & Fuel						
	Heavy Equipment						
	Underground scooptram (1)	Equipment	hrs	10	\$300	\$3,000	\$3,000
	Excavators (2)	Equipment	hrs	20	\$150	\$3,000	\$3,000
	Rock Trucks (3)	Equipment	hrs	30	\$200	\$6,000	\$6,000
	Dozer-large (1)	Equipment	hrs	10	\$350	\$3,500	\$3,500
	Dozer-medium (2)	Equipment	hrs	20	\$300	\$6,000	\$6,000
	Grader-large (1)	Equipment	hrs	10	\$250	\$2,500	\$2,500
	Loader-large (1)	Equipment	hrs	10	\$300	\$3,000	\$3,000
	Loader-medium (2)	Equipment	hrs	20	\$180	\$3,600	\$3,600
	Compactor (1)	Equipment	hrs	10	\$190	\$1,900	\$1,900
	Crane (1)	Equipment	hrs	10	\$190	\$1,900	\$1,900
	Light-duty Vehicles (2)	Light truck	hrs	20	\$100	\$2,000	\$2,000
	Misc. Equipment						
	Sea Containers (supplies, mobile offices) (6)	Equipment	hrs	60	\$50	\$3,000	\$3,000
	Other						
	Fuel						
	Fuel Freight	Unit Cost Basis	l.s.	1	\$5,000	\$5,000	\$5,000
	Sub-Total - Mobilize Equipment & Fuel						\$44,400
13.2	Mobilize Workers & Camp						
	Workers (15men)						
	Travel costs-bus	Unit Cost Basis	ea	15	\$200	\$3,000	\$3,000
	Workers wages during mob (8hr trip)	Unit Cost Basis	hrs	120	\$80	\$9,600	\$9,600
	Make existing downsized camp operational for active & then closure phase	Misc.	l.s.	1	\$5,000	\$5,000	\$5,000
	Sub-Total - Mobilize Workers & Camp						\$17,600
13.3	Demobilize Equipment						
	Heavy Equipment						
	Underground scooptram (2)	Equipment	hrs	20	\$300	\$6,000	\$6,000
	Excavators (2)	Equipment	hrs	20	\$150	\$3,000	\$3,000
	Rock Trucks (3)	Equipment	hrs	30	\$200	\$6,000	\$6,000
	Dozer-large (1)	Equipment	hrs	10	\$350	\$3,500	\$3,500
	Dozer-medium (2)	Equipment	hrs	20	\$300	\$6,000	\$6,000
	Grader-large (1)	Equipment	hrs	10	\$250	\$2,500	\$2,500
	Loader-large (1)	Equipment	hrs	10	\$300	\$3,000	\$3,000
	Loader-medium (2)	Equipment	hrs	20	\$180	\$3,600	\$3,600
	Compactor (1)	Equipment	hrs	10	\$190	\$1,900	\$1,900
	Crane (1)	Equipment	hrs	10	\$190	\$1,900	\$1,900
	Light-duty Vehicles (2)	Light truck	hrs	20	\$100	\$2,000	\$2,000
	Misc. Equipment						
	Sea Containers (supplies, mobile offices) (6)	Equipment	hrs	60	\$50	\$3,000	\$3,000
	Other						
	Sub-Total-Demobilize Equipment						\$42,400
13.4	Demobilize Wokers & Camp						
	Workers (15men)						
	Travel costs-bus	Unit Cost Basis	ea.	15	\$200	\$3,000	\$3,000
	Workers wages during demob (8hr trip)	Unit Cost Basis	hrs	120	\$80	\$9,600	\$9,600
	Demob camp (N/A-decommissioned as part of site closure)						
	Sub-Total - Demobilize Workers & Camp						\$12,600
Total Estimated Cost for Mobilization and Demobilization							\$117,000

Note:

Table 9.16
Net Present Value (NPV) Calculations
Financial Security Estimate (Year 0)

