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Memo

To:	Chris Hanks	**Date:**	December 31, 2012
Company:	Hope Bay Mining Limited	**From:**	Iozsef Miskolczi Tom Sharp
Copy to:	Maritz Rykaart (SRK)	**Project #:**	1CH008.069
Subject:	Hope Bay Project Closure and Reclamation Cost Estimate - 2012 Update NWB Licenses 2AM-DOH0713, 2BB-BOS1217, and 2BE-HOP1222		

Hope Bay is an advanced exploration site, which includes the partially constructed Doris North mine, all of which is the property of Hope Bay Mining Limited (HBML). The site is located in Nunavut, approximately 120 km southwest of Cambridge Bay. Exploration and early mine construction work was concentrated in several distinct areas including: Doris North, Boston, Windy, and Patch Lake respectively. In 2012 the site was placed under care and maintenance, awaiting closure and reclamation.

HBML was required to submit closure and reclamation plans including estimated closure costs for each of the work areas. SRK Consulting (Canada) Inc. was retained by HBML to update the closure liability estimates to reflect the standing at the end of 2012 calendar year. The closure and reclamation plans were previously submitted to the Nunavut Water Board (NWB) in compliance with the following licenses: 2AM-DOH0713 (NWB 2007) for the Doris North area, 2BB-BOS1217 (NWB 2012a) for the Boston area, and 2BE-HOP1222 (NWB 2012b) for the Windy/Patch Lake area.

1 Introduction

The cost associated with the implementation of the Closure and Reclamation Plans for the Hope Bay site (SRK 2012a, 2012b, 2012c) were developed earlier this year using a spreadsheet model developed by SRK. During the process of the annual update of the closure liability cost estimates (required under the US regulations) some unit rates and quantities were modified.

This memo presents a summary of the updated costs.

2 Hope Bay Liability Cost Estimate

The estimated cost of closure and reclamation of the Hope Bay project was calculated by SRK in the first half of 2012. The overall cost was divided into three individual models, each dealing with one specific area including the Boston, the Doris North and the Windy/Patch sites respectively.

The updated Closure and Reclamation cost is higher than the previously submitted estimates, mainly because the owner's costs and some of the unit rates were updated, while the mobilization-demobilization costs were refined to better suit the specifics of this project. An important cost component not previously accounted for is the water management for the Doris North area.

Where required, task costs were reduced or eliminated to reflect progressive reclamation work done over the 2012 season.

3 Cost Summaries

Tables 1 through 3 present the cost summaries for the Boston, Doris North, and Windy/Patch Lake areas respectively. A complete listing of all sheets for the individual cost estimates is provided in the appendices.

Table 1: Cost Summary for the Boston Area

Work task	Cost (rounded to the nearest thousand)
Direct Cost Items	
1. Transportation Infrastructure (Roads, Airstrips, Docks)	$66,000
2. Drill Sites/Drill Hole Abandonment	$184,000
3. Portals/Adits	$21,000
4. Non-Process Ponds & Reservoirs	$10,000
5. Dumps , Stockpiles, Landfills	$416,000
6. Facilities Demolition	$683,000
7. Off-site Shipping for Disposal	$390,000
8. Off-Site Disposal Fees	$16,000
Total Direct Costs	**$1,786,000**
9. Contingency	$274,000
10. Mobilization & Demobilization	$2,937,000
11. General and Administration Costs	$438,000
12. Field Support	$203,000
13. Engineering and Consultants Services	$150,000
14. Post-closure Monitoring	$200,000
Total Indirect Costs	**$4,202,000**
Total Closure Cost	**$5,988,000**

Table 2: Cost Summary for the Doris North Area

Work task	Cost (rounded to the nearest thousand)
Direct Cost Items	
1. Transportation Infrastructure (Roads, Airstrips, Docks)	$493,000
2. Borrow Areas	$129,000
3. Portals/Adits	$52,000
4. Non-Process Ponds & Reservoirs	$63,000
5. Water Management	$1,179,000
6. Dumps , Stockpiles, Landfills	$720,000
7. Tailings Storage Facility (TSF)	$485,000
8. Drainage / Diversion Channels	$22,000
9. Facilities Demolition	$1,830,000
10. Off-site Shipping for Disposal	$3,998,000
11. Off-Site Disposal Fees	$89,000
Total Direct Costs	**$9,060,000**
12. Mobilization & Demobilization	$712,000
13. Engineering and Consultants Services	$282,000
14. General and Administration Costs	$2,082,000
15. Contingency	$754,000
16. Post-closure Monitoring	$200,000
Total Indirect Costs	**$4,030,000**
Total Closure Cost	**$13,090,000**

Table 3: Cost Summary for the Windy and Patch Lake Areas

Work task	Patch Lake	Windy
Direct Cost Items	**Cost (rounded to nearest $ 1,000)**	
1. Transportation Infrastructure (Roads, Airstrips, Docks)	$3,000	$3,000
2. Drill Sites/Drill Hole Abandonment	$0	$22,000
3. Drainage / Diversion Channels	$0	$5,000
4. Facilities Demolition	$104,000	$314,000
5. Off-site Shipping for Disposal	$261,000	$2,066,000
6. Off-Site Disposal Fees	$26,000	$297,000
Total Direct Costs	**$394,000**	**$2,707,000**
7. Mobilization & Demobilization	$947,000	$855,000
8. Engineering and Consultants Services	$119,000	$96,000
9. General and Administration Costs	$6,000	$16,000
10. Contingency	$68,000	$33,000
11. Post-closure Monitoring	$200,000	$200,000
Total Indirect Costs	**$1,340,000**	**$1,200,000**
Closure Cost - Subtotal	**$1,734,000**	**$3,907,000**
Closure Cost - Total	**$5,641,000**	

4 References

NWB 2007. Nunavut Water Board Water Licence No. 2AM-DOH0713. Granted to Hope Bay Mining Ltd. September 19, 2007.

NWB 2012a. Nunavut Water Board Water Licence No. 2BB-BOS1217. Granted to Hope Bay Mining Ltd. August 2, 2012.

NWB 2012b. Nunavut Water Board Water Licence No. 2BE-HOP1222. Granted to Hope Bay Mining Ltd. June 30, 2012.

SRK 2012a. SRK Consulting (Canada) Inc. Hope Bay Project Boston Camp Revised Interim Closure Plan. Report prepared for Hope Bay Mining Limited. SRK Project # 1CH008.065. June 2012

SRK 2012b. SRK Consulting (Canada) Inc. Hope Bay Project Windy Camp and Patch Lake Facility Final Reclamation Plan. Report prepared for Hope Bay Mining Limited. SRK Project # 1CH008.065. June 2012

SRK 2012c. SRK Consulting (Canada) Inc. Doris North Closure and Reclamation Plan. Report prepared for Hope Bay Mining Limited. SRK Project # 1CH008.065. August 2012

Regards

SRK Consulting (Canada) Inc.

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Iozsef Miskolczi, MASc, EIT
Consultant

REGISTERED PROFESSIONAL ENGINEER T.R. SHARP LICENSEE NT/NU

31 Dec 2012

Tom Sharp, PhD, PE, PEng
Principal Consultant

Appendix A
Updated Boston Closure Cost Estimate

Boston Closure Cost Estimate

Work task	Cost (rounded to the nearest By task	By Facility
Direct Cost Items		
1. Transportation infrastructure (roads, airstrips, docks)		**$66,000**
Helipads	$5,000	
Road to Aimaokatalok Lake	$3,000	
Road to Airstrip	$4,000	
Airstrip	$13,000	
Core Storage Road	$3,000	
Drill Road	$3,000	
Permafrost Remediation and Revegetation	$35,000	
2. Drill Sites/Drill Hole Abandonment		**$184,000**
Drill Sites/Drill Hole Abandonment	$184,000	
3. Portals/Adits		**$21,000**
Portal/Decline	$7,000	
Vent Raise	$14,000	
4. Non-Process Ponds & Reservoirs		**$10,000**
Settling Pond #1	$4,000	
Settling Pond #2	$3,000	
Diamond Drill Cuttings Settling Pond	$3,000	
5. Dumps , Stockpiles, Landfills		**$416,000**
Ore Stockpiles	$375,000	
Contaminated Soil Implementation Plan	$41,000	
6. Facilities Demolition		**$683,000**
Accommodation Complex/Buildings	$89,000	
Maintenance Shop Complex	$24,000	
Crusher Enclosure	$6,000	
Water Treatment Facilities	$57,000	
Incinerator	$3,000	
Mobile Equipment	$7,000	
Other Structures	$34,000	
Primary Tank Farm	$425,000	
Power Plant Fuel Containment	$3,000	
Jet Fuel Containment System	$4,000	
Soil Treatment Facility	$17,000	
Camp Complex Foundation Pad	$14,000	
7. Off-site Shipping for Disposal	$390,000	**$390,000**
8. Off-Site Disposal Fees	$16,000	**$16,000**
Total Direct Costs		**$1,786,000**
9. Contingency	$274,000	**$274,000**
10. Mobilization & Demobilization	$2,937,000	**$2,937,000**
11. General and Administration costs	$438,000	**$438,000**
12. Field Support	$203,000	**$203,000**
13. Engineering and Consultants Services	$150,000	**$150,000**
14. Post-closure Monitoring	$200,000	**$200,000**
Total Indirect Costs		**$4,202,000**
Total Closure Cost		**$5,988,000**

