
Appendix A3
Detailed Calculations

SCENARIO 1: DETAILED ASSESSMENT OF POSSIBLE HUMAN HEALTH RISK

Item Description	Quantification	Value	Timing	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
1 Enhanced monitoring program																							
1.1 Human health assessment	• # of national consultant days	20	Recurring	62,000																			
	• # of blood analysis	45																					
1.2 Soil and sediment sampling/testing	• # of soil/sediment analysis	20	Recurring	28,000																			
1.3 Fish tissue sampling/testing	• # of fish tissue analysis	10	Recurring	14,000																			
1.4 Groundwater sampling/testing	• # of groundwater analysis	5	Recurring	10,000																			
2 Contingency, Technical Support, F	• % of overhead	10%	Recurring	11,400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
TOTAL				125,400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
PV (Costs)				\$119,429																			
				Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
Benefit stream				0	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376
PV (Benefits)				\$119,429																			
Stream of benefits - costs				-125,400	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376	10,376
NPV				0																			
DALYs needed/an				0.3																			
IRR (test)				5%																			

Number of DALY /100000hab total	14,626
Population on site	7,253
Total number of DALYs on site	1,061
Minimum required effect of site reclamation on total health	0.03%

SCENARIO 2 : HAZARD CONTAINMENT AND MONITORING

Item	Description	Quantification	Value	Timing	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20
1	Assess Human Health Risk	Scenario 1	1	Once	114,000																			
2	Control potential chemical hazards																							
2.1	Disposal of contaminated sludge	• Annual volume of sludge (t)	1	Recurring		1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480	1,480
2.2	Improve drainage system on the site	• Unit	N/A	Recurring		25,000	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500	2,500
2.3	Revegetate the landfill surface	N/A	N/A	Initial																				
3	Monitoring of health and environment																							
3.1	Human health assessment	• Frequency of assessment	1 / 5 years																					
		• # of national consultant days	20	Recurring		62,000					62,000					62,000						62,000		
		• # of blood sampling	45																					
3.2	Soil and sediment monitoring	• # of soil/sediment samples	20	Recurring		28,000					28,000					28,000						28,000		
		• Frequency of soil/sediment sampling (per year)	1/5 years																					
3.3	Fish monitoring	• # of fish samples	10	Recurring		14,000					14,000					14,000						14,000		
		• Frequency of fish sampling	1/5 years																					

Item	Description	Quantification	Value	Timing	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	
3.4	Groundwater monitoring	• # of groundwater samples	5	Recurring		10,000					10,000					10,000						10,000			
		• Frequency of groundwater sampling (per year)	1/year																						
3.5	Air quality monitoring	• # of air quality samples	5	Recurring		9,000					9,000					9,000						9,000			
		• Frequency of air quality sampling (per year)	1/5year																						
4	Contingency, Technical Support, P	• % of overhead	10%	Recurring	11,400	14,948	398	398	398	398	12,698	398	398	398	398	12,698	398	398	398	398	398	12,698	398	398	398
		TOTAL			125,400	164,428	4,378	4,378	4,378	4,378	139,678	4,378	4,378	4,378	4,378	139,678	4,378	4,378	4,378	4,378	4,378	139,678	4,378	4,378	4,378
		PV (Costs)	\$545,515																						
					Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13	Year 14	Year 15	Year 16	Year 17	Year 18	Year 19	Year 20	
		Benefit stream	0		47,396	47,396	47,396	47,396	47,396	47,396	47,396	47,396	47,396	47,396	47,396	47,396	47,396	47,396	47,396	47,396	47,396	47,396	47,396	47,396	
		PV (Benefits)	\$545,515																						
		Stream of benefits - costs			-125,400	-117,032	43,018	43,018	43,018	43,018	-92,282	43,018	43,018	43,018	43,018	-92,282	43,018	43,018	43,018	43,018	43,018	-92,282	43,018	43,018	43,018
		NPV	0																						
		DALYs needed/an	1.3																						
		<i>IRR (test)</i>	5%																						

Number of DALY /100000hab total	14,626
Population on site	7,253
Total number of DALYs on site	1,061
Minimum required effect of site reclamation on total health	0.1%