Discount Rate		2.50%		Water Treatment Costs										Reclamation Research	
Year													Total NPV	\$404,822	Total NPV
Current = 2015															
Closure Year #	Years After Current	Calendar	Active Treatment Capital Costs	NPV	Active Treatment Capital Replacement Costs	NPV	Active Treatment Operating Costs	NPV	Passive Treatment Capital Costs	NPV	Passive Treatment Operation and Maintenance Costs	NPV	Total Annual NPV	Reclamation & Closure Research Plan	
Active Closure	1	2016							\$110,000	\$107,317	\$10,000	\$9,756	\$117,073	\$0	
	2	2017				\$0					\$10,000	\$9,518	\$9,518	\$0	
Post Closure	1	2018					\$198,186	\$184,035			\$10,000	\$9,286	\$193,321		
	2	2019									\$10,000	\$9,060	\$9,060		
	3	2020									\$10,000	\$8,839	\$8,839		
	4	2021									\$10,000	\$8,623	\$8,623		
	5	2022									\$60,000	\$50,476	\$50,476		
	6	2023									\$2,500	\$2,052	\$2,052		
	7	2024									\$2,500	\$2,002	\$2,002		
	8	2025									\$2,500	\$1,953	\$1,953		
	9	2026									\$2,500	\$1,905	\$1,905		
	10	2027										\$0	\$0		
Totals			\$0	\$0	\$0	\$0	\$198,186	\$184,035	\$110,000	\$107,317	\$130,000	\$113,469	\$404,822	\$0	
Active&Post Closure Years 1-5 Totals															
Post Closure Years 6-10 Totals															

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Table 9.16
Net Present Value (NPV) Calculations
Financial Security Estimate (Year 0)

Discount Rate		2.50%		i & Closure h Plan	Site Access and Maintenance				
Year				\$0	Total NPV				\$305,341
Current = 2015									
Closure Year #	Years After Current	Calendar	Total Annual NPV	Onsite Management	NPV	Transport Costs	NPV	Total Annual NPV	
Active Closure	1	2016	\$0		\$0		\$0	\$0	
	2	2017	\$0		\$0		\$0	\$0	
Post Closure	1	2018	\$0	\$29,000	\$26,929	\$10,000	\$9,286	\$36,215	
	2	2019	\$0	\$29,000	\$26,273	\$10,000	\$9,060	\$35,332	
	3	2020	\$0	\$29,000	\$25,632	\$10,000	\$8,839	\$34,470	
	4	2021	\$0	\$29,000	\$25,007	\$10,000	\$8,623	\$33,630	
	5	2022	\$0	\$29,000	\$24,397	\$10,000	\$8,413	\$32,809	
	6	2023	\$0	\$29,000	\$23,802	\$5,000	\$4,104	\$27,905	
	7	2024	\$0	\$29,000	\$23,221	\$5,000	\$4,004	\$27,225	
	8	2025	\$0	\$29,000	\$22,655	\$5,000	\$3,906	\$26,561	
	9	2026	\$0	\$29,000	\$22,102	\$5,000	\$3,811	\$25,913	
	10	2027	\$0	\$29,000	\$21,563	\$5,000	\$3,718	\$25,281	
Totals				\$0	\$290,000	\$241,580	\$75,000	\$63,762	\$305,341
Active&Post Closure Years 1-5 Totals									
Post Closure Years 6-10 Totals									

Table 9.16
Net Present Value (NPV) Calculations
Financial Security Estimate (Year 0)