Table 2. Cost Itemized by Task

Work Area Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Activity Total	Subtotals	Source / Comments
DIRECT COSTS												
Camp Structures												
Accommodation Complex/Buildings											$ 89,416	
B01	1	1	1	Portable Trailers	Decommission (electrical, mechanical)	1	ls	C.1.05	$ 568.88	$ 569		
B01	1	1	2		Prep Trailers for movement (remove boards/piping, etc.).	12	ea	C.1.08	$ 743.07	$ 8,917		
B01	1	1	3		Haul trailers to Doris North for re-use.	12	ea	C.4.06	$ 3,342.69	$ 40,112		
B01	1	2	1	Recreation Tent	Remove heating stove	1	ea	C.1.01	$ 47.68	$ 48		
B01	1	2	2		Demolish	9	m^3	C.3.05	$ 10.61	$ 94		
B01	1	2	3		Collect Debris	23	m^2	C.3.10	$ 0.13	$ 3		
B01	1	2	4		Load debris into containers for transport (to Roberts Bay)	12	m^3	C.4.01	$ 8.16	$ 94		
B01	1	2	5		Haul debris to Roberts Bay	12	m^3	C.4.04	$ 75.78	$ 876		
B01	1	3	1	Site Office	Demolish	50	m^3	C.3.05	$ 10.61	$ 534		
B01	1	3	2		Collect Debris	62	m^2	C.3.10	$ 0.13	$ 8		
B01	1	3	3		Load debris into containers for transport (to Roberts Bay)	101	m^3	C.4.01	$ 8.16	$ 821		
B01	1	3	4		Haul debris to Roberts Bay	101	m^3	C.4.04	$ 75.78	$ 7,625		
B01	1	4	1	Geotech Tent	Remove heating stove	1	ls	C.1.01	$ 47.68	$ 48		
B01	1	4	2		Demolish	13	m^3	C.3.05	$ 10.61	$ 135		
B01	1	4	3		Collect Debris	33	m^2	C.3.10	$ 0.13	$ 4		
B01	1	4	4		Load debris into containers for transport (to Roberts Bay)	17	m^3	C.4.01	$ 8.16	$ 135		
B01	1	4	5		Haul debris to Roberts Bay	17	m^3	C.4.04	$ 75.78	$ 1,256		
B01	1	5	1	Core Shack and Core Splitter	Remove heating stoves	2	ls	C.1.01	$ 47.68	$ 95		
B01	1	5	2		Demolish	102	m^3	C.3.05	$ 10.61	$ 1,078		
B01	1	5	3		Collect Debris	115	m^2	C.3.10	$ 0.13	$ 15		
B01	1	5	4		Load debris into containers for transport (to Roberts Bay)	198	m^3	C.4.01	$ 8.16	$ 1,612		
B01	1	5	5		Haul debris to Roberts Bay	198	m^3	C.4.04	$ 75.78	$ 14,983		
B01	1	6	1	Muster Station	Remove heating stoves	1	ls	C.1.01	$ 47.68	$ 48		
B01	1	6	3		Demolish	44	m^3	C.3.05	$ 10.61	$ 470		
B01	1	6	4		Collect Debris	49	m^2	C.3.10	$ 0.13	$ 6		
B01	1	6	5		Load debris into containers for transport (to Roberts Bay)	66	m^3	C.4.01	$ 8.16	$ 542		
B01	1	6	6		Haul debris to Roberts Bay	66	m^3	C.4.04	$ 75.78	$ 5,034		
B01	1	7	1	Communication Equipment	Dismantle and package Satellite Dish and communication equipment	1	ls	C.1.07	$ 313.10	$ 313		
B01	1	8	1	Generators	Decommission generator	1	ls	C.1.06	$ 599.98	$ 600		
B01	1	8	2		Transport Trailer to Doris Camp for re-use/salvage	1	ls	C.4.06	$ 3,342.69	$ 3,343		
B01	1	9	1	Hazardous Waste	Collect and place in suitable containers	0.48	m^3	C.2.01	$ 1,947.00	$ 925		
B01	1	9	2		Haul to Doris North	0	m^3	C.4.03	$ 71.92	$ 34		
Maintenance Shop Complex											$ 23,906	
B01	2	1	1	Heating System	Relocate tanks to tank farm for draining/cleaning	2	ea	C.1.01	$ 47.68	$ 95		
B01	2	2	1	Maintenance Shop	Decommission electrical, mechanical (including connections to generator house & transformer)	1	ls	C.1.05	$ 568.88	$ 569		
B01	2	2	3		Demolish (steel modular structure)	17	m^3	C.3.05	$ 10.61	$ 183		
B01	2	2	4		Demolish wood structures (survival, electrical and compressor sheds)	48	m^3	C.3.05	$ 10.61	$ 508		
B01	2	2	5		Collect Debris	306	m^3	C.3.10	$ 0.13	$ 39		
B01	2	2	6		Load debris into containers for transport (to Roberts Bay)	98	m^3	C.4.01	$ 8.16	$ 797		
B01	2	2	7		Haul debris to Roberts Bay	98	m^3	C.4.04	$ 75.78	$ 7,403		
B01	2	3	1	Powerhouse	Decommission (electrical)	1	ls	C.1.05	$ 568.88	$ 569		
B01	2	3	2		Demolish	49	m^3	C.3.05	$ 10.61	$ 518		
B01	2	3	3		Collect Debris	61	m^2	C.3.10	$ 0.13	$ 8		
B01	2	3	4		Load debris into containers for transport (to Roberts Bay)	98	m^3	C.4.01	$ 8.16	$ 797		
B01	2	3	5		Haul debris to Roberts Bay	98	m^3	C.4.04	$ 75.78	$ 7,405		
B01	2	4	1	Transformer building	Decommission (electrical)	1	ls	C.1.05	$ 568.88	$ 569		
B01	2	4	2		Demolish (hazardous material removed above)	33	m^3	C.3.05	$ 10.61	$ 345		
B01	2	4	3		Collect Debris	41	m^2	C.3.10	$ 0.13	$ 5		
B01	2	4	4		Load debris into containers for transport (to Roberts Bay)	49	m^3	C.4.01	$ 8.16	$ 398		
B01	2	4	5		Haul debris to Roberts Bay	49	m^3	C.4.04	$ 75.78	$ 3,698		
Crusher Enclosure											$ 5,583	
B01	3	1	1	Equipment	Dismantle hopper/crusher parts for transport	1	ls	C.3.08	$ 352.28	$ 352		
B01	3	1	2		Load equipment into containers for transport (to Roberts Bay)	20	m^3	C.4.01	$ 8.16	$ 161		
B01	3	2	1	Crusher building	Demolish (tent/steel enclosure)	37	m^3	C.3.05	$ 10.61	$ 389		
B01	3	2	2		Collect Debris	467	m^2	C.3.10	$ 0.13	$ 60		
B01	3	2	3		Load debris into containers for transport (to Roberts Bay)	55	m^3	C.4.01	$ 8.16	$ 449		
B01	3	2	4		Haul debris to Roberts Bay	55	m^3	C.4.04	$ 75.78	$ 4,171		
Water Treatment Facilities											$ 56,693	
B01	4	1	1	Water Supply Pipelines	Cut pipelines into manageable pieces	607	m	C.3.03	$ 1.96	$ 1,190		
B01	4	1	2		Load debris into containers for transport (to Roberts Bay)	182	m^3	C.4.01	$ 8.16	$ 1,486		
B01	4	1	3		Haul debris to Roberts Bay	182	m^3	C.4.04	$ 75.78	$ 13,808		
B01	4	2	1	Sewage water pipelines	Flush sewage water pipelines	1	ls	C.2.06	$ 504.33	$ 504		
B01	4	2	2		Cut pipelines into manageable pieces	489	m	C.3.03	$ 1.96	$ 958		
B01	4	2	3		Load debris into containers for transport (to Roberts Bay)	147	m^3	C.4.01	$ 8.16	$ 1,196		
B01	4	2	4		Haul debris to Roberts Bay	147	m^3	C.4.04	$ 75.78	$ 11,118		
B01	4	3	1	Camp Water Intake	Collect and dismantle intake system	1	ls	C.1.03	$ 1,063.54	$ 1,064		
B01	4	4	1	Old Sewage Treatment (RBC)	Flush and remove sewage plumbing	1	ls	C.2.06	$ 504.33	$ 504		
B01	4	4	2		Load sewage sludge/waste water in 55 gallon drums	1	m^3	C.2.06	$ 504.33	$ 504		
B01	4	4	3		Demolish buildings	37	m^3	C.3.05	$ 10.61	$ 392		
B01	4	4	4		Collect Debris	35	m^2	C.3.10	$ 0.13	$ 4		
B01	4	4	5		Load debris into containers for transport (to Roberts Bay)	55	m^3	C.4.01	$ 8.16	$ 452		
B01	4	4	6		Haul debris to Roberts Bay	55	m^3	C.4.04	$ 75.78	$ 4,198		
B01	4	4	7		Regrade treatment foundation pad to ensure positive drainage	460	m^2	C.5.05	$ 2.38	$ 1,094		
B01	4	5	1	New Sewage Treatment System	Flush and remove sewage plumbing	1	ls	C.2.06	$ 504.33	$ 504		
B01	4	5	2		Load sewage sludge/waste water in 55 gallon drums	1	m^3	C.2.06	$ 504.33	$ 504		
B01	4	5	3		Decommission (electrical)	1	ls	C.1.05	$ 568.88	$ 569		
B01	4	5	4		Demolish buildings/tanks	122	m^3	C.3.05	$ 10.61	$ 1,293		
B01	4	5	5		Collect Debris	30	m^2	C.3.10	$ 0.13	$ 4		
B01	4	5	6		Load debris into containers for transport (to Roberts Bay)	183	m^3	C.4.01	$ 8.16	$ 1,491		
B01	4	5	7		Haul debris to Roberts Bay	183	m^3	C.4.04	$ 75.78	$ 13,854		
Helipads											$ 4,692	
B01	5	1	1	Demolish	Demolish pads	32	m^3	C.3.05	$ 10.61	$ 337		
B01	5	1	2		Collect debris	21	m^2	C.3.10	$ 0.13	$ 3		
B01	5	1	3		Load debris into containers for transport (to Roberts Bay)	48	m^3	C.4.01	$ 8.16	$ 388		
B01	5	1	4		Haul debris to Roberts Bay	48	m^3	C.4.04	$ 75.78	$ 3,608		
B01	5	2	1	Regrade	Regrade area to ensure positive drainage	150	m^2	C.5.05	$ 2.38	$ 357		
Incinerator											$ 1,486	
B01	8	1	1	Disassemble	Collect ashes and place in containers	0.01	m^3	C.2.07	$ 535.08	$ 5		
B01	8	1	2		Dismantle (welding crew)	1	ls	C.1.04	$ 913.95	$ 914		
B01	8	1	3		Load into containers for transport (to Roberts Bay)	7	m^3	C.4.01	$ 8.16	$ 55		
B01	8	1	4		Haul debris to Roberts Bay	7	m^3	C.4.04	$ 75.78	$ 512		
Mobile Equipment											$ 6,583	
B01	9	1	1	Decontaminate	Wash/decontaminate misc. equipment in lined facility	5	ea	C.3.08	$ 352.28	$ 1,761		
B01	9	1	2		Operate oil/water separator (qnty = # of tanks/equip. treated)	5	ea	C.2.08	$ 45.47	$ 227		
B01	9	2	1	Disassemble	Dismantle (welding crew)	5	ea	C.3.08	$ 352.28	$ 1,761		
B01	9	2	2		Load into containers for transport (to Roberts Bay)	34	m^3	C.4.01	$ 8.16	$ 275		
B01	9	2	3		Haul debris to Roberts Bay	34	m^3	C.4.04	$ 75.78	$ 2,558		
Other Structures											$ 34,121	
B01	10	1	1	Demolish	Demolish buildings and other structures	44	m^3	C.3.05	$ 10.61	$ 467		
B01	10	1	2		Dismantle radio towers	2	each	C.3.11	$ 14,052.00	$ 28,104		
B01	10	1	3		Collect debris	80	m^2	C.3.10	$ 0.13	$ 10		
B01	10	1	4		Load debris into containers for transport (to Roberts Bay)	66	m^3	C.4.01	$ 8.16	$ 538		
B01	10	1	5		Haul debris to Roberts Bay	66	m^3	C.4.04	$ 75.78	$ 5,002		
Subtotal Direct Costs - Camp Structures											**$ 222,481**	
Containment Structures												
Primary Tank Farm											$ 425,496	
B02	1	1	1	Above ground storage tanks	Drain fuel and consolidate in one tank	8	ea	C.2.03	$ 227.84	$ 1,823		
B02	1	1	2		Decommission fuel tanks	8	ea	C.1.02	$ 398.36	$ 3,187		
B02	1	1	3		Pressure wash tanks	8	ea	C.2.04	$ 249.84	$ 1,999		
B02	1	1	4		Operate oil/water separator	8	ea	C.2.08	$ 45.47	$ 364		
B02	1	1	5		Demolish and cut tanks into manageable pieces	8	ea	LS	$ 50,000.00	$ 400,000		
B02	1	1	6		Haul residual fuel on skid to Doris Camp	1	ls	C.4.06	$ 3,342.69	$ 3,343		
B02	1	1	7		Load into containers for transport (to Roberts Bay)	25	m^3	C.4.01	$ 8.16	$ 202		
B02	1	1	8		Haul debris to Roberts Bay	25	m^3	C.4.04	$ 75.78	$ 1,876		
B02	1	2	1	Heating Systems Tanks	Drain of fuel (consolidate in one tank) and pressure wash tank	7	ea	C.2.02	$ 18.99	$ 133		
B02	1	2	2		Operate oil/water separator (qnty = # of tanks/equip. treated)	7	ea	C.2.08	$ 45.47	$ 318		
B02	1	2	3		Load into containers for transport (to Roberts Bay)	5	m^3	C.4.01	$ 8.16	$ 43		
B02	1	2	4		Haul debris to Roberts Bay	5	m^3	C.4.04	$ 75.78	$ 398		
B02	1	3	1	Secondary containment system	Excavate liner cover material and consolidate on ore pile	406	m^3	C.5.02	$ 17.47	$ 7,084		
B02	1	3	2		Load HC contaminated bedding in containers for transport	-	m^3	C.4.01	$ 8.16	$ -		
B02	1	3	3		Cut liner into manageable pieces and clean	825	m^2	C.3.02	$ 2.14	$ 1,762		
B02	1	3	4		Load liner into container for transport (to Roberts Bay)	12	m^3	C.4.01	$ 8.16	$ 101		
B02	1	3	5		Haul debris to Roberts Bay	12	m^3	C.4.04	$ 75.78	$ 938		
B02	1	3	6		Regrade area to ensure positive drainage	810	m^2	C.5.05	$ 2.38	$ 1,926		
Power Plant Fuel Containment											$ 2,831	
B02	2	1	1	Green Storage tanks (2)	Drain of fuel and consolidate in one tank	2	ea	C.2.03	$ 227.84	$ 456		
B02	2	1	2		Pressure wash tanks	2	ea	C.2.04	$ 249.84	$ 500		
B02	2	1	3		Operate oil/water separator	2	ea	C.2.08	$ 45.47	$ 91		
B02	2	1	4		Load into containers for transport (to Roberts Bay)	2	ea	C.4.07	$ 123.41	$ 247		
B02	2	1	5		Haul debris to Roberts Bay	2	ea	C.4.04	$ 75.78	$ 152		
B02	2	2	1	Secondary containment system	Excavate liner cover material and consolidate on ore pile	60	m^3	C.5.02	$ 17.47	$ 1,048		
B02	2	2	2		Load HC contaminated bedding in containers for transport	-	m^3	C.4.01	$ 8.16	$ -		
B02	2	2	3		Cut liner into manageable pieces and clean	12	m^2	C.3.02	$ 2.14	$ 26		
B02	2	2	4		Load liner into container for transport (to Roberts Bay)	0.2	m^3	C.4.01	$ 8.16	$ 1		
B02	2	2	5		Haul debris to Roberts Bay	0	m^3	C.4.04	$ 75.78	$ 14		
B02	2	2	6		Regrade area to ensure positive drainage	125	m^2	C.5.05	$ 2.38	$ 297		
Jet Fuel Containment System											$ 3,571	
B02	3	1	1	Tidy Tanks/Jet fuel Drums	Remove to Doris Camp for reuse	1	ls	C.4.06	$ 3,342.69	$ 3,343		
B02	3	2	1	Portable Pollution Control Berm	Dismantle and prep for shipping	1	ls	C.3.04	$ 227.84	$ 228		
B02	3	2	2		Haul to Doris Camp for reuse (include in jet fuel trip)	1	ls	-	$ -	$ -		
B02	3	2	3		Haul debris to Roberts Bay	1	ls	C.4.04	$ 75.78	$ 76		
Settling Pond #1											$ 3,548	
B02	4	1	1	Remove liner	Excavate settled material, temp. stockpile	79	m^3	C.5.04	$ 2.56	$ 203		
B02	4	1	2		Remove liner and cut into manageable pieces	400	m^2	C.3.02	$ 2.14	$ 854		
B02	4	1	3		Load liner into container for transport (to Roberts Bay)	6	m^3	C.4.01	$ 8.16	$ 49		
B02	4	1	4		Haul debris to Roberts Bay	6	m^3	C.4.04	$ 75.78	$ 455		
B02	4	2	1	Backfill pond	Backfill pond with settled solids and drill cuttings	79	m^3	C.5.04	$ 2.56	$ 203		Cutting placement included elsewhere
B02	4	2	2		Regrade over pond with pad/berm materials	750	m^2	C.5.05	$ 2.38	$ 1,784		
Settling Pond #2 (incl. Burn Pit)											$ 1,793	
B02	5	1	1	Remove Solid Waste	Load into containers for transport (to Roberts Bay)	-	m^3	C.4.01	$ 8.16	$ -		
B02	5	2	1	Backfill pond	Backfill pond with settled solids and drill cuttings	59	m^3	C.5.04	$ 2.56	$ 152		
B02	5	2	2		Regrade over pond with pad/berm materials	690	m^2	C.5.05	$ 2.38	$ 1,641		