Discount Rate		2.50%		Long Term Monitoring & Reporting											
Year															
Current = 2015															
Closure Year #	Years After Current	Calendar	Disbursements	NPV	Water Quality Monitoring	NPV	EEM & Biological Monitoring (Seds/Benthos)	NPV	Radiums	NPV	Geotechnical Inspections	NPV	Reclamation Inspections	NPV	
Active Closure	1	2016	\$7,500	\$7,317	\$84,000	\$81,951	\$10,000	\$9,756	\$1,170	\$1,141	\$0	\$0	\$0	\$0	
	2	2017	\$7,500	\$7,139	\$84,000	\$79,952	\$8,000	\$7,615	\$1,170	\$1,114	\$0	\$0	\$0	\$0	
Post Closure	1	2018	\$7,500	\$6,964	\$84,000	\$78,002	\$5,000	\$4,643	\$0	\$0	\$5,000	\$4,643	\$5,000	\$4,643	
	2	2019	\$7,500	\$6,795	\$84,000	\$76,100	\$5,000	\$4,530	\$0	\$0	\$5,000	\$4,530	\$5,000	\$4,530	
	3	2020	\$7,500	\$6,629	\$84,000	\$74,244	\$5,000	\$4,419	\$0	\$0	\$5,000	\$4,419	\$5,000	\$4,419	
	4	2021	\$7,500	\$6,467	\$84,000	\$72,433	\$5,000	\$4,311	\$0	\$0	\$5,000	\$4,311	\$5,000	\$4,311	
	5	2022	\$7,500	\$6,309	\$84,000	\$70,666	\$5,000	\$4,206	\$0	\$0	\$5,000	\$4,206	\$5,000	\$4,206	
	6	2023	\$3,500	\$2,873	\$34,500	\$28,316	\$0	\$0	\$0	\$0	\$5,000	\$4,104	\$5,000	\$4,104	
	7	2024	\$3,500	\$2,803	\$34,500	\$27,625	\$5,000	\$4,004	\$0	\$0	\$5,000	\$4,004	\$5,000	\$4,004	
	8	2025	\$3,500	\$2,734	\$34,500	\$26,951	\$0	\$0	\$0	\$0	\$5,000	\$3,906	\$5,000	\$3,906	
	9	2026	\$3,500	\$2,668	\$34,500	\$26,294	\$5,000	\$3,811	\$0	\$0	\$5,000	\$3,811	\$5,000	\$3,811	
	10	2027	\$3,500	\$2,602	\$34,500	\$25,653	\$5,000	\$3,718	\$0	\$0	\$5,000	\$3,718	\$5,000	\$3,718	
Totals			\$70,000	\$61,300	\$760,500	\$668,188	\$58,000	\$51,013	\$2,340	\$2,255	\$50,000	\$41,652	\$50,000	\$41,652	
Active&Post Closure Years 1-5 Totals					\$588,000	\$533,349	\$43,000	\$39,480							
Post Closure Years 6-10 Totals					\$172,500	\$134,839	\$15,000	\$11,532							

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Table 9.16
Net Present Value (NPV) Calculations
Financial Security Estimate (Year 0)

		Discount Rate	2.50%			
		Year		Total NPV		\$915,092
		Current = 2015				
	Closure Year #	Years After Current	Calendar	Annual Inspection & report	NPV	Total Annual NPV
Active Closure	1	1	2016	\$5,000	\$4,878	\$103,902
	2	2	2017	\$5,000	\$4,759	\$99,465
Post Closure	1	3	2018	\$5,000	\$4,643	\$103,539
	2	4	2019	\$5,000	\$4,530	\$101,013
	3	5	2020	\$5,000	\$4,419	\$98,550
	4	6	2021	\$5,000	\$4,311	\$96,146
	5	7	2022	\$5,000	\$4,206	\$93,801
	6	8	2023	\$5,000	\$4,104	\$43,500
	7	9	2024	\$5,000	\$4,004	\$46,442
	8	10	2025	\$5,000	\$3,906	\$41,404
	9	11	2026	\$5,000	\$3,811	\$44,204
	10	12	2027	\$5,000	\$3,718	\$43,126
Totals				\$60,000	\$51,289	\$915,092
Active&Post Closure Years 1-5 Totals						
Post Closure Years 6-10 Totals						

Table 9.17
Net Present Value (NPV) Calculations
Financial Security Estimate (Year 2)

Discount Rate		2.50%		Water Treatment Costs										Reclamation Research		
Year													Total NPV	\$394,948	Total NPV	
Current =			2015													
Closure Year #	Years After Current	Calendar	Active Treatment Capital Costs	NPV	Active Treatment Capital Replacement Costs	NPV	Active Treatment Operating Costs	NPV	Passive Treatment Capital Costs	NPV	Passive Treatment Operation and Maintenance Costs	NPV	Total Annual NPV	Reclamation & Closure Research Plan		
Active Closure	1	2	2017					\$0		\$110,000	\$104,700	\$10,000	\$9,518	\$114,218	\$0	
	2	3	2018					\$0				\$10,000	\$9,286	\$9,286	\$0	
Post Closure	1	4	2019					\$198,186	\$179,547			\$10,000	\$9,060	\$188,606		
	2	5	2020					\$0				\$10,000	\$8,839	\$8,839		
	3	6	2021									\$10,000	\$8,623	\$8,623		
	4	7	2022									\$10,000	\$8,413	\$8,413		
	5	8	2023									\$60,000	\$49,245	\$49,245		
	6	9	2024									\$2,500	\$2,002	\$2,002		
	7	10	2025									\$2,500	\$1,953	\$1,953		
	8	11	2026									\$2,500	\$1,905	\$1,905		
	9	12	2027									\$2,500	\$1,859	\$1,859		
	10	13	2028									\$0	\$0	\$0		
Totals			\$0	\$0	\$0	\$0	\$198,186	\$179,547	\$110,000	\$104,700	\$130,000	\$110,702	\$394,948	\$0		
Active&Post Closure Years 1-5 Totals																
Post Closure Years 6-10 Totals																