Work Area Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Activity Total	Subtotals	Source / Comments
Soil Treatment Facility											$ 16,745	
B02	7	1	1	Current landfarmed soils	Test existing soils in landfarm	10	ea	C.6.01	$ 93.48	$ 935		
B02	7	1	2		Use passing soils for reclamation	90	m^3	-	$ -	$ -		Costed where used
B02	7	1	3		Load failing soils into containers for transport	90	m^3	C.4.01	$ 8.16	$ 734		
B02	7	2	1	Soil in drums	Empty Drums	100	ea	C.2.09	$ 92.56	$ 9,256		
B02	7	2	2		Wash drums (in tank farm)	100	ea	C.2.05	$ 16.35	$ 1,635		
B02	7	2	3		Crush drums	100	ea	C.3.01	$ 13.56	$ 1,356		
B02	7	2	4		Load into containers for transport (to Roberts Bay)	6	m^3	C.4.01	$ 8.16	$ 52		
B02	7	2	5		Haul debris to Roberts Bay	6	m^3	C.4.04	$ 75.78	$ 482		
B02	7	3	1	Remove liner	Remove liner and cut into manageable pieces	368	m^2	C.3.02	$ 2.14	$ 786		
B02	7	3	2		Load liner into container for transport (to Roberts Bay)	6	m^3	C.4.01	$ 8.16	$ 45		
B02	7	3	3		Haul debris to Roberts Bay	6	m^3	C.4.04	$ 75.78	$ 418		
B02	7	4	1	Regrade	Regrade area to ensure positive drainage	440	m^2	C.5.05	$ 2.38	$ 1,046		
Diamond Drill Cuttings Settling Pond											$ 3,110	
B02	8	1	1	Excavate cuttings	Stockpile cuttings on-site	336	m^3	C.5.04	$ 2.56	$ 861		
B02	8	2	1	Remove pond	Excavate textile and place in container for transport	5	m^3	C.4.01	$ 8.16	$ 37		
B02	8	2	2		Regrade area to ensure positive drainage	930	m^2	C.5.05	$ 2.38	$ 2,212		
Subtotal Direct Costs - Containment Structures											**$ 457,093**	
Site Regrading												
Camp Complex Foundation Pad											$ 13,667	
B03	1	1	1	Regrade	Stake-out low-lying areas in summer to place fill	1	days	C.5.14	$ 6,543.52	$ 6,544		
B03	1	1	2		Regrade to fill in any low lying areas	2,995	m^2	C.5.05	$ 2.38	$ 7,123		
Road to Aimaokatalok Lake											$ 1,838	
B03	2	1	1	Regrade	Regrade (crown)	773	m^2	C.5.05	$ 2.38	$ 1,838		
Road to Airstrip											$ 4,193	
B03	3	1	1	Regrade	Regrade to fill in any low lying areas and crown road	1,763	m^2	C.5.05	$ 2.38	$ 4,193		
Airstrip											$ 12,697	
B03	4	1	1	Regrade	Regrade to fill in any low lying areas	5,222	m^2	C.5.05	$ 2.38	$ 12,419		
B03	4	2	1	Decommission	Place large white X's at each end of strip	1	ls	C.1.09	$ 277.84	$ 278		
Core Storage Road											$ 1,316	
B03	5	1	1	Remove Wind Sock & Culvert	Excavate culvert	7	m^3	C.5.15	$ 87.05	$ 603		
B03	5	1	2		Dismantle windsock	1	ls	C.3.08	$ 352.28	$ 352		
B03	5	1	3		Load culvert/sock/pole/drum into container for transport (to Roberts Bay)	0.3	m^3	C.4.01	$ 8.16	$ 2		
B03	5	1	4		Haul debris to Roberts Bay	0	m^3	C.4.04	$ 75.78	$ 20		
B03	5	2	1	Regrade	Regrade to fill in any low lying areas and crown road	142	m^2	C.5.05	$ 2.38	$ 338		
Drill Road											$ 728	
B03	1	1	1	Regrade	Regrade to fill in any low lying areas and crown road	306	m^2	C.5.05	$ 2.38	$ 728		
Subtotal Direct Costs - Camp Surface Infrastructure											**$ 34,438**	
Mine Openings												
Portal/Decline											$ 7,257	
B04	1	1	1	Remove fencing	Collect Debris (ski fence and supports)	2.2	m^3	C.3.05	$ 10.61	$ 23		
B04	1	1	2		Load debris into container for transport (to Roberts Bay)	2.2	m^3	C.4.01	$ 8.16	$ 18		
B04	1	1	3		Haul debris to Roberts Bay	2	m^3	C.4.04	$ 75.78	$ 168		
B04	1	2	1	Scaling	Use excavator to knock down debris	1	hrs	C.5.11	$ 256.32	$ 256		Est. 1 hr. Excavator time
B04	1	3	1	Backfill decline	Load, haul, dump waste ore to plug incline	389	m3	C.5.02	$ 17.47	$ 6,791		
Vent Raise											$ 13,771	
B04	2	1	1	Demolish	Demolish garden shed and wood support structures	13	m^3	C.3.05	$ 10.61	$ 133		
B04	2	1	2		Load debris into container for transport (to Roberts Bay)	19	m^3	C.4.01	$ 8.16	$ 153		
B04	2	1	3		Haul debris to Roberts Bay	19	m^3	C.4.04	$ 75.78	$ 1,421		
B04	2	2	1	Construct Cap	1.5mx2.1m concrete cap with gas vent	1	LS	C.6.03	$ 12,064.56	$ 12,065		
Subtotal Direct Costs - Mine Openings											**$ 21,028**	
Ore Stockpiles												
Consolidate, Reslope, Encapsulate, and Cover (0.3 m)											$ 375,307	
B05	6	1	1	Consolidate stockpiles and dispersed ore	Scrape up and dump ore within consolidated pile	3,803	m^3	C.5.03	$ 23.29	$ 88,564		
B05	6	1	2		Consolidate ore into large pile	8,265	m^3	C.5.03	$ 23.29	$ 192,472		
B05	6	2	1	Reslope stockpile	Dozer - D7	2,026	m^2	C.5.06	$ 3.17	$ 6,423		
B05	6	3	1	Place Synthetic cover	Supply and place HDPE liner	2,330	m^3	C.5.01	$ 31.70	$ 73,838		
B05	6	3	2	Cover stockpile	Load, haul, place cover material (assumed sourced within 0.5km)	802	m^3	C.5.02	$ 17.47	$ 14,011		
Subtotal Direct Costs - Ore Stockpiles											**$ 375,307**	
Contaminated Soils												
Contaminated Soil Implementation Plan											$ 41,333	
B06	1	1	1	Develop Implementation Plan	Includes field investigation, laboratory costs, and reporting	1	ls	-	$ 41,333.33	$ 41,333		
Subtotal Direct Costs - Contaminated Soils											**$ 41,333**	
Other Areas												
Drill Sites											$ 183,660	
B07	1	1	1	Drill piping	Cut of top of drill pipes and cap.	545	ea	C.3.09	$ 31.11	$ 16,954		
B07	1	1	2		Load top debris into containers for transport to Roberts Bay	9	m^3	C.4.01	$ 8.16	$ 74		
B07	1	1	3		Haul debris to Roberts Bay	9	m^3	C.4.04	$ 75.78	$ 692		
B07	1	2	1	Core	Remove any core to the core storage area	-	each	C.5.07	$ 35.10	$ -		done in 2012
B07	1	3	1	Regrade	Fill in low-lying areas (assumed sourced within 0.5km)	9,000	m^3	C.5.02	$ 17.47	$ 157,196		
B07	1	4	1	Revegetate	Revegetate: Supply and place cocoa matting	450	m^2	C.5.08	$ 4.04	$ 1,820		
B07	1	4	2		Revegetate: Seed/Fertilize, by hand, high application rate	9,000	m^2	C.5.13	$ 0.77	$ 6,922		
Vegetation Die-Back and Permafrost remediation Areas											$ 35,091	
B07	2	1	1	Areas by the Airstrip (excluding drill sites)	Fill in low-lying areas (assumed sourced within 0.5km)	168	m^3	C.5.02	$ 17.47	$ 2,930		
B07	2	1	1	Area by Drill Road	Fill in low-lying areas (assumed sourced within 0.5km)	267	m^3	C.5.02	$ 17.47	$ 4,662		
B07	2	1	2		Revegetate: Supply and place cocoa matting	890	m2	C.5.08	$ 4.04	$ 3,599		
B07	2	1	3		Revegetate: Seed/Fertilize, by hand, high application rate	17,795	m2	C.5.13	$ 0.77	$ 13,686		
B07	2	2	1	Area by Core Storage Road	Fill in low-lying areas (assumed sourced within 0.5km)	149	m^3	C.5.02	$ 17.47	$ 2,594		
B07	2	2	2		Revegetate: Supply and place cocoa matting	50	m^2	C.5.08	$ 4.04	$ 200		
B07	2	2	3		Revegetate: Seed/Fertilize, by hand, high application rate	990	m^2	C.5.13	$ 0.77	$ 761		
B07	2	3	1	Area by Grey Water Discharge	Fill in low-lying areas (assumed sourced within 0.5km)	81	m^3	C.5.02	$ 17.47	$ 1,414		
B07	2	3	2		Revegetate: Supply and place cocoa matting	270	m^2	C.5.08	$ 4.04	$ 1,092		
B07	2	3	3		Revegetate: Seed/Fertilize, by hand, high application rate	5,398	m^2	C.5.13	$ 0.77	$ 4,152		
Subtotal Direct Costs - Other Areas											**$ 218,750**	
Waste Shipping Off-site												
B08	1	1	1	Non-Hazardous Waste	Ship by barge to Hay River	1,948	m^3	S.03	$ 200.00	$ 389,589		
B08	1	2	1	HC Contaminated Soils	Ship by barge to Hay River	-	m^3	S.01	$ 989.00	$ -		
B08	1	3	1	Hazardous Waste	Ship by barge to Hay River	0.48	m^3	S.02	$ 200.00	$ 95		
Subtotal Direct Costs - Waste Shipping											**$ 389,684**	
Waste Disposal												
B09	1	1	1	Non-hazardous waste	Disposal fee at Hay River	1,948	m^3	M.10	$ 5.51	$ 10,730		
B09	1	2	1	Sewage sludge	RBC + New Treatment system sludge/solid waste	2	m^3	C.4.04	$ 75.78	$ 152		
B09	1	3	1	HC Contaminated Soils	Dump fee at Hay River	0	m^3	H.05	$ 100.00	$ -		
B09	1	4	1	Hazardous Waste	Dump fee at Hay River	0.48	m^3	M.09	$ 10,000.00	$ 4,750		
Subtotal Direct Costs - Waste Disposal											**$ 15,631**	
TOTAL DIRECT COSTS												
					TOTAL DIRECT COSTS						**$ 1,775,746**	
INDIRECT CLOSURE COSTS												
Contingency											$ 274,086	
-	1	1	-	Contingency	20% of direct costs	20	%		x $ 1,370,430.52	$ 274,086		
Mobilization & Demobilization											$ 2,937,251	
-	2	1	-	Winter Closure activities	Equipment Mobilization/Demobilization	1	ls	x	$ 337,503.53	$ 337,504		
				Equipment stand-by		1	LS	x	$ 632,097.00	$ 632,097		
-	3	1	1	Construct and maintain Winter Road	Required during closure	59	km	M.08	$ 33,350.00	$ 1,967,650		Assumed open for 4 months
General and Administration costs											$ 437,722	
-	4	1	-	Travel allowance		1	LS	x	$7,500.00	$7,500		
-	4	2	-	Camp Management		21	day	OC.01	$ 677.00	$14,338		
-	4	3	-	Camp Operations		106	person-days	OC.02	$ 150.00	$15,884		
-	4	4	-	Camp Rental		1	year	OC.03	$ 400,000.00	$400,000		
Field support											$ 203,397	
-	5	1	-	Supervision		21	days		$ 1,172.40	$ 24,830		
-	5	2	-	Equipment maintenance support - Mechanic	10% of project duration	2	days	x	$ 1,023.12	$ 2,167		
-	5	3	1	Helicopter Support	transport to camp	21	days	x	$ 8,400.00	$ 176,400		4 trips, 6 hrs/day;
Post-closure Monitoring											$ 200,000	
-	5	1	-	Contractor profit	Yearly monitoring cost	5	LS	x	$ 40,000.00	$ 200,000		
Engineering and Consultants Services											$ 150,000	
	5	3		Engineering Design		1	LS	x	$ 50,000.00	$ 50,000		
-	5	4	-	Cofirmatory sampling and analysis		1	LS	x	$ 100,000.00	$ 100,000		
Subtotal Indirect Costs												
				Subtotal Indirect Costs							**$ 4,202,456**	
CLOSURE COSTS - TOTAL												
				Subtotal Indirect Costs							**$ 5,978,202**	

Table 3. Mobilization/ Demobilization costs

Mob/Demob Costs

Crew mobilization costs included in loaded labour rates.
The barging fee for equipment is calculated on a square foot basis.

No. of units	Description	Units	Quantity	Unit cost	2012 Task cost	Notes
	Crew					
	Note: Labour costs included in loaded Labour Unit Rates found on the Unit Rates and Task Unit Rates worksheets					
	Construction equipment	Footprint				
1	Bobcat	m^3	11.0	$ 332.96	$ 3,658	From Hay River to Roberts Bay
1	Loader	m^2	10.2	$ 332.96	$ 3,400	From Hay River to Roberts Bay
1	Dozer	m^2	20.3	$ 332.96	$ 6,750	From Hay River to Roberts Bay
1	Excavator	m^2	38.1	$ 332.96	$ 12,688	From Hay River to Roberts Bay
1	Small equipment	m^3	24.1	$ 332.96	$ 8,025	From Hay River to Roberts Bay
1	Trucks (CAT 735)	m^2	41.6	$ 332.96	$ 13,860	From Hay River to Roberts Bay
0	Tractor trailer	m^3	86.8	$ 332.96	$ -	From Hay River to Roberts Bay
1	Crew cab pickup (Ford F350)	m^3	33.8	$ 332.96	$ 11,254	From Hay River to Roberts Bay
	Truck equipment to Hay River (6 trucks)	each	7	$15,000.00	$ 105,000	= hauling 8 trailers from Edmonton / source: Doris cost estimate
				Subtotal Mobilisation	**$ 164,636**	
				Subtotal Demobilisation	**$ 172,868**	Assumes same cost as mobilisation, updated by 5%
				Total	***$ 337,504***	

Equipment stand-by							
	Stand-by time	days	123	2569.5	$316,048.50	fall	May 1st to August 31; assume 10 hr days
		days	123	2569.5	$316,048.50	spring	October 1st to January 31st; assume 10 hr days
				Total	***$632,097***		

Camp costs

Description	Units	Cost Code	Quantity	Unit Cost	Task Cost	
Camp Management	day	OC.01	21	$677.00	$14,338	
Camp Operations	per day per person	OC.02	105.894867	$150.00	$15,884	5 person crew for 21 days
Camp Rental	year	OC.03	1	$400,000.00	$400,000	
Travel allowance	charter flights	OC.05	0	$10,000.00	$0	charter flights for 15 person crews
	commercial flights	OC.04	10	$750.00	$7,500	maximum of 2 weeks rotations
					$437,722	

Table 4. Unit Rates

Cost Code	Item	Unit rate	Unit	Comment	Source
Equipment					
E.01	Dozer (CAT D7)	$ 166.50	hr.	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.02	Dozer (CAT D4)	$ 86.60	hr.	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.03	Dozer (CAT D4) w/ Tiller	$ 99.59	hr.	15% added for tiller attachment	Nuna 2012 equipment rates
E.04	Truck (CAT 730)	$ 138.70	hr.	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.05	Excavator (CAT 330 CL)	$ 185.00	hr.	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.06	Loader (CAT IT38/930)	$ 82.30	hr.	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.07	Skidder (CAT Bobcat)	$ 80.10	hr.	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.08	Helicopter	$ 2,100.00	hr.	fuel surcharge applies	IMiskolczi (from Angela Holtzapfel@HBML ESR)
E.09	Welding Equipment	$ 52.58	day	300 Amps, gas/diesel driven	2009 BC Blue Book + 10% Northern Allowance, 10% fuel factor
E.10	Power washer	$ 110.00	day	Hot water pressure washer - 3000 PSI	www.abtoolrentals.com/equipment.asp?action=category&category=190&key=190%2D0079
E.11	Drum crusher	$ 35.60	hr.	30 tones, mobile	RSMeans, 2005; adjusted to 2009 dollars based on CPI + 15% rate increase to 2012
E.12	Oil-water separator	$ 27.50	hr.	10 GPM, underground	RSMeans, 2005; adjusted to 2009 dollars based on CPI + 15% rate increase to 2012
E.13	Air Track Drill	$ 296.34	hr.		2009 BC Blue Book + 10% Northern Allowance + 15% rate increase to 2012, 10% fuel factor
Materials					
M.01	Liner - HDPE	$ 28.93	m^2	supply and install	from JDS (Surface Water Management Options Analysis)
M.02	Liner - geotextile	$ 26.62	m^2	supply and install	from JDS (Surface Water Management Options Analysis)
M.03	Fuel (Diesel)	$ 1.17	L	2008 Landed fuel cost at Hope Bay	Maritz (from Jeff Reinson @ Newmont)
M.04	Explosives	$ 21.38	m^2	15% freight cost added	RSMeans, 2005; adjusted to 2009 dollars based on CPI + 15% rate increase to 2012
M.05	Silt Fencing	$ 1.32	m	15% freight cost added	Cost Mine 2011; original price quoted in linear ft
M.06	Coco-matting	$ 1.79	m^2	15% freight cost added	Cost Mine 2011; original price quoted in sq. yards
M.07	Seed/Fertilizer	$ 15.67	kg	15% freight cost added	Arctic Alpine seed mix+fertilizer (2009)
M.08	Winter road	$ 16,675.00	km	open and maintain for 2 months	NUNA Logistics (from Court Smith) + 15% cost increase to 2012
M.09	Hazardous Waste Disposal fee	$ 10,000.00	m^3	Disposal + handling and cleaning fee	SRK estimate
M.10	Demolition Debris Disposal Fee (@Hay River)	$ 5.51	m^3	Disposal + handling fee	Personal communication with Rob Jamieson@Hay River Disposals Ltd.
M.12	Bentonite chips	$ 570.96	m^3	In 50 pound bags, 15% freight cost added	Holly North Production Supplies Limited
Labour					
L.01	Labour general	$ 56.96	hr.		Nuna Blended 2012 rate POH in
L.02	Labour - Trades	$ 85.26	hr.	Electrician, Welder, plumber etc.	Nuna Blended 2012 rate POH in
L.05	Supervision	$ 97.70	hr.		Nuna Blended 2012 rate POH in
L.06	Truck Drivers	$ 65.81	hr.	Heavy Equipment	Nuna Blended 2012 rate POH in
L.07	Heavy Equipment Operator	$ 71.32	hr.	Light equipment	Nuna Blended 2012 rate POH in
L.08	Technician (Consultant)	$ 130.00	hr.	Staff Consultant	SRK-Estimate (all inclusive)
L.09	Note: Loading Rate includes allowances for (EI, CPP, MSP/Benefits/Travel/OT)				
Shipping					
S.01	Outbound Shipping - Soils	$ 989.00	m^3	1.7 t/m^3 bulk density	(7.75 m^3/seacan based on 29,000 lbs. limit per seacan, seacan is 38.5 m^3) - from NTCL 17APR 12
S.02	Outbound Shipping - Haz Waste	$ 200.00	m^3	1.0 t/m^3 bulk density	(7.75 m^3/seacan based on 29,000 lbs. limit per seacan, seacan is 38.5 m^3) - from NTCL 17APR 13
S.03	Outbound Shipping - Demolition	$ 200.00	m^3	0.733 t/m^3 bulk density	$7661/seacan (seacan is 38.5 m^3) - from NTCL 17APR 12
Hydrocarbon Soils and Haz Waste					
H.01	Excavate impacted soil	$ 19.18	m^3		WESA estimate
H.02	Low temperature thermal desorption	$ 100.00	m^3		WESA estimate
H.03	Rehydrate and backfill	$ 10.69	m^3		WESA estimate
H.04	Regrade and reshape	$ 2.38	m^2		WESA estimate
H.05	Tipping Fee for HC Soils at Hay River	$ 100.00	tonne		Communication with Hay River Landfill Tharp 18APR12
Owner's cost					
OC.01	Camp management	$ 677.00	day		Newmont
OC.02	Camp operations	$ 150.00	day	includes food and camp maintenance	Newmont
OC.03	Camp rental	$ 400,000.00	year	25 man mobile camp	Newmont
OC.04	Commercial flight	$ 750.00	person	flight from Yellowknife to Cambridge Bay and return	
OC.05	Charter flight	$ 10,000.00	flight	Return from Yellowknife	
Stand by equipment rates					
SB. 01	Dozer (CAT D7)	83.25	hr	50 % hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
SB. 02	Excavator (CAT 330 CL)	92.5	hr	50 % hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
SB. 03	Loader (CAT 966 F)	41.15	hr	50 % hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
SB. 04	Skidder (CAT 242B)	40.05	hr	50 % hourly equipment rate (less operator)	Nuna 2012 Equipment Rates