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Table 9.17
Net Present Value (NPV) Calculations
Financial Security Estimate (Year 2)

		Discount Rate	2.50%	Site & Closure Plan	Site Access and Maintenance				
Year				\$0	Total NPV				\$297,894
Current =		2015							
Closure Year #	Years After Current	Calendar	Total Annual NPV	Onsite Management	NPV	Transport Costs	NPV	Total Annual NPV	
Active Closure	1	2	2017	\$0				\$0	
	2	3	2018	\$0				\$0	
Post Closure	1	4	2019	\$0	\$29,000	\$26,273	\$10,000	\$9,060	\$35,332
	2	5	2020	\$0	\$29,000	\$25,632	\$10,000	\$8,839	\$34,470
	3	6	2021	\$0	\$29,000	\$25,007	\$10,000	\$8,623	\$33,630
	4	7	2022	\$0	\$29,000	\$24,397	\$10,000	\$8,413	\$32,809
	5	8	2023	\$0	\$29,000	\$23,802	\$10,000	\$8,207	\$32,009
	6	9	2024	\$0	\$29,000	\$23,221	\$5,000	\$4,004	\$27,225
	7	10	2025	\$0	\$29,000	\$22,655	\$5,000	\$3,906	\$26,561
	8	11	2026	\$0	\$29,000	\$22,102	\$5,000	\$3,811	\$25,913
	9	12	2027	\$0	\$29,000	\$21,563	\$5,000	\$3,718	\$25,281
	10	13	2028	\$0	\$29,000	\$21,037	\$5,000	\$3,627	\$24,664
Totals				\$0	\$290,000	\$235,688	\$75,000	\$62,206	\$297,894
Active&Post Closure Years 1-5 Totals									
Post Closure Years 6-10 Totals									

Table 9.17
Net Present Value (NPV) Calculations
Financial Security Estimate (Year 2)

Discount Rate			2.50%	Long Term Monitoring & Reporting											
Year															
Current =			2015												
Closure Year #	Years After Current	Calendar	Disbursements	NPV	Water Quality Monitoring	NPV	Biological Monitoring (Seds/Benthos)	NPV	Radiums	NPV	Geotechnical Inspections	NPV	Reclamation Inspections	NPV	
Active Closure	1	2	2017	\$7,500	\$7,139	\$84,000	\$79,952	\$10,000	\$9,518	\$1,170	\$1,114	\$0	\$0	\$0	
	2	3	2018	\$7,500	\$6,964	\$84,000	\$78,002	\$8,000	\$7,429	\$1,170	\$1,086	\$0	\$0	\$0	
Post Closure	1	4	2019	\$7,500	\$6,795	\$84,000	\$76,100	\$5,000	\$4,530	\$0	\$0	\$5,000	\$4,530	\$5,000	\$4,530
	2	5	2020	\$7,500	\$6,629	\$84,000	\$74,244	\$5,000	\$4,419	\$0	\$0	\$5,000	\$4,419	\$5,000	\$4,419
	3	6	2021	\$7,500	\$6,467	\$84,000	\$72,433	\$5,000	\$4,311	\$0	\$0	\$5,000	\$4,311	\$5,000	\$4,311
	4	7	2022	\$7,500	\$6,309	\$84,000	\$70,666	\$5,000	\$4,206	\$0	\$0	\$5,000	\$4,206	\$5,000	\$4,206
	5	8	2023	\$7,500	\$6,156	\$84,000	\$68,943	\$5,000	\$4,104	\$0	\$0	\$5,000	\$4,104	\$5,000	\$4,104
	6	9	2024	\$3,500	\$2,803	\$34,500	\$27,625	\$0	\$0	\$0	\$0	\$5,000	\$4,004	\$5,000	\$4,004
	7	10	2025	\$3,500	\$2,734	\$34,500	\$26,951	\$5,000	\$3,906	\$0	\$0	\$5,000	\$3,906	\$5,000	\$3,906
	8	11	2026	\$3,500	\$2,668	\$34,500	\$26,294	\$0	\$0	\$0	\$0	\$5,000	\$3,811	\$5,000	\$3,811
	9	12	2027	\$3,500	\$2,602	\$34,500	\$25,653	\$5,000	\$3,718	\$0	\$0	\$5,000	\$3,718	\$5,000	\$3,718
	10	13	2028	\$3,500	\$2,539	\$34,500	\$25,027	\$5,000	\$3,627	\$0	\$0	\$5,000	\$3,627	\$5,000	\$3,627
Totals			\$70,000	\$59,805	\$760,500	\$651,890	\$58,000	\$49,768	\$2,340	\$2,200	\$50,000	\$40,636	\$50,000	\$40,636	
Active&Post Closure Years 1-5 Totals					\$588,000	\$520,340	\$43,000	\$38,518							
Post Closure Years 6-10 Totals					\$172,500	\$131,550	\$15,000	\$11,251							