Table 5. Task Unit Rates

Cost Code	Item	Unit	Productivity (Unit/hr.)	Unit Rates				Labour						Equipment									Note / Source
								$ 56.96	$ 85.26	$ 85.26	$ 130.00	$ 65.81	$ 71.32	$ 166.50	$ 185.00	$ 82.30	$ 80	$138.70	$2,100.00	$ 296.34	$ 3.56	$ 11.00	$ 5.26	
				Total Unit Cost	Material Unit Rate	Labour Unit Rate	Equipment Unit Rate	General Labour	Tradesman - Electrical	Tradesman - Plumber	Engineer/ Technician	Truck Drivers	Heavy Equipment Operator	Dozer - CAT D7	Excavator - Cat 330	Loader - CAT 966	Skidder CAT 242	Truck - CAT 735	Helicopter	Drill	Drum crusher	Power washer	Welding Equipment	
Decommissioning																							
C.1.01	Decommission and remove all heating fuel tanks and place into lined facility	each	4	$ 47.68	$ -	$ 37.40	$ 10.29	2					0.5			0.5								Disconnect and remove all fuel drums and disconnect all Tidy Tanks from all structures
C.1.02	Decommission above ground storage tanks	each	0.5	$ 398.36	$ -	$ 398.36	$ -	2	1															Disconnect all fuel lines and electrical parts
C.1.03	Decommission potable water supply	each	0.25	$ 1,063.54	$ -	$ 981.24	$ 82.30	1	1	1			0.25			0.25								Disconnect all electrical and plumbing (intake and distribution)
C.1.04	Decommission waste incinerator	each	0.167	$ 913.95	$ -	$ 790.50	$ 123.45	2					0.25			0.25								Disconnect and remove fuel storage
C.1.05	Decommission Main Camp Facility electricity	each	0.25	$ 568.88	$ -	$ 568.88	$ -	1	1															De-energise main electrical board, disconnect auxiliary power (if exists)
C.1.06	Decommission electrical generators	each	0.46	$ 599.98	$ -	$ 510.52	$ 89.46	2	1				0.5			0.5								De-energise main breaker board, disconnect external fuel tanks (if needed) / loader used for lifting; source - RSMeans (26050252100)
C.1.07	Dismantle Satellite/Communication Equipment	each	0.5	$ 313.10	$ -	$ 313.10	$ -	2	0.5															source - SRK estimate
C.1.08	Prep portable trailers for moving (remove cladding, etc.)	each	0.3	$ 743.07	$ -	$ 619.62	$ 123.45	3					0.5			0.5								
C.1.09	Decommission Airstrip - Place large X's at each end of strip	each	0.5	$ 277.84	$ 50.00	$ 227.84	$ -	2																Assumed material cost for a high density plastic, nails and sandbags.
Decontamination																							
C.2.01	Collect hazardous chemical waste and place in suitable containers	m^3	0.17	$ 1,947.00	$ -	$ 1,453.20	$ 493.80	3					1			1								Includes all chemicals on site / jm_Estimate
C.2.02	Drain and power-wash heating fuel tanks (Tidy Tanks)	each	6	$ 18.99	$ -	$ 18.99	$ -	2																Drain fuel from tanks and wash exterior with hot water (collect water for treatment)
C.2.03	Drain above ground fuel storage tank	each	0.5	$ 227.84	$ -	$ 227.84	$ -	2																Drain fuel /source - SRK estimate
C.2.04	Pressure wash above ground fuel tank	each	0.5	$ 249.84	$ -	$ 227.84	$ 22.00	2														1		
C.2.05	Drain and power-wash empty fuel drums	each	12	$ 16.35	$ -	$ 15.44	$ 0.92	2					1									1		Drain fuel and triple-rinse drum (collect water for treatment)
C.2.06	Flush sewage treatment unit and collect sewage sludge	each	0.4	$ 504.33	$ -	$ 373.95	$ 130.38	2					0.5			0.5						1		Flush treatment unit with water (collect water for treatment)/source - SRK estimate
C.2.07	Empty incinerator and collect ashes	m^3	0.25	$ 535.08	$ -	$ 370.48	$ 164.60	1					0.5			0.5								Place ashes and unburned contents into containers / see C.6.04
C.2.08	Operate oil/water separator	each	4	$ 45.47	$ -	$ 42.72	$ 2.75	3														1		Siphon the water than drain the oil - 15 minutes per 55 gal. drum
C.2.09	Empty soil from 45 gallon drums	each	4	$ 92.56	$ -	$ 46.31	$ 46.25	2					1		1									
Demolition																							
C.3.01	Crush empty fuel drums	each	20	$ 13.56	$ -	$ 9.26	$ 4.29	2					1			1					1			Same as C.4.01
C.3.02	Cut Tank Farm geomembrane to manageable size	sq. m	80	$ 2.14	$ -	$ 2.14	$ -	3																source - SRK estimate
C.3.03	Remove intake hoses and cut to manageable size	Lm	100	$ 1.96	$ -	$ 1.50	$ 0.46	2					0.5			0.5							1	source - SRK estimate
C.3.04	Dismantle pollution control berm	each	0.50	$ 227.84	$ -	$ 227.84	$ -	2																
C.3.05	Demolish office buildings/ shop structures/ living quarters	m^3	53	$ 10.61	$ -	$ 5.92	$ 4.69	3					2	1		1								Demolish empty wood structures (offices, shacks, etc.)/ source - RSMeans
C.3.06	Demolish helipads/ float plane dock	m^3	75	$ 2.81	$ -	$ 1.71	$ 1.10	1					1			1								Demolish wood structure / source - SRK estimate
C.3.07	Demolish Above ground storage tanks	m^3	5	$ 86.49	$ -	$ 48.44	$ 38.05	3					1		1								1	
C.3.08	Dismantle Old Equipment (torch)	each	0.5	$ 352.28	$ -	$ 341.76	$ 10.52	3															1	
C.3.09	Cut of tops of drill casings	each	2	$ 31.11	$ -	$ 28.48	$ 2.63	1															1	
C.3.10	Clean up debris from site	m^2	2529	$ 0.13	$ -	$ 0.10	$ 0.03	3					1			1								source - SRK estimate
C.3.11	Dismantle radio tower	each	0.04	$ 14,052.00	$ -	$ 9,612.00	$ 4,440.00	2	1		1		1		1									source - SRK estimate
Material Relocations																							
C.4.01	Load demolition debris/solid waste in containers	m^3	48	$ 8.16	$ -	$ 2.97	$ 5.18						2	1		1								source - SRK calculated from first principles
C.4.02	Empty Seacan of debris at the landfill	each	5.7	$ 86.55	$ -	$ 24.98	$ 61.57						2	1	1									
C.4.03	Haul materials to Doris Camp in 20 ft. container (33.2 m^3/container)	m^3	3.31	$ 71.92	$ -	$ 21.57	$ 50.35						1	1										source - calculated from first principles
C.4.04	Haul waste to Roberts Bay jetty in 20 ft. container (33.2 m^3/container)	m^3	3.14	$ 75.78	$ -	$ 22.73	$ 53.06						1	1										source - calculated from first principles
C.4.05	Ship demolition waste from Roberts Bay to Hay River	m^3	1	$ -									0											
C.4.06	Haul one skid to Doris Camp	each	0.07	$ 3,342.69	$ -	$ 1,002.44	$ 2,340.25						1	1										
C.4.07	Load reusable items on skids	each	3	$ 123.41	$ -	$ 61.75	$ 61.67	2					1		1									
Earth works																							
C.5.01	Install HDPE Liner	m^2	175	$ 31.70	$ 28.93	$ 1.71	$ 1.06	4					1		1									
C.5.02	Load, haul, dump, place: 1 truck with <0.5 km haul distance	m^3	40	$ 17.47	$ -	$ 5.21	$ 12.26					1	2	1	1			1						
C.5.03	Load, haul, dump, place: 1 truck with <1.0 km haul distance	m^3	30	$ 23.29	$ -	$ 6.95	$ 16.34					1	2	1	1			1						
C.5.04	Excavate: Spoil locally, no trucks	m^3	100	$ 2.56	$ -	$ 0.71	$ 1.85						1		1									
C.5.05	Regrade surface - rough grading, D7	m^2	100	$ 2.38	$ -	$ 0.71	$ 1.67						1	1										source - RSMeans
C.5.06	Reslope Stockpiles - D7	m^3	75	$ 3.17	$ -	$ 0.95	$ 2.22						1	1										
C.5.07	Relocate core box pallet (<0.5 km)	ea.	6	$ 35.10	$ -	$ 21.38	$ 13.72	1					1			1								
C.5.08	Install soil stabilization measures (straw/coconut matting)	m^2	269	$ 4.04	$ 1.79	$ 1.27	$ 0.99	3.5					2		1		1							source - RSMeans
C.5.09	Drill, blast Quarry	m^3	100	$ 27.27	$ 21.38	$ 2.93	$ 2.96	1.5			0.5		2							1				
C.5.10	Track pack using loaded rock truck	m^2	100	$ 2.05		$ 0.66	$ 1.39					1						1						source - SRKjm estimate
C.5.11	Scaling (loose rock)	hr.	1	$ 256.32	$ -	$ 71.32	$ 185.00						1		1									
C.5.12	Load, haul, dump place: 2 trucks with <1.0km haul distance	m^3	75	$ 12.04	$ -	$ 3.66	$ 8.39					2	2	1	1			2						
C.5.13	Seeding/Fertilizing: By hand, high application rate	m^2	320	$ 0.77	$ 0.24	$ 0.53	$ -	3					0											
C.5.14	Summer identification of low-lying areas	day	0.08	$ 6,543.52	$ 100.00	$ 2,243.52	$ 4,200.00	1			1								0.17					
C.5.15	Remove culvert and create swale	lm	5	$ 87.05	$ -	$ 50.05	$ 37.00	2			0.5		1		1									
Other																								
C.6.01	Sample HC contaminated soils / confirmatory samples	each	2	$ 93.48	$ -	$ 93.48	$ -	1			1													Surface grab sample/ hand auger / Source - SRK estimate
C.6.02	Band together core pallets	each	12	$ 9.49	$ -	$ 9.49	$ -	2			0		0			0								
C.6.03	Construction of Vent Raise Seal	LS	0.042	$ 12,064.56	$ 3,000.00	$ 8,076.96	$ 987.60	3			1		0.5			0.5								$14,000 LS based on project experience; material cost estimated to bring total to $14k; estimated 2 day task duration

Table 6. Relocation Unit Rates

Hauling Distances			
Boston to Doris	61	km	One Way
Boston to Roberts Bay	64.4	km	One-Way

C.4.03 - Productivity of hauling bulk materials from Boston on winter road to Doris			
By Skid - SnowCAT (equivalent to D7)			Note: Cost of winter road not included
Equipment Cost	$ 166.50	per hr.	Includes fuel
Labour Cost	$ 71.32	per hr.	
Average speed	9	km/hr.	Sleds assumed as being available on site
Hauling capacity	2	skids	One container per skid
Cargo capacity	33.2	m^3	Standard 20 ft. container
Space utilization ratio	0.7		
Load	46.48	m^3	Cargo Capacity x # of Containers x Space Utilization Ratio
Distance:	61	km	
Time Required 1 round trip:	**14.06**	**hrs.**	**Includes 0.5hr unloading time**
Productivity:	**3.31**	**m^3/ hr.**	

C.4.04 - Productivity of hauling bulk materials from Boston on winter road to Roberts Bay			
By Skid - SnowCAT (equivalent to D7)			Note: Cost of winter road not included
Equipment Cost	$ 166.50	per hr.	Includes fuel
Labour Cost	$ 71.32	per hr.	
Average speed	9	km/hr.	Sleds assumed as being available on site
Hauling capacity	2	skids	One container per skid
Cargo capacity	33.2	m^3	Standard 20 ft. container
Space utilization ratio	0.7		
Load	46.48	m^3	Cargo capacity x # of Containers x Space Utilization Ratio
Distance:	64.4	km	
Time Required 1 round trip:	**14.81**	**hrs.**	**Includes 0.5hr unloading time**
Productivity:	**3.14**	**m^3/ hr.**	

Table 7. Structures

Demolition Bulking Factors	
Tents - Empty	1.3
Wood Structures - Empty	1.5
Wood Structures - w/ Interior Wall Allowance	2
Steel Structures - Empty	1.5
Steel Structures - w/ Interior Wall Allowance	2
Mechanical Equipment	1.1
Liners	3
Pipelines	3

Structure Volumes

Area	Structure	Quantity	Length (m)	Width/Dia. (m)	Footprint Area (m)	Avg Height (m)	Wall thickness (m)	Floor Thickness (m)	Roof Length (m)	Roof Thickness (m)	Wall Volume (m^3)	Floor Volume (m^3)	Roof Volume (m^3)	Total Volume (m^3)	Loose Volume (m^3)	Source
Accommodation Complex	Recreation Tent	1	5.1	4.5	23.0	2.5	0.01	0.3	6	0.05	0.48	6.9	1.5	9	**11.56**	Foot Print AutoCAD, height thickness est. from photo
	Site Office	1	12.2	5.1	62.2	2.5	0.15	0.3	5.1	0.3	13.0	18.7	18.7	50	**100.61**	Foot Print AutoCAD, height thickness est. from photo
	Geotech Tent	1	7.5	4.4	33.0	2.5	0.01	0.3	6	0.05	0.6	9.9	2.3	13	**16.57**	Foot Print AutoCAD, height thickness est. from photo
	Core Processing Facility	1	30	7.85	235.5	2.75	0.15	0.3	7.5	0.3	31.2	70.7	67.5	169	**220.19**	Foot Print AutoCAD, height thickness est. from photo
	Core Shack	1	21	5	105.0	2.75	0.15	0.3	6	0.3	21.5	31.5	37.8	91	**181.50**	Foot Print AutoCAD, height thickness est. from photo
	Core Splitter	1	2.6	3.75	9.8	2.5	0.15	0.3	4	0.3	4.8	2.9	3.1	11	**16.21**	Foot Print AutoCAD, height thickness est. from photo
	Muster Station	1	10.4	4.7	48.9	2.75	0.15	0.3	5.5	0.3	12.5	14.7	17.2	44	**66.42**	Foot Print AutoCAD, height thickness est. from photo
	Heating systems liner	2	4	4	16.0			0.05			0.0	0.8	0.0	2	**4.80**	
Maintenance Shop Complex	Maintenance Shop	1	18	12.2	219.6	0	0.05	0	19.2	0.05	0.0	0.0	17.2	17	**25.87**	Foot Print AutoCAD, height thickness est. from photo
	Shop Sheds (survival, elec. Etc.)	1	23	3.75	86.3	2.5	0.1	0.3	3.75	0.1	13.4	25.9	8.6	48	**71.81**	Foot Print AutoCAD, height thickness est. from photo
	Powerhouse	1	12.2	5	61.0	2.5	0.1	0.3	6	0.3	8.6	18.3	22.0	49	**97.72**	Foot Print AutoCAD, height thickness est. from photo
	Transformer Building	1	9	4.54	40.9	2.5	0.1	0.3	5	0.3	6.8	12.3	13.5	33	**48.79**	Foot Print AutoCAD, height thickness est. from photo
Crusher	Crusher Enclosure	1	36.5	12.8	467.2	0	0.01	0	20.1	0.05	0.0	0.0	36.7	37	**55.04**	Foot Print AutoCAD, height thickness est. from photo
	Hopper/Crusher Parts	1	4	2	8.0	1.5	1				18.0	0.0	0.0	18	**19.80**	Estimated
Water Treatment	Water Intake to Portal & Camp	1	607	0.05	30.4	0.05	1				60.7	0.0	0.0	61	**182.21**	Lengths from ACAD
	Sewage Supply Pipelines	1	489	0.05	24.5	0.05	1				48.9	0.0	0.0	49	**146.72**	Lengths from ACAD
	Old Sewage Treatment Bldg.	1	5.5	6.3	34.7	4	0.15	0.3	7.5	0.3	14.2	10.4	12.4	37	**55.40**	Foot Print AutoCAD, height thickness est. from photo
	New Treatment System (5)	5	12	2.5	30.0	2.5	0.15	0.3	2.5	0.15	10.9	9.0	4.5	122	**182.81**	Footprint: ACAD
Helipads	Helipads (3)	3	4.6	4.6	21.2	0	0	0.5	0	0	0.0	10.6	0.0	32	**47.61**	Foot Print AutoCAD, height thickness est. from photo
Docks	Spyder Lake	1	4	3	12.0			0.5			0.0	6.0	0.0	6	**12.00**	Footprint: ACAD
	Stickleback Lake Dock	1	4	3	12.0			0.5			0.0	6.0	0.0	6	**12.00**	Footprint: ACAD
	Stickleback boardwalk	1	133	2.5	332.5	0	0	0.2	0	0	0.0	66.5	0.0	67	**133.00**	Foot Print AutoCAD, height thickness est. from photo
	Bridge E of Stickleback	1	10	5	50.0	0	0	0.5	0	0	0.0	25.0	0.0	25	**37.50**	Made up; have no info
Incinerator	Incinerator	1	1.5	2	3.0	0	0	1.5	0.0	0	0.0	4.5	0.0	5	**6.75**	Foot Print AutoCAD, height thickness est. from photo
Mobile Equipment	Miscellaneous Eq.	5	1.5	2	3.0	0	0	1.5	0.0	0	0.0	4.5	0.0	23	**33.75**	
Primary Tank Farm	Large Above Ground Tanks	6		4.5	0.0	5	0.05	0.05		0.05	2.3	0.0	0.0	14	**20.25**	Foot Print AutoCAD, height thickness est. from photo
	Medium Above Ground Tanks	2		3	0.0	5	0.05	0.05		0.05	1.5	0.0	0.0	3	**4.50**	Foot Print AutoCAD, height thickness est. from photo
	Heating System Tanks	7		1	0.0	5	0.05	0.05		0.05	0.5	0.0	0.0	4	**5.25**	Quantity breakdown shown below, size estimated
	Containment Liner	1	33	25	825.0			0.005			0.0	4.1	0.0	4	**12.38**	ACAD
Power Plant Containment	Green Storage Tank	2	2.5	1.5	3.8	1.5					0.0	0.0	0.0	0	**0.00**	
	Containment Liner	1	4	3	12.0			0.005			0.0	0.1	0.0	0	**0.18**	Estimated
Settling Pond #1	Containment Liner	1	20	20	400.0			0.005			0.0	2.0	0.0	2	**6.00**	Footprint: ACAD
Settling Pond #2	Solid Waste				0.0						0.0	0.0	0.0	0	**0.00**	Estimated from photo
Soil Treatment Facility	45 gallon drums	100		0.6		0.15					0.042	0.0	0.0	4	**6.36**	Estimated from photo
	Containment Liner	1	16	23	368.0			0.005			0.0	1.8	0.0	2	**5.52**	
Drill Cutting Settling Pond	Geotextile or liner	1	30	20	600.0			0.005			0.0	3.0	0.0	3	**4.50**	
Drill Sites	Top of Casing	545	0.9	0.09	0.1						0.01	0.0	0.0	3	**9.13**	
Core Storage Road	Culvert	1	6	0.3	1.8			0.15			0.0	0.3	0.0	0	**0.27**	Assumed crushed to 1/2 its volume
Mine Openings	Portal Fence	1	61.5	0	0.0	1.2	0.01				1.5	0.0	0.0	1	**2.21**	Estimated from photo
	Vent Raise enclosure	1	5	5	25.0	2.5	0.1	0.15	5	0.15	5.0	3.8	3.8	13	**18.75**	Estimated from photo
Other structures	Other (V-notch weir, sampling points, thermistor housing boxes, other sheds)	1	20	4	80.0	2.5	0.1	0.3	4	0.1	12.0	24.0	8.0	44	**66.00**	Based on site photos, assumed areas
TOTAL:															**1,947.9**	

Demolition Preparation

Area	Structure	# of Units	Decommission			Heating Tanks	Hazardous Material Vol Estimate (L)	Special Item	Special Item Description	Source
			Electrical	Heating System	Plumbing System					
Accommodation Complex	Recreation Tent	1				1	0			Estimated from aerial photo
	Site Office	1				0	1			Estimated from aerial photo
	Geotech Tent	1				1	10			Estimated from aerial photo
	Core Shack/Splitter	1				2	10			Estimated from aerial photo
	Muster Station	1				1	4			Estimated from aerial photo
	Portable Trailers	12	1	1	1	0	25			Estimated from aerial photo
Maintenance Shop Compl.	Maintenance Shop	1	0	0	0	0	60			Estimated from aerial photo
	Shop sheds	4	1			1	25			Estimated from aerial photo
	Powerhouse	1	1			0	50			
	Transformer Building	1	1			0	100			
Crusher	Crusher Enclosure	1	0	0	0	1	20			
Water Treatment	New Facility	5	1	0	0	0	25	1	Sludge/Solid Waste	Estimated
	RBC	1					25	1	Sludge/Solid Waste	Estimated
Incinerator	Incinerator	1	0	0	0	0	0	10	Ashes	Ashes in Liters, estimates
Mobile Equipment	Misc. Equipment on site	5	0	0	0	0	60	10	Residual Fuel (in each)	Estimated from aerial photo
Primary Tank Farm	Above Ground Tanks	8					25	40	Residual Fuel (in each)	Fuel in Liters, estimated
	Heating System Tanks	7					25	10	Residual Fuel (in each)	Fuel in Liters, estimated
Power Plant Containment	Green Storage Tanks	2					10	5	Residual Fuel (in each)	Fuel in Liters, estimated
Soil Treatment Facility	Empty 45 gal drums	100						0.5	Residual Fuel (in each)	Fuel in Liters, estimated
Core Boxes	Total box pallets	520								AutoCAD
	Box pallets located on tundra	400								Estimated based on photos + contingency
TOTAL:						**7**	**475**			

Table 8. Reclamation Areas

Reclamation Areas

Work Area	Location	Total Area (m^2)	Area Sacrificed (m^2)	Area Regraded (m^2)	Area Requiring Fill (m^2)	Cocoa-matting Area (m^2)	Total Area (m^2)	Source/Comment
Camp Structures	Old Water Treatment Foundation Pad	460		460				ACAD/aerial site photo
	Helipads	150		150				ACAD/aerial site photo
Camp Surface Infrastructure	Camp Complex Foundation Pad	29,953	29,953	2,995			29,953	Excludes landfarm/core storage areas; assumed 10% requires regrading
	Road to Spyder Lake	773	773	773		0	0	ACAD
	Road to Airstrip	1,763	1,763	1,763				ACAD
	Airstrip	10,444	10,444	5,222				ACAD; assumed 50% required regrading
	Core Storage Road	142	142	142				ACAD
	Drill Road	306	306	306				ACAD; assumed 50% required regrading
Other Areas	Permafrost Remediation Areas	11,184			559	559	11,184	ACAD, assumed 5% required 0.3m fill in low areas, 5% required matting
	Vegetation Die-Back - Drill Road	17,795			890	890	17,795	ACAD, assumed 5% required 0.3m fill in low areas, 5% required matting
	Vegetation Die-Back - Core Storage Road	990			495	50	990	ACAD, assumed 50% required 0.3m fill in low areas, 5% required matting
	Vegetation Die-Back - Grey Water Dis.	5,398			270	270	5,398	ACAD, assumed 5% required 0.3m fill in low areas, 5% required matting
	Drill Sites	9,000			9,000	450	9,000	9 site included each 1000 sq.m.
	Boston Ore Stockpiles	6,077	6,077	3,039			6,077	ACAD; assumed 50% required regrading

Earthwork Volumes/Quantities

Bulking Factors	
Soil/Rock Pad	1.2
Cover shrinkage factor	1.1

Work Area	Item	Qnty	Length (m)	Width (m)	Height (m)	Side Slope (x:1)	Area (m^2)	In-situ Volume (m^3)	Loose Volume (m^3)	Source / Comments
Core Storage Road	Excavate Culvert	1	5.5	0.5	0.9	1	1.26	7		
Mine Openings	Backfill Decline	1	18	12	3			324	**389**	ACAD estimated
Primary Tank Farm	Excavate Bedding Material				0.5		676	338	**406**	
	Regrade area						810			ACAD estimated
Power Plant Fuel Containment	Excavate Bedding Material				0.5		100	50	**60**	Estimated
	Regrade area						125			Estimated
Settlement Pond #1	Excavate Settled Material		16	9	0.5		144	72	**79**	ACAD estimated
	Regrade area						750			ACAD estimated
Settlement Pond #2	Excavate Settled Material		12	9	0.5		108	54	**59**	ACAD estimated
	Regrade area						690			ACAD estimated
Soil Treatment Facility	Soils				0.5		300	150	**180**	ACAD estimated; assumed 1/2 passing
	Regrade area						440			ACAD estimated
Drill Cutting Settling Pond	Cutting volume				0.5		560	280	**336**	ACAD/aerial site photo
	Regrade area						930			ACAD estimated
Ore Stockpiles	Original stockpile footprint				1.7		6077	10331	**12397**	ACAD estimated. Volume of ore material from SRK 2008 Boston annual inspection (27,000 tonnes) and assuming a bulk density of 2 tonnes/m^3
	Consolidated Stockpile foot print				6.7		2026	13500	**16200**	Entire volume (13500 m^3) consolidated to 1/3 of existing footprint.
	Relocated Volume (used for construction)							3169	**3803**	scraped up from pads and airstrip (estimate by SRK)
	Relocated volume (consolidation of piles)							6887	**8265**	pushed into the large pile
	Cover Volume				0.3		2228	668	**802**	
	Liner Area						2330			Liner area increased by 15% to account for wastage and conversion between 3D and 2D projection.
Landfill Closure	Bedding (crushed rock) (0.3m on each side of liner)				0.6		700	420	**504**	
	Liner						805			
	Run-of-quarry cover				0.5		700	350	**420**	

Appendix B
Doris North Closure Cost Estimate

Summary of Costs

Work task	Cost (rounded to the nearest thousand)	
	By task	By Facility
Direct Cost Items		
1. Transportation infrastructure (roads, airstrips, docks)		$493,000
Jetty	$11,000	
Fuel Transfer Access Road	$8,000	
Beach Laydown Area	$3,000	
All-weather Airstrip	$122,000	
Helicopter Support Facilities	$14,000	
Doris Windy Road	$250,000	
Secondary Road Area	$75,000	
Tail Lake Access Road	$10,000	
2. Borrow Areas		$129,000
Overburden Dump RB	$26,000	
Overburden Dump Q2	$103,000	
3. Portals/Adits		$52,000
Portal and Underground Works	$30,000	
Vent Raise	$22,000	
4. Non-Process Ponds & Reservoirs		$63,000
Temporary Water Management Pond	$46,000	
Sedimentation/Pollution Control Pond	$17,000	
5. Water Management		$1,179,000
Water Management	$1,179,000	
6. Dumps , Stockpiles, Landfills		$720,000
Waste Rock Pile	$576,000	
Ore Pile	$144,000	
7. Tail Storage Facility (TSF)		$485,000
Frozen Core Dam	$485,000	
8. Drainage / Diversion Channels		$22,000
Run-off Diversion Berm	$3,000	
Sedimentation Berm	$3,000	
Drainage channel	$16,000	
9. Facilities Demolition		$1,830,000
RBTF	$364,000	
Q1TF	$125,000	
Mechanical Shop Complex	$46,000	
Waste Management Facility	$15,000	
Laydown Area	$65,000	
Communications Tower	$19,000	
Orbit Drill Shop	$15,000	
Explosives Mixing Facility	$4,000	
Equipment Laydown Area	$55,000	
Material Laydown Area	$85,000	
Ammonium Nitrate Storage Area	$21,000	
Geotech Drill Shop	$3,000	
Westarc Drill Shop	$3,000	
Land Farm	$38,000	
Batch Plant Pad	$3,000	
Burn Pan	$3,000	
Crusher	$13,000	
Accommodation Complex	$149,000	
Tank Farm	$388,000	
Permanent Power Generator	$36,000	
Temporary Power Generator	$6,000	
Sewage Treatment Plant	$21,000	
Fire Water Storage Tank	$41,000	
Muster Station	$3,000	
Warehouse/Core Shack	$10,000	
Offices & Mine Dry Complex	$75,000	
Underground Wash Bay	$8,000	
Swick Shop	$9,000	
Water Intake Structure and Pumping Facility	$6,000	
Underground Support Mechanical Shop	$34,000	
Fresh Water Pipelines	$11,000	
Sewage Discharge Line	$14,000	
Sumps	$23,000	
Camp Pads	$36,000	
Ventilation and Heating Facilities	$13,000	
Fuel Storage Area	$10,000	
Explosives Storage Facility	$7,000	
Doris Mountain Communication Tower	$53,000	
10. Off-site Shipping for Disposal	$3,998,000	$3,998,000
11. Off-Site Disposal Fees	$89,000	$89,000
Total Direct Costs		**$9,060,000**
12. Mobilization & Demobilization	$712,000	$712,000
13. Engineering and Consultants Services	$282,000	$282,000
14. General and Administration costs	$2,082,000	$2,082,000
15. Contingency	$754,000	$754,000
16. Post-closure Monitoring	$200,000	$200,000
Total Indirect Costs		$4,030,000
Total Closure Cost		$13,090,000