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Table 9.17
Net Present Value (NPV) Calculations
Financial Security Estimate (Year 2)

Discount Rate		2.50%				
Year				Total NPV		
Current =				2015		
Closure Year #	Years After Current	Calendar	Annual Inspection & report	NPV	Total Annual NPV	
Active Closure	1	2017	\$5,000	\$4,759	\$101,368	
	2	2018	\$5,000	\$4,643	\$97,039	
Post Closure	1	2019	\$5,000	\$4,530	\$101,013	
	2	2020	\$5,000	\$4,419	\$98,550	
	3	2021	\$5,000	\$4,311	\$96,146	
	4	2022	\$5,000	\$4,206	\$93,801	
	5	2023	\$5,000	\$4,104	\$91,513	
	6	2024	\$5,000	\$4,004	\$42,439	
	7	2025	\$5,000	\$3,906	\$45,310	
	8	2026	\$5,000	\$3,811	\$40,394	
	9	2027	\$5,000	\$3,718	\$43,126	
	10	2028	\$5,000	\$3,627	\$42,074	
Totals			\$60,000	\$50,038	\$892,773	
Active&Post Closure Years 1-5 Totals						
Post Closure Years 6-10 Totals						

Table 9.17
Net Present Value (NPV) Calculations
Financial Security Estimate (Year 2)

		Discount Rate	2.50%	Post Closure Maintenance		
		Year		Total NPV	\$115,562	
		Current = 2015				
	Closure Year #	Years After Current	Calendar	Misc. maintenance work related to the site after closure	NPV	Total Annual NPV
Active Closure	1	2	2017	\$7,500	\$7,139	\$11,898
	2	3	2018	\$7,500	\$6,964	\$11,607
Post Closure	1	4	2019	\$7,500	\$6,795	\$11,324
	2	5	2020	\$7,500	\$6,629	\$11,048
	3	6	2021	\$7,500	\$6,467	\$10,779
	4	7	2022	\$7,500	\$6,309	\$10,516
	5	8	2023	\$7,500	\$6,156	\$10,259
	6	9	2024	\$5,000	\$4,004	\$8,007
	7	10	2025	\$5,000	\$3,906	\$7,812
	8	11	2026	\$5,000	\$3,811	\$7,621
	9	12	2027	\$5,000	\$3,718	\$7,436
	10	13	2028	\$5,000	\$3,627	\$7,254
Totals				\$77,500	\$65,524	\$115,562
Active&Post Closure Years 1-5 Totals						
Post Closure Years 6-10 Totals						

Table 9.18
Net Present Value (NPV) Calculations
Financial Security Estimate (Year 9)