Detailed Cost Estimate

Work Area Code	Item	Task	Sub-task	Activity	Task	Quantity	Cost Code	Unit Cost	Activity Total	Subtotals	Source / Comments
DIRECT COSTS											
Roberts Bay										**$695,731**	
RB-001	1	1	1	Jetty	Remove rock fill to 0.3 m below LLWL	1,013.8	C.5.05	$2.38	$ 2,411.12		
	1	1	2		Remove on-shore mooring points	1.0		$1,200.00	$ 1,200.00		
	1	1	3		Remove mooring buoy	1.0		$2,500.00	$ 2,500.00		
	1	1	4		Crown jetty for positive drainage	1,900.0	C.5.05	$2.38	$ 4,518.58		
RB-002	1	2	1	RBTF	Drain tanks into portable fuel storage (EnviroTanks)	3.0	C.2.03	$227.84	$ 683.52		
	1	2	2		Decommission fuel transfer facilities	1.0	C.1.03	$1,166.24	$ 1,166.24		
	1	2	3		Wash tanks	3.0	C.2.04	$780.75	$ 2,342.25		
	1	2	4		Operate oil/water separator	3.4	C.2.08	$27.56	$ 92.86		
	1	2	5		Disconnect piping and controls	3.0	C.1.02	$398.36	$ 1,195.08		
	1	2	6		Dismantle tanks and cut into manageable pieces	3.0	LS	$100,000.00	$ 300,000.00		assumed 20% of cost of building each tank
	1	2	7		Prepare pieces for transportation	34.1	C.4.01	$8.16	$ 278.11		
	1	2	8		Haul cut metal to Roberts Bay laydown	40.0	C.4.11	$1.60	$ 64.26		
	1	2	9		Remove and stockpile liner protection cover	9,400.0	C.5.04	$2.56	$ 24,094.08		
	1	2	10		Clean liner	10,300.0	C.2.10	$0.35	$ 3,574.10		
	1	2	11		Remove and cut liner into manageable pieces	10,300.0	C.3.02	$0.14	$ 1,466.72		
	1	2	12		Load waste into containers for shipping off-site	92.7	C.4.01	$8.16	$ 755.97		
	1	2	13		Haul containers to Roberts Bay laydown	92.7	C.4.11	$1.60	$ 148.76		
	1	2	14		Level containment berms	231.3	C.5.05	$2.38	$ 550.03		
	1	2	15		Regrade area for positive drainage	11,530.0	C.5.05	$2.38	$ 27,420.65		
RB-003	1	3	1	Q1TF	Drain tanks into portable fuel storage (EnviroTanks)	1.0	C.2.03	$227.84	$ 227.84		
	1	3	2		Decommission fuel transfer facilities	1.0	C.1.02	$398.36	$ 398.36		
	1	3	3		Wash tanks	1.0	C.2.04	$780.75	$ 780.75		
	1	3	4		Operate oil/water separator	1.1	C.2.08	$27.56	$ 30.95		
	1	3	5		Disconnect piping and controls	1.0	C.1.02	$398.36	$ 398.36		
	1	3	6		Dismantle tanks and cut into manageable pieces	1.0	LS	$100,000.00	$ 100,000.00		assumed 20% of cost of building the tank
	1	3	7		Prepare pieces for transportation	15.4	C.4.01	$8.16	$ 125.73		
	1	3	8		Haul cut metal to Roberts Bay laydown	15.4	C.4.11	$1.60	$ 24.74		
	1	3	9		Remove and stockpile liner protection cover	2,190.0	C.5.04	$2.56	$ 5,613.41		
	1	3	10		Clean liner	6,521.0	C.2.10	$0.35	$ 2,262.79		
	1	3	11		Remove and cut liner into manageable pieces	6,521.0	C.3.02	$0.14	$ 928.59		
	1	3	12		Drain and wash empty fuel drums	150.0	C.2.05	$16.35	$ 2,453.00		
	1	3	13		Crush empty fuel drums	150.0	C.3.01	$15.16	$ 2,273.55		
	1	3	14		Load waste into containers for shipping off-site	68.2	C.4.01	$8.16	$ 556.43		
	1	3	15		Level containment berms	279.3	C.5.05	$2.38	$ 664.20		
	1	3	16		Regrade area for positive drainage	3,650.0	C.5.05	$2.38	$ 8,680.43		
RB-004	1	4	1	Mechanical Shop Complex	:hanical, heating (including connections to generator house & transformer)	7.0	C.1.05	$568.88	$ 3,982.16		
	1	4	2		Demolish (steel modular structure)	2,402.4	C.3.05	$10.61	$ 25,489.39		
	1	4	3		Demolish wood structures (warehouse roof, crew lounge)	283.2	C.3.05	$10.61	$ 3,004.70		
	1	4	4		Demolish tent structure (light vehicle shop)	460.3	C.3.05	$10.61	$ 4,883.75		
	1	4	5		Collect Debris	685.8	C.3.10	$0.13	$ 88.00		
	1	4	6		Load waste into containers for shipping off-site	867.1	C.4.01	$8.16	$ 7,071.03		
	1	4	7		Haul debris to Roberts Bay laydown	867.1	C.4.11	$1.60	$ 1,391.47		
RB-005	1	5	1	Waste Management Facility	Collect ashes and place in containers	0.5	C.2.07	$535.08	$ 267.54		
	1	5	2		Dismantle (welding crew)	2.0	C.3.08	$446.92	$ 893.84		
	1	5	3		Demolish wood structures (roof, entryway, etc.)	76.2	C.3.05	$10.61	$ 808.95		
	1	5	4		Disconnect containers and prep for shipping off-site	11.0	C.1.08	$1,045.76	$ 11,503.36		
	1	5	5		Collect all debris	128.7	C.3.10	$0.13	$ 16.51		
	1	5	6		Load waste into containers for shipping off-site	152.5	C.4.01	$8.16	$ 1,243.57		
	1	5	7		Haul debris to Roberts Bay laydown	152.5	C.4.04	$2.31	$ 351.63		
RB-006	1	6	1	Laydown Area	Decommission vehicle plug system	1.0	C.1.05	$568.88	$ 568.88		
	1	6	2		Remove cables and posts	8.0	C.3.14	$370.24	$ 2,961.92		Estimated # of posts
	1	6	3		Collect all debris	24,491.6	C.3.10	$0.13	$ 3,142.56		
	1	6	4		Load waste into containers for shipping off-site	5.0	C.4.01	$8.16	$ 40.78		
	1	6	5		Haul debris to Roberts Bay laydown	5.0	C.4.11	$1.60	$ 8.02		
	1	6	6		Regrade area for positive drainage	24,491.6	C.5.05	$2.38	$ 58,245.92		
RB-007	1	7	1	Overburden Dump	Collect all debris	10,448.0	C.3.10	$0.13	$ 1,340.60		
	1	7	2		Load waste into containers for shipping off-site	10.0	C.4.01	$8.16	$ 81.55		
	1	7	3		Grade for positive drainage	10,448.0	C.5.05	$2.38	$ 24,847.43		
RB-008	1	8	1	Fuel Transfer Access Road	Crown road for positive drainage	3,378.0	C.5.05	$2.38	$ 8,033.56		
RB-009	1	9	1	Communications Tower	Decommission Tower	1.0	C.1.05	$568.88	$ 568.88		
	1	9	2		Remove communication equipment	4.0	C.1.07	$313.10	$ 1,252.40		
	1	9	3		Dismantle towers	1.0	C.3.11	$14,052.00	$ 14,052.00		
	1	9	4		Prep tower sections for shipping off-site	8.0	C.3.12	$421.16	$ 3,369.28		
	1	9	5		Collect all debris	1.4	C.3.10	$0.13	$ 0.19		
	1	9	6		Load waste into containers for shipping off-site	5.0	C.4.01	$8.16	$ 40.78		
	1	9	7		Haul containers to Roberts Bay laydown	10.5	C.4.11	$1.60	$ 16.90		
RB-010	1	10	1	Beach Laydown Area	agazines and containers to Roberts Bay laydown (to be done in the winter)	5.0	C.4.06	$198.18	$ 990.92		Change the destination to Roberts Bay Laydown
	1	10	2		Scarify surface to encourage vegetation	273.8	C.5.05	$2.38	$ 651.21		
	1	10	3		Collect all debris	273.8	C.3.10	$0.13	$ 35.13		
	1	10	4		Load waste into containers for shipping off-site	1.0	C.4.01	$8.16	$ 8.16		
	1	10	5		Haul containers to Roberts Bay laydown	1.0	C.4.11	$1.60	$ 1.60		
RB-011	1	11	1	Orbit Drill Shop	Decommission electrical, mechanical, heating	3.0	C.1.05	$568.88	$ 1,706.64		
	1	11	2		Disconnect containers and prep for shipping off-site	12.0	C.1.08	$1,045.76	$ 12,549.12		
	1	11	3		Collect all debris	141.0	C.3.10	$0.13	$ 18.10		
	1	11	4		Load waste into containers for shipping off-site	30.7	C.4.01	$8.16	$ 250.23		
	1	11	5		Haul containers to Roberts Bay laydown	30.7	C.4.04	$2.31	$ 70.76		
Airstrip		11								**$126,264**	
AS-001	2	1	1	Airstrip	Decomission Airstrip	2.0	C.1.09	$277.84	$ 555.68		
	2	1	2		Remove lighting fixtures (airstrip lighting, approach lights)	70.0	C.1.10	$35.56	$ 2,488.85		
	2	1	3		collect all debris	2,850.0	C.3.10	$0.13	$ 365.69		1.5 m width
	2	1	4		load waste into containers for shipping off-site	1.2	C.4.01	$8.16	$ 9.68		
	2	1	5		haul containers to Roberts Bay laydown	1.2	C.4.10	$1.82	$ 2.16		
	2	1	6		crown airstrip and airstrip expansion for positive drainage	42,000.0	C.5.05	$2.38	$ 99,884.40		regrade the expansion part only
AS-002	2	2	1	South Apron	crown for positive drainage	5,517.2	C.5.05	$2.38	$ 13,120.93		
AS-003	2	3	1	North Apron	Decommission electrical, and heating from traffic control tower	1.0	C.1.07	$313.10	$ 313.10		
	2	3	2		demolish control tower structure (wood shack)	11.7	C.3.05	$10.61	$ 124.35		
	2	3	3		disconnect containers and prep for shipping off-site	5.0	C.1.08	$1,045.76	$ 5,228.80		
	2	3	4		collect all debris	12.2	C.3.10	$0.13	$ 1.57		
	2	3	5		load waste into containers for shipping off-site	17.6	C.4.01	$8.16	$ 143.36		
	2	3	6		haul containers to Roberts Bay laydown	17.6	C.4.10	$1.82	$ 32.05		
AS-004	2	4	1	Explosives Mixing Facility	Decommission electrical, and heating from traffic control tower	2.0	C.1.05	$568.88	$ 1,137.76		
	2	4	2		Demolish building (tent structure)	31.9	C.3.05	$10.61	$ 338.70		Plus the shed and washbay
	2	4	3		disconnect containers and prep for shipping off-site	2.0	C.1.08	$1,045.76	$ 2,091.52		
	2	4	4		collect all debris	85.9	C.3.10	$0.13	$ 11.02		
	2	4	5		load waste into containers for shipping off-site	41.5	C.4.01	$8.16	$ 338.44		
	2	4	6		haul containers to Roberts Bay laydown	41.5	C.4.10	$1.82	$ 75.65		
Reagent Pads		4								**$167,538**	
RP-001	3	1	1	Equipment Laydown Area	collect all debris	21,870.0	C.3.10	$0.13	$ 2,806.17		
	3	1	2		load waste into containers for shipping off-site	20.0	C.4.01	$8.16	$ 163.10		
	3	1	3		regrade area for positive drainage	21,870.0	C.5.05	$2.38	$ 52,011.21		
	3	1	4		haul waste to Roberts Bay	20.0	C.4.09	$2.06	$ 41.13		
RP-002	3	2	1	Materials Laydown Area	collect all debris	33,839.8	C.3.10	$0.13	$ 4,342.03		
	3	2	2		load waste into containers for shipping off-site	20.0	C.4.01	$8.16	$ 163.10		
	3	2	3		regrade area for positive drainage	33,839.8	C.5.05	$2.38	$ 80,477.72		
	3	2	4		haul waste to Roberts Bay	20.0	C.4.09	$2.06	$ 41.13		
RP-003	3	3	1	Ammonium Nitrate Storage Area	remove and stockpile liner protection cover	1,504.6	C.5.04	$2.56	$ 3,856.64		
	3	3	2		clean liner	2,800.0	C.2.10	$0.35	$ 971.60		
	3	3	3		remove and cut liner into manageable pieces	2,800.0	C.3.02	$0.14	$ 398.72		
	3	3	4		load waste into containers for shipping off-site	25.2	C.4.01	$8.16	$ 205.51		
	3	3	5		haul containers to Roberts Bay laydown	25.2	C.4.09	$2.06	$ 51.83		
	3	3	6		level containment berms	2,800.0	C.5.05	$2.38	$ 6,658.96		
	3	3	7		regrade area for positive drainage	3,858.0	C.5.05	$2.38	$ 9,175.10		
RP-004	3	4	1	Geotech Drill Shop	Decommission electrical, mechanical, heating	2.0	C.1.05	$568.88	$ 1,137.76		
	3	4	2		demolish building (tent structure)	149.6	C.3.05	$10.61	$ 1,587.42		
	3	4	3		collect all debris	335.2	C.3.10	$0.13	$ 43.01		
	3	4	4		load waste into containers for shipping off-site	12.4	C.4.01	$8.16	$ 101.14		
	3	4	5		haul containers to Roberts Bay laydown	12.4	C.4.09	$2.06	$ 25.51		
RP-005	3	5	1	Westarc Drill Shop	Decommission electrical, mechanical, heating	2.0	C.1.05	$568.88	$ 1,137.76		
	3	5	2		demolish building (tent structure)	180.2	C.3.05	$10.61	$ 1,912.41		
	3	5	3		collect all debris	363.3	C.3.10	$0.13	$ 46.61		
	3	5	4		load waste into containers for shipping off-site	17.8	C.4.01	$8.16	$ 145.52		
	3	5	5		haul containers to Roberts Bay laydown	17.8	C.4.09	$2.06	$ 36.70		
Waste Management Area		5								**$39,916**	
WM-001	4	1	1	Land Farm	load contained contaminated soils into megabags for shipping off-site	100.0	C.4.12	$65.75	$ 6,574.50		
	4	1	2		haul megabags to Roberts Bay laydown	100.0	C.4.04	$2.31	$ 230.59		
	4	1	3		treat contained water and discharge	1.0	-	$5,000.00	$ 5,000.00		According to Iozsef's estimate
	4	1	4		remove and stockpile liner protection cover	1,366.0	C.5.04	$2.56	$ 3,501.33		
	4	1	5		clean liner	4,384.0	C.2.10	$0.35	$ 1,521.25		
	4	1	6		remove and cut liner into manageable pieces	13,152.0	C.3.02	$0.14	$ 1,872.84		liner and geotextile Does not include the liner protection cover
	4	1	7		load waste into containers for shipping off-site	118.4	C.4.01	$8.16	$ 965.29		
	4	1	8		haul containers to Roberts Bay laydown	118.4	C.4.04	$2.31	$ 272.94		
	4	1	9		level containment berms	3,011.2	C.5.05	$2.38	$ 7,161.23		
	4	1	10		regrade area for positive drainage	4,384.0	C.5.05	$2.38	$ 10,426.03		
WM-002	4	2	1	Batch Plant Pad	collect all debris	740.3	C.3.10	$0.13	$ 94.99		
	4	2	2		load waste into containers for shipping off-site	3.0	C.4.01	$8.16	$ 24.47		
	4	2	3		haul containers to Roberts Bay laydown	3.0	C.4.04	$2.31	$ 6.92		
	4	2	4		regrade area for positive drainage	740.3	C.5.05	$2.38	$ 1,760.65		
WM-003	4	3	1	Burn Pan	Collect ashes and place in containers	0.1	C.2.07	$535.08	$ 53.51		
	4	3	2		Dismantle (welding crew)	1.0	C.3.08	$446.92	$ 446.92		
	4	3	3		load waste into containers for shipping off-site	0.2	C.4.01	$8.16	$ 2.01		
	4	3	4		haul containers to Roberts Bay laydown	0.2	C.4.04	$2.31	$ 0.57		
Quarry #2										**$116,737**	
Q2-001	5	1	1	Crusher	Dismantle hopper/crusher parts for transport	2.0	C.1.11	$2,844.40	$ 5,688.80		
	5	1	2		Load equipment into containers for transport (to Roberts Bay)	99.6	C.4.04	$2.31	$ 229.67		assuming they fit in 3 containers
	5	1	3		collect all debris	2,668.0	C.3.10	$0.13	$ 342.34		
	5	1	4		load waste into containers for shipping off-site	2.7	C.4.01	$8.16	$ 21.76		
	5	1	5		haul containers to Roberts Bay laydown	2.7	C.4.04	$2.31	$ 6.15		
	5	1	6		regrade area for positive drainage	2,668.0	C.5.05	$2.38	$ 6,345.04		
Q2-002	5	2	1	Overburden Dump	reslope to 3H:1V	8,781.3	C.5.06	$3.17	$ 27,845.02		assumed 30% of entire footprint
	5	2	2		grade top for positive drainage	18,440.8	C.5.05	$2.38	$ 43,855.91		assumed 60% of entire footprint
	5	2	3		install erosion protection measures (coconut matting)	2,634.4	C.5.08	$4.05	$ 10,677.42		asumed 10% of entire surface area
	5	2	4		re-vegetate	26,344.0	C.5.13	$0.77	$ 20,261.63		entire footprint area
Q2-003	5	3	1	Treated Sewage Discharge Areas	Fill in low-lying areas (assumed sourced within 0.5km)	69.1	C.5.02	$17.47	$ 1,207.34		
	5	3	2		Revegetate: Supply and place cocoa matting	53.2	C.5.08	$4.05	$ 215.51		
	5	3	3		Revegetate: Seed/Fertilize, by hand, high application rate	53.2	C.5.13	$0.77	$ 40.90		
Doris Camp										**$1,696,957**	
DC-001	6	1	1	Accommodation Complex	Decommision (electrical, mechanical, plumbing)	18.0	C.1.05	$568.88	$ 10,239.84		
	6	1	2		disconnect trailers and prep for moving (remove boards/piping, etc.; wrap in plastic)	65.0	C.1.08	$1,045.76	$ 67,974.40		
	6	1	3		haul trailers to Roberts Bay for shipping off-site	2,755.6	C.4.04	$2.31	$ 6,354.12		
	6	1	4		demolish cabins	319.1	C.3.05	$10.61	$ 3,385.33		
	6	1	5		demolish cribbing, stairs, entryways, etc.	250.3	C.3.05	$10.61	$ 2,655.79		smoke tent, hallway, and storage room
	6	1	6		demolish arctic corridor	132.5	C.3.05	$10.61	$ 1,405.80		
	6	1	7		collect all debris	380.9	C.3.10	$0.13	$ 48.87		
	6	1	8		load waste into containers for shipping off-site	623.1	C.4.01	$8.16	$ 5,081.42		
	6	1	9		haul containers to Roberts Bay laydown	623.1	C.4.04	$2.31	$ 1,436.81		
	6	1	10		regrade area for positive drainage	21,050.0	C.5.05	$2.38	$ 50,061.11		
DC-002	6	2	1	Tank Farm	Drain tanks into portable fuel storage (EnviroTanks)	5.0	C.2.03	$227.84	$ 1,139.20		
	6	2	2		Decommision Fuel Transfer Fascilities	5.0	C.1.02	$398.36	$ 1,991.80		
	6	2	3		Wash tanks	5.0	C.2.04	$780.75	$ 3,903.75		
	6	2	4		Operate oil/water separator	1.9	C.2.08	$27.56	$ 52.46		
	6	2	5		Disconnect piping and controls	5.0	C.1.02	$398.36	$ 1,991.80		
	6	2	6		Dismantle tanks and cut into manageable pieces	7.0	LS	$50,000.00	$ 350,000.00		assumed cost proportional to 5 ML tanks
	6	2	7		prepare pieces for transportation	22.8	C.4.01	$8.16	$ 185.70		
	6	2	8		haul cut metal to Roberts Bay laydown	22.8	C.4.04	$2.31	$ 52.51		
	6	2	9		remove and stockpile liner protection cover	3,360.0	C.5.04	$2.56	$ 8,612.35		
	6	2	10		clean liner	5,500.0	C.2.10	$0.35	$ 1,908.50		
	6	2	11		remove and cut liner into manageable pieces	16,500.0	C.3.02	$0.14	$ 2,349.60		liner and geotextile
	6	2	12		load waste into containers for shipping off-site	176.6	C.4.01	$8.16	$ 1,440.15		Liners, geotextile and pipes
	6	2	13		haul containers to Roberts Bay laydown	176.6	C.4.04	$2.31	$ 407.22		
	6	2	14		level containment berms	962.0	C.5.05	$2.38	$ 2,287.83		
	6	2	15		regrade area for positive drainage	4,927.7	C.5.05	$2.38	$ 11,719.09		
DC-003	6	3	1	Permanent Power Generator	Decommission (electrical)	8.0	C.1.06	$599.98	$ 4,799.83		
	6	3	2		Disconnect containers and prep for shipping off-site	8.0	C.1.08	$1,045.76	$ 8,366.08		
	6	3	3		haul containers to Roberts Bay laydown	265.6	C.4.04	$2.31	$ 612.45		
	6	3	4		dismantle stacks	40.0	C.3.13	$113.92	$ 4,556.80		2, 20m stacks: two in each container 2m high = 5 containers
	6	3	5		prep stacks for shipping off-site	40.0	C.3.12	$421.16	$ 16,846.40		
	6	3	6		haul stack sections to Roberts Bay laydown	166.0	C.4.04	$2.31	$ 382.78		
	6	3	7		collect all debris	2,103.0	C.3.10	$0.13	$ 269.84		
	6	3	8		load waste into containers for shipping off-site	2.0	C.4.01	$8.16	$ 16.31		
	6	3	9		haul containers to Roberts Bay laydown	2.0	C.4.04	$2.31	$ 4.61		
DC-004	6	4	1	Backup Power generator	Decommission (electrical)	4.0	C.1.05	$568.88	$ 2,275.52		
	6	4	2		Disconnect generator units and prep for shipping off-site	2.0	C.1.06	$599.98	$ 1,199.96		
	6	4	3		haul units to Roberts Bay laydown	67.6	C.4.04	$2.31	$ 155.88		
	6	4	4		demolish tent housing structure	94.1	C.3.05	$10.61	$ 998.63		
	6	4	5		collect all debris	259.3	C.3.10	$0.13	$ 33.27		
	6	4	6		load waste into containers for shipping off-site	122.4	C.4.01	$8.16	$ 997.84		
	6	4	7		haul containers to Roberts Bay laydown	122.4	C.4.04	$2.31	$ 282.15		
DC-005	6	5	1	Sewage Treatment Plant	ə sewage plumbing, collect sewage sludge/waste water in 55 gallon drums	9.0	C.2.06	$504.33	$ 4,538.93		
	6	5	2		Decommission (electrical)	9.0	C.1.05	$568.88	$ 5,119.92		
	6	5	3		Disconnect containers and prep for shipping off-site	9.0	C.1.08	$1,045.76	$ 9,411.84		40 ' containers
	6	5	4		haul containers to Roberts Bay laydown	597.6	C.4.04	$2.31	$ 1,378.00		
	6	5	5		Collect Debris	29.8	C.3.10	$0.13	$ 3.83		
	6	5	6		Load debris into containers for transport (to Roberts Bay)	23.8	C.4.01	$8.16	$ 194.07		
	6	5	7		Haul debris to Roberts Bay	23.8	C.4.04	$2.31	$ 54.87		