Discount Rate		2.50%		Water Treatment Costs										Reclamation Research		
Year													Total NPV	\$332,256	Total NPV	
Current =			2015													
Closure Year #	Years After Current	Calendar	Active Treatment Capital Costs	NPV	Active Treatment Capital Replacement Costs	NPV	Active Treatment Operating Costs	NPV	Passive Treatment Capital Costs	NPV	Passive Treatment Operation and Maintenance Costs	NPV	Total Annual NPV	Reclamation & Closure Research Plan		
Active Closure	1	9	2024					\$0		\$110,000	\$88,080	\$10,000	\$8,007	\$96,087	\$0	
	2	10	2025					\$0		\$0	\$0	\$10,000	\$7,812	\$7,812	\$0	
Post Closure	1	11	2026					\$198,186	\$151,046			\$10,000	\$7,621	\$158,668		
	2	12	2027					\$0				\$10,000	\$7,436	\$7,436		
	3	13	2028									\$10,000	\$7,254	\$7,254		
	4	14	2029									\$10,000	\$7,077	\$7,077		
	5	15	2030									\$60,000	\$41,428	\$41,428		
	6	16	2031									\$2,500	\$1,684	\$1,684		
	7	17	2032									\$2,500	\$1,643	\$1,643		
	8	18	2033									\$2,500	\$1,603	\$1,603		
	9	19	2034									\$2,500	\$1,564	\$1,564		
	10	20	2035									\$0	\$0	\$0		
Totals			\$0	\$0	\$0	\$0	\$198,186	\$151,046	\$110,000	\$88,080	\$130,000	\$93,129	\$332,256	\$0		
Active&Post Closure Years 1-5 Totals																
Post Closure Years 6-10 Totals																

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Table 9.18
Net Present Value (NPV) Calculations
Financial Security Estimate (Year 9)

Discount Rate		2.50%		i & Closure h Plan	Site Access and Maintenance				
Year				\$0	Total NPV				\$250,608
Current = 2015									
Closure Year #	Years After Current	Calendar	Total Annual NPV	Onsite Management	NPV	Transport Costs	NPV	Total Annual NPV	
Active Closure	1	9	2024	\$0				\$0	
	2	10	2025	\$0				\$0	
Post Closure	1	11	2026	\$0	\$29,000	\$22,102	\$10,000	\$7,621	\$29,724
	2	12	2027	\$0	\$29,000	\$21,563	\$10,000	\$7,436	\$28,999
	3	13	2028	\$0	\$29,000	\$21,037	\$10,000	\$7,254	\$28,291
	4	14	2029	\$0	\$29,000	\$20,524	\$10,000	\$7,077	\$27,601
	5	15	2030	\$0	\$29,000	\$20,024	\$10,000	\$6,905	\$26,928
	6	16	2031	\$0	\$29,000	\$19,535	\$5,000	\$3,368	\$22,903
	7	17	2032	\$0	\$29,000	\$19,059	\$5,000	\$3,286	\$22,345
	8	18	2033	\$0	\$29,000	\$18,594	\$5,000	\$3,206	\$21,800
	9	19	2034	\$0	\$29,000	\$18,140	\$5,000	\$3,128	\$21,268
	10	20	2035	\$0	\$29,000	\$17,698	\$5,000	\$3,051	\$20,749
Totals				\$0	\$290,000	\$198,276	\$75,000	\$52,332	\$250,608
Active&Post Closure Years 1-5 Totals									
Post Closure Years 6-10 Totals									

Table 9.18
Net Present Value (NPV) Calculations
Financial Security Estimate (Year 9)