Detailed Cost Estimate

Work Area Code	Item	Task	Sub-task	Activity	Task	Quantity	Cost Code	Unit Cost	Activity Total	Subtotals	Source / Comments
DC-006	7	6	1	Fire Water Storage Tank	decommission and disconnect electrical and plumbing	3.0	C.1.03	$1,166.24	$ 3,498.72		
	8	6	2		disconnect and remove container housing the pumps and controls, and prep for shipping	1.0	C.1.08	$1,045.76	$ 1,045.76		
	6	6	3		haul container to Roberts Bay laydown	66.4	C.4.04	$2.31	$ 153.11		
	6	6	4		remove tank insulation	53.0	C.3.15	$646.73	$ 34,262.54		
	6	6	5		Dismantle tanks and cut into manageable pieces (includes water tank for Boston)	2.9	C.3.07	$242.92	$ 714.21		
	6	6	6		prepare pieces for transportation (includes water tank for Boston)	8.8	C.4.01	$8.16	$ 71.93		
	6	6	7		haul cut metal to Roberts Bay laydown (includes water tank for Boston)	8.8	C.4.04	$2.31	$ 20.34		
	6	6	8		Collect Debris	73.2	C.3.10	$0.13	$ 9.39		
	6	6	9		Load debris into containers for transport (to Roberts Bay)	78.3	C.4.01	$8.16	$ 638.31		
	6	6	10		Haul debris to Roberts Bay	78.3	C.4.04	$2.31	$ 180.49		
DC-007	6	7	1	Muster Station	demolish tent structure	227.3	C.3.05	$10.61	$ 2,411.65		
	6	7	2		dismantle wood flooring	27.3	C.3.05	$10.61	$ 289.40		
	6	7	3		Collect Debris	90.9	C.3.10	$0.13	$ 11.67		
	6	7	4		Load debris into containers for transport (to Roberts Bay)	42.7	C.4.01	$8.16	$ 348.46		
	6	7	5		Haul debris to Roberts Bay	42.7	C.4.04	$2.31	$ 98.53		
DC-008	6	8	1	Warehouse / Core Shack	demolish tent structure	269.5	C.3.05	$10.61	$ 2,859.06		
	6	8	2		dismantle wood flooring, shelving, and lofts	186.2	C.3.05	$10.61	$ 1,975.64		
	6	8	3		Collect Debris	720.1	C.3.10	$0.13	$ 92.39		
	6	8	4		Load debris into containers for transport (to Roberts Bay)	350.3	C.4.01	$8.16	$ 2,856.82		
	6	8	5		Haul debris to Roberts Bay	350.3	C.4.04	$2.31	$ 807.79		
	6	8	6		haul all warehouse containers to Roberts Bay	796.8	C.4.04	$2.31	$ 1,837.34		
DC-009	6	9	1	Offices & Mine Dry Complex	Decommission (electrical, mechanical, plumbing)	3.0	C.1.05	$568.88	$ 1,706.64		
	6	9	2		disconnect trailers and prep for moving (remove boards, cladding, etc.; wrap in plastic)	17.0	C.1.08	$1,045.76	$ 17,777.92		
	6	9	3		haul trailers to Roberts Bay for shipping off-site	564.4	C.4.04	$2.31	$ 1,301.45		
	6	9	4		demolish arctic corridor	219.5	C.3.05	$10.61	$ 2,328.60		
	6	9	5		demolish cribbing, stairs, entryways, etc.	998.2	C.3.05	$10.61	$ 10,590.58		Demolish Office Builidng, Minedry, and Admin Builidng
	6	9	6		collect all debris	1,981.2	C.3.10	$0.13	$ 254.21		
	6	9	7		load waste into containers for shipping off-site	2,325.6	C.4.01	$8.16	$ 18,965.19		
	6	9	8		haul containers to Roberts Bay laydown	2,325.6	C.4.04	$2.31	$ 5,362.56		
	6	9	9		regrade area for positive drainage	6,910.0	C.5.05	$2.38	$ 16,433.36		
DC-010	6	10	1	Temporary Water Management Pond	discharge contained water to Tail Lake	1.0		$5,000.00	$ 5,000.00		
	6	10	2		remove and cut liner into manageable pieces	3,307.0	C.3.02	$0.14	$ 470.92		
	6	10	3		load waste into containers for shipping off-site	50.6	C.4.01	$8.16	$ 412.26		
	6	10	4		haul containers to Roberts Bay laydown	50.6	C.4.04	$2.31	$ 116.57		
	6	10	5		consolidate waste rock within waste rock pile on Pad I	2,221.3	C.5.12	$12.04	$ 26,749.40		
	6	10	6		regrade area for positive drainage	5,617.0	C.5.05	$2.38	$ 13,358.35		
DC-011	6	11	1	Portal and Underground Works	remove ducts, pipes, electrical cables	100.0	C.3.16	$99.59	$ 9,959.00		assuming 100m length?
	6	11	2		construct portal plug	706.8	C.5.03	$23.29	$ 16,460.19		
	6	11	3		regrade area for positive drainage	1,446.0	C.5.05	$2.38	$ 3,438.88		
DC-012	6	12	1	Underground Wash Bay	demolish tent structure	776.9	C.3.05	$10.61	$ 8,242.55		
	6	12	2		Collect Debris	155.4	C.3.10	$0.13	$ 19.94		
	6	12	3		Load debris into containers for transport (to Roberts Bay)	15.5	C.4.01	$8.16	$ 126.33		
	6	12	4		Haul debris to Roberts Bay	15.5	C.4.04	$2.31	$ 35.72		
DC-013	6	13	1	Swick Shop	demolish tent structure	859.2	C.3.05	$10.61	$ 9,115.56		
	6	13	2		Collect Debris	229.1	C.3.10	$0.13	$ 29.40		
	6	13	3		Load debris into containers for transport (to Roberts Bay)	17.7	C.4.01	$8.16	$ 143.96		
	6	13	4		Haul debris to Roberts Bay	17.7	C.4.04	$2.31	$ 40.70		
DC-014	6	14	1	Water Intake Structure and Pumping Facility	remove water intake line from Doris Lake	25.0	C.3.03	$9.78	$ 244.53		
	6	14	2		decommission pumping facility (remove electrical)	2.0	C.1.03	$1,166.24	$ 2,332.48		
	6	14	3		prep containers for shipping off-site	2.0	C.1.08	$1,045.76	$ 2,091.52		
	6	14	4		disconnect and remove generator fuel tank (place in Doris tank farm for cleaning)	1.0	C.1.01	$66.89	$ 66.89		
	6	14	5		clean TidyTank and prep for shipping off-site	1.0	C.2.02	$20.82	$ 20.82		Assumed there is only one tank
	6	14	6		run oil-water separator	1.0	C.2.08	$27.56	$ 27.56		
	6	14	7		prep generator container for shipping off-site	1.0	C.1.08	$1,045.76	$ 1,045.76		
	6	14	8		haul containers to Roberts Bay laydown	66.4	C.4.04	$2.31	$ 153.11		
	6	14	9		Collect Debris	2,226.2	C.3.10	$0.13	$ 285.64		
	6	14	10		Load debris into containers for transport (to Roberts Bay)	20.0	C.4.01	$8.16	$ 163.10		
	6	14	11		Haul debris to Roberts Bay	20.0	C.4.04	$2.31	$ 46.12		
DC-015	6	15	1	Sedimentation/Pollution Control Pond	disconnect piping and electrical wiring, remove sump pumps	2.0	C.1.05	$568.88	$ 1,137.76		
	6	15	2		remove and cut liner into manageable pieces (Sedimentation Pond only)	10,200.0	C.3.02	$0.14	$ 1,452.48		Liner+Geotextile
	6	15	3		load waste into containers for shipping off-site	30.6	C.4.01	$8.16	$ 249.54		Liner+Geotextile
	6	15	4		haul containers to Roberts Bay laydown	30.6	C.4.04	$2.31	$ 70.56		
	6	15	5		breach Pollution Control pond and Sedimentation Pond containment berms	2,608.2	C.5.05	$2.38	$ 6,202.82		
	6	15	6		rip-rap breach for erosion protection	27.6	C.5.03	$23.29	$ 642.76		
	6	15	7		decommission RO plant	4.0	C.1.05	$568.88	$ 2,275.52		
	6	15	8		disconnect RO plant containers and prep for shipping off-site	4.0	C.1.08	$1,045.76	$ 4,183.04		
	6	15	9		haul RO plant containers to Roberts Bay laydown	132.8	C.4.04	$2.31	$ 306.22		
DC-016	6	16	1	Underground Support Mechanical Shop	rical, mechanical (including connections to generator house & transformer)	3.0	C.1.05	$568.88	$ 1,706.64		
	6	16	2		demolish building	2,281.6	C.3.05	$10.61	$ 24,206.86		
	8	16	3		Collect Debris	456.3	C.3.10	$0.13	$ 58.55		
	6	16	4		load waste into containers for shipping off-site	756.8	C.4.01	$8.16	$ 6,171.60		
	6	16	5		Haul debris to Roberts Bay laydown	756.8	C.4.04	$2.31	$ 1,745.07		
DC-017	6	17	1	Fresh Water Pipelines	Cut pipelines into manageable pieces	830.0	C.3.03	$9.78	$ 8,118.48		
	6	17	2		decommission electrical (heat tracing)	4.0	C.1.05	$568.88	$ 2,275.52		
	6	17	3		collect electrical cables and controllers and prep for shipping off-site	1,600.0	C.3.10	$0.13	$ 205.30		
	6	17	4		Load debris into containers for transport (to Roberts Bay)	63.4	C.4.01	$8.16	$ 516.72		
	6	17	5		Haul debris to Roberts Bay	63.4	C.4.04	$2.31	$ 146.11		
DC-018	6	18	1	Helicopter Support Facilities	dismantle helicopter pads and walkway	15.0	C.3.06	$2.81	$ 42.15		
	6	18	2		demolish helishack	84.6	C.3.05	$10.61	$ 897.14		Heli Office
	6	18	3		decommission washcar and other facilities	225.9	C.3.05	$10.61	$ 2,396.84		
	6	18	4		Collect Debris	154.2	C.3.10	$0.13	$ 19.79		
	6	18	5		Load debris into containers for transport (to Roberts Bay)	635.9	C.4.01	$8.16	$ 5,186.12		
	6	18	6		Haul debris to Roberts Bay	635.9	C.4.04	$2.31	$ 1,466.42		
	6	18	7		Regrade surface for positive drainage	1,582.4	C.5.05	$2.38	$ 3,763.26		
DC-019	6	19	1	Waste Rock Pile	Regrade top surface for positive drainage	13,396.9	C.5.05	$2.38	$ 31,860.46		
	6	19	2		Cover entire dump with HDPE liner,	13,396.9	C.5.01	$31.70	$ 424,635.93		
	6	19	3		Place 0.3 m thick liner protection layer of crushed rock	5,138.3	C.5.03	$23.29	$ 119,662.26		
DC-020	6	20	1	Ore Pile	Regrade top surface for positive drainage	3,516.4	C.5.05	$2.38	$ 8,362.70		
	6	20	2		Cover entire dump with HDPE liner,	3,516.4	C.5.01	$31.70	$ 111,458.02		
	6	20	3		Place 0.3 m thick liner protection layer of crushed rock	1,054.9	C.5.03	$23.29	$ 24,567.33		
DC-021	6	21	1	Run-off Diversion Berm	original ground in several locations (4 locations) to restore natural flow path	33.6	C.5.05	$2.38	$ 79.91		
	6	21	2		Remove cut liners and place in containers for shipping off-site and disposal	33.6	C.3.02	$0.14	$ 4.78		
	6	21	3		Haul containers to Roberts Bay	0.3	C.4.04	$2.31	$ 0.70		
DC-022	6	22	1	Sewage Discharge Line	Flush pipeline prior to decommissioning	1.0	C.2.06	$504.33	$ 504.33		
	6	22	2		Cut pipelines into manageable pieces and place in containers for shipping off-site	1,190.0	C.3.03	$9.78	$ 11,639.75		
	6	22	3		Remove electrical cables and controllers	1.0	C.1.05	$568.88	$ 568.88		
	6	22	4		Load debris into containers for shipping off-site	90.8	C.4.01	$8.16	$ 740.84		
	6	22	5		Haul containers to Roberts Bay	90.8	C.4.04	$2.31	$ 209.48		
DC-023	6	23	1	Sedimentation Berm	Breach the berm to restore a free drainage path	24.0	C.5.05	$2.38	$ 57.08		
	6	23	2		rip-rap breach for erosion protection	3.6	C.5.03	$23.29	$ 83.84		
DC-024	6	24	1	Sumps	decommision sumps	2.0	C.1.05	$568.88	$ 1,137.76		
	6	24	2		remove pumps, pipes, cables, culverts	2.0		$2,500.00	$ 5,000.00		
	6	24	3		backfill sump excavation	28.3	C.5.02	$17.47	$ 493.85		
DC-000	6	25	1	Drainage channel	excavate channel	881.8	C.5.04	$2.56	$ 2,260.25		
	6	25	2		rip-rap for erosion protection	590.0	C.5.03	$23.29	$ 13,740.12		
DC-000	6	26	1	Camp Pads	regrade pads to blend in with topography	15204.4	C.5.05	$2.38	$ 36,159.10		
North Dam		26								**$494,598**	
ND-001	7	1	1	Frozen Core Dam	ach the dam by cutting a 20 m slot down to original ground (drill and blast)	7,028.0	C.5.09	$30.01	$ 210,910.16		
	7	1	2		Load and haul material	31,021.1	C.5.16	$8.32	$ 257,994.57		
	7	1	3		Remove thermosyphon radiators and superstructure	12.0	C.3.08	$446.92	$ 5,363.04		
	7	1	4		Clad the cut core faces for thermal protection	614.2	C.5.02	$17.47	$ 10,728.47		
ND-002	7	2	1	Tail Lake Access Road	Crown road for positive drainage	3,429.0	C.5.05	$2.38	$ 8,154.85		
	7	2	2		Remove floating dock and bridge	132.0	C.3.06	$2.81	$ 370.62		
	7	2	3		Load all debris and waste into containers and haul containers to Roberts Bay	132.0	C.4.01	$8.16	$ 1,076.46		
Vent Raise		1								**$45,756**	
VR-001	8	1	1	Vent raise	Remove ducts, pipes, and cables	100.0	C.3.16	$99.59	$ 9,959.00		
	8	1	2		Construct a concrete cap (0.5 m thick reinforced concrete) to seal the top	1.0	C.6.03	$12,064.56	$ 12,064.56		
VR-002	8	2	1	Ventilation and Heating Facilities	Decommission and dismantle all ventilation and heating facilities	4.0	C.1.05	$568.88	$ 2,275.52		
	8	2	2		Prepare units for shipping off-site	1.0	C.1.08	$1,045.76	$ 1,045.76		
	8	2	3		Haul units to Roberts Bay	33.2	C.4.04	$2.31	$ 76.56		
	8	2	4		Regrade pads for positive drainage	4,150.0	C.5.05	$2.38	$ 9,869.53		
VR-003	8	3	1	Fuel Storage Area	Drain and decommission Enviro Tank	1.0	C.2.03	$227.84	$ 227.84		
	8	3	2		Haul Enviro Tank to Roberts Bay	33.2	C.4.04	$2.31	$ 76.56		
	8	3	3		Remove liner and cut into manageable pieces	1,230.0	C.3.02	$0.14	$ 175.15		
	8	3	4		Load all debris and waste into containers and	11.1	C.4.01	$8.16	$ 90.28		
	8	3	5		Haul containers to Roberts Bay	11.1	C.4.04	$2.31	$ 25.53		
	8	3	6		Backfill area to prevent permanent ponding	4,150.0	C.5.05	$2.38	$ 9,869.53		
Doris Windy Road		3								**$257,129**	
DW-001	9	1	1	AWR	Remove bridges	3.0	LS	$50,000.00	$ 150,000.00		
					Remove Arched Culvert	1.0	LS	$100,000.00	$ 100,000.00		
					Crown road for positive drainage	-	C.5.17	$985.38	$ -		
DW-002	9	2	1	Quarry A	No Closure activities are required		-				
DW-003	9	3	1	Quarry B	No Closure activities are required		-				
DW-004	9	4	1	Quarry D	No Closure activities are required		-				
DW-005	9	5	1	Explosives Storage Facility	Remove all explosive magazines	66.4	C.4.08	$2.66	$ 176.91		
	9	5	2		Demolish entry gates	0.5	C.3.05	$10.61	$ 4.77		
	9	5	3		Load all debris and waste into containers	25.4	C.4.01	$8.16	$ 207.14		
	9	5	4		Haul containers to Roberts Bay	25.4	C.4.08	$2.66	$ 67.67		
	9	5	5		Regrade area for positive drainage	2,805.8	C.5.05	$2.38	$ 6,672.82		Including the AWR
Secondary Road		5								**$74,862**	
SR-001	10	1	1	Tail Lake Road	Remove Doris Creek bridge	1.0		$50,000.00	$ 50,000.00		Remove
	10	1	2		Cut tailings line running alongside the road into manageable pieces	1,569.0	C.3.03	$9.78	$ 15,346.86		Assuming the diameter is 0.4 m and the pipeline runs on the side of the road (have the same length)
	10	1	3		Strap together or load pipe sections in containers for shipping off-site	753.1	C.4.01	$8.16	$ 6,141.69		
	10	1	4		Haul pipe sections to Roberts Bay	753.1	C.4.04	$2.31	$ 1,736.61		
	10	1	5		Remove pipe culvert east of the bridge	18.8	C.5.15	$87.05	$ 1,636.50		
Doris Mountain		1								**$52,909**	
DM-001	11	1	1	Communications Towers	Remove communications equipment	12.0	C.1.07	$313.10	$ 3,757.20		
	11	1	2		Dismantle the communications towers and prepare for shipping off-site	2.0	C.3.11	$14,052.00	$ 28,104.00		
	11	1	3		Demolish equipment housing shack	6.0	C.3.05	$10.61	$ 63.46		
	11	1	4		Remove electrical and fiber optics cables	12.0	C.1.05	$568.88	$ 6,826.56		
	11	1	5		Remove all equipment, material, and waste from Doris Mountain,	6.0	C.3.17	$2,343.92	$ 14,063.52		
	11	1	6		Place all waste in containers for shipping off-site	9.0	C.4.01	$8.16	$ 73.17		
	11	1	7		Ship Containers to Roberts Bay	9.0	C.4.04	$2.31	$ 20.69		
Off-site Shipping for Disposal										**$3,997,700**	
DN-001	12	1	1	Ship off-site for disposal by barge	Hazardous waste	118.4	S.02	$200.00	$ 23,674.18		
	12	1	2		Non-Hazardous waste and demolition debris	11634.6	S.03	$200.00	$ 2,326,910.54		
	12	1	3		Hydrocarbon contaminated soils	0.0	S.01	$989.00	$ -		
DN-002	12	2	1	Shipping warehouse inventory off-site for disposal	Warehouse inventory in seacan containers or loose materials	215.0	S.04	$7,661.00	$ 1,647,115.00		
Off-Site Disposal Fees										**$89,086**	
DN-001	13	1	1	Disposal fees in licensed facility	Hazardous waste	1.0		$25,000.00	$ 25,000.00		
	13	1	2		Non-hazardous waste and demolition debris	11634.6	M.10	$5.51	$ 64,086.41		
	13	1	3		Disposal fees at Hay River	0.0	H.05	$100.00	$ -		
Water Management										**$1,178,590**	
WM-001	14	1	1	Operate and maintain water management system	Pump technician	379	day rate	$ 1,890	$ 716,310.00		152 days open water season (May1 to Sept. 30); 3 seasons
	14	1	2		Support person (camp, etc.)	152	day rate	$ 1,890	$ 287,280.00		
	14	1	3		Site Services Support &Maintenance	2.5	--	$ 50,000	$ 125,000.00		
	14	1	4		Spare Parts & Consumables	2.5	--	$ 20,000	$ 50,000.00		
TOTAL DIRECT COSTS										**$7,855,183**	

INDIRECT CLOSURE COSTS											
Contingency										$753,679	
-	1	1	-	Contingency	20% of direct costs	20%	x	$3,768,397	$753,679.33		
Mobilization & Demobilization										$ 711,993	
-	2	1	1	Camp demolition	Mob/Demob	1.0	x	$ 427,514.83	$427,515		Equipment mobilised from Edmonton
	2	2	1	Dam breach	Mob/Demob	1.0	x	$ 284,478.30	$284,478		Equipment demobilised to Edmonton
General and Administration costs										$ 2,082,406	
-	3	1	-	Travel allowance		1	x	$161,500.00	$161,500		Charter Yellowknife-Doris and return
-	3	2	-	Camp Management		379.0	OC.01	$677.00	$256,583		
-	3	3	-	Camp Operations		3,095.5	OC.02	$150.00	$464,323		
-	3	4	-	Camp Rental		3	OC.03	$400,000.00	$1,200,000		
Field support										$ 132,331	
-	4	1	-	Supervision		80	x	$ 1,172	$93,830		
-	4	2	-	Equipment maintenance support - Mechanic	15% of project duration	13	x	$ 1,023	$13,301		
-	4	3		Helicopter Support		3.0	x	$ 8,400	$25,200		minimum of 4 hr per day (Doris Mountain towers)
Hydrocarbon decontamination										$ 150,000	
-	5	1	-	Engineering Design		1.0	x	$ 50,000	$50,000		
-	5	2	-	Confirmatory Sampling and Analysis		1.0	x	$ 100,000	$100,000		
Post-closure Monitoring										$ 200,000	
						5.0	x				Includes 1 week monitoring site work, sample testing, monitoring report; geotechnical inspection and report; vegetation specialist inspection and report
	6	1	1	Yearly Monitoring Cost	for 5 years			$ 40,000	$200,000		
-	9	1	-	Contractor profit	% of direct and other indirect costs (excluding contingency)	-	of	$ 10,931,913	$0.00		included in equipment unit rates and POH (i.e. Production Overhead) labor cost
-	9	2	-	Contractor Bonding	% of direct cost	-	of	$ 7,855,183	$0		
Subtotal Indirect Costs				Subtotal Indirect Costs						**$4,030,409**	
CLOSURE COSTS - TOTAL										**$11,885,592**	

Worksheet 2: Indirect Cost Calculations

Mob/Demob Costs

Crew mobilization costs included in loaded labour rates.
The barging fee for equipment is calculated on a square foot basis.

No. of units	Description	Units	Quantity	Unit cost	Task cost	Notes
Camp Demolition	Construction equipment	Footprint				
1	Bobcat	m^3	11.0	$ 332.96	$ 3,657.90	From Hay River to Roberts Bay
1	Loader	m^2	10.2	$ 332.96	$ 3,400.45	From Hay River to Roberts Bay
1	Dozer	m^2	20.3	$ 332.96	$ 6,750.26	From Hay River to Roberts Bay
1	Excavator	m^2	38.1	$ 332.96	$ 12,687.55	From Hay River to Roberts Bay
1	small equipment	m^3	24.1	$ 332.96	$ 8,025.01	From Hay River to Roberts Bay
1	Trucks (CAT 735)	m^2	41.6	$ 332.96	$ 13,860.35	From Hay River to Roberts Bay
1	Tractor trailer	m^3	86.8	$ 332.96	$ 28,907.95	From Hay River to Roberts Bay
1	Crewcab pickup (Ford F35	m^3	33.8	$ 332.96	$ 11,254.35	From Hay River to Roberts Bay
8	Haul equipment to Shippin	each	8	$ 15,000.00	$ 120,000.00	hauling 8 trailers from Edmonton to Hay River / source: Doris cost estimate
Subtotal Mobilisation					**$ 208,544**	
Subtotal Demobilisation					**$ 218,971**	Assumes same cost as mobilisation, updated by 5%
Total					***$ 427,515***	

Dam Breach	Construction equipment	Footprint				
0	Bobcat	m^3	11.0	$ 364.67	$ -	From Hay River to Roberts Bay
1	Loader	m^2	10.2	$ 364.67	$ 3,724.30	From Hay River to Roberts Bay
1	Dozer	m^2	20.3	$ 364.67	$ 7,393.14	From Hay River to Roberts Bay
1	Excavator	m^2	38.1	$ 364.67	$ 13,895.89	From Hay River to Roberts Bay
0	small equipment	m^3	24.1	$ 364.67	$ -	From Hay River to Roberts Bay