Discount Rate		2.50%		Long Term Monitoring & Reporting											
Year															
Current =		2015													
Closure Year #	Years After Current	Calendar	Disbursements	NPV	Water Quality Monitoring	NPV	Biological Monitoring (Seds/Benthos)	NPV	Radiums	NPV	Geotechnical Inspections	NPV	Reclamation Inspections	NPV	
Active Closure	1	9	2024	\$7,500	\$6,005	\$84,000	\$67,261	\$10,000	\$8,007	\$1,170	\$937	\$0	\$0	\$5,000	\$4,004
	2	10	2025	\$7,500	\$5,859	\$84,000	\$65,621	\$8,000	\$6,250	\$1,170	\$914	\$0	\$0	\$5,000	\$3,906
Post Closure	1	11	2026	\$7,500	\$5,716	\$84,000	\$64,020	\$5,000	\$3,811	\$0	\$0	\$5,000	\$3,811	\$5,000	\$3,811
	2	12	2027	\$7,500	\$5,577	\$84,000	\$62,459	\$5,000	\$3,718	\$0	\$0	\$5,000	\$3,718	\$5,000	\$3,718
	3	13	2028	\$7,500	\$5,441	\$84,000	\$60,935	\$5,000	\$3,627	\$0	\$0	\$5,000	\$3,627	\$5,000	\$3,627
	4	14	2029	\$7,500	\$5,308	\$84,000	\$59,449	\$5,000	\$3,539	\$0	\$0	\$5,000	\$3,539	\$5,000	\$3,539
	5	15	2030	\$7,500	\$5,178	\$84,000	\$57,999	\$5,000	\$3,452	\$0	\$0	\$5,000	\$3,452	\$5,000	\$3,452
	6	16	2031	\$3,500	\$2,358	\$34,500	\$23,240	\$0	\$0	\$0	\$0	\$5,000	\$3,368	\$5,000	\$3,368
	7	17	2032	\$3,500	\$2,300	\$34,500	\$22,673	\$5,000	\$3,286	\$0	\$0	\$5,000	\$3,286	\$5,000	\$3,286
	8	18	2033	\$3,500	\$2,244	\$34,500	\$22,120	\$0	\$0	\$0	\$0	\$5,000	\$3,206	\$5,000	\$3,206
	9	19	2034	\$3,500	\$2,189	\$34,500	\$21,581	\$5,000	\$3,128	\$0	\$0	\$5,000	\$3,128	\$5,000	\$3,128
	10	20	2035	\$3,500	\$2,136	\$34,500	\$21,054	\$5,000	\$3,051	\$0	\$0	\$5,000	\$3,051	\$5,000	\$3,051
Totals			\$70,000	\$50,312	\$760,500	\$548,413	\$58,000	\$41,868	\$2,340	\$1,851	\$50,000	\$34,185	\$60,000	\$42,095	
Active&Post Closure Years 1-5 Totals					\$588,000	\$437,744	\$43,000	\$32,403							
Post Closure Years 6-10 Totals					\$172,500	\$110,669	\$15,000	\$9,465							

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Table 9.18
Net Present Value (NPV) Calculations
Financial Security Estimate (Year 9)

Discount Rate		2.50%				
Year			Total NPV		\$758,968	
Current =			2015			
Closure Year #	Years After Current	Calendar	Annual Inspection & report	NPV	Total Annual NPV	
Active Closure	1	9	2024	\$5,000	\$4,004	\$89,281
	2	10	2025	\$5,000	\$3,906	\$85,541
Post Closure	1	11	2026	\$5,000	\$3,811	\$84,979
	2	12	2027	\$5,000	\$3,718	\$82,906
	3	13	2028	\$5,000	\$3,627	\$80,884
	4	14	2029	\$5,000	\$3,539	\$78,912
	5	15	2030	\$5,000	\$3,452	\$76,987
	6	16	2031	\$5,000	\$3,368	\$35,702
	7	17	2032	\$5,000	\$3,286	\$38,117
	8	18	2033	\$5,000	\$3,206	\$33,982
	9	19	2034	\$5,000	\$3,128	\$36,281
	10	20	2035	\$5,000	\$3,051	\$35,396
Totals			\$60,000	\$42,095	\$758,968	
Active&Post Closure Years 1-5 Totals						
Post Closure Years 6-10 Totals						

Table 9.18
Net Present Value (NPV) Calculations
Financial Security Estimate (Year 9)

		Discount Rate	2.50%	Post Closure Maintenance			
		Year		Total NPV	\$97,218		
		Current = 2015					
		Closure Year #	Years After Current	Calendar	Misc. maintenance work related to the site after closure	NPV	Total Annual NPV
Active Closure	1	9	2024	\$7,500	\$6,005	\$10,009	
	2	10	2025	\$7,500	\$5,859	\$9,765	
Post Closure	1	11	2026	\$7,500	\$5,716	\$9,527	
	2	12	2027	\$7,500	\$5,577	\$9,294	
	3	13	2028	\$7,500	\$5,441	\$9,068	
	4	14	2029	\$7,500	\$5,308	\$8,847	
	5	15	2030	\$7,500	\$5,178	\$8,631	
	6	16	2031	\$5,000	\$3,368	\$6,736	
	7	17	2032	\$5,000	\$3,286	\$6,572	
	8	18	2033	\$5,000	\$3,206	\$6,412	
	9	19	2034	\$5,000	\$3,128	\$6,255	
	10	20	2035	\$5,000	\$3,051	\$6,103	
Totals				\$77,500	\$55,123	\$97,218	
Active&Post Closure Years 1-5 Totals							
Post Closure Years 6-10 Totals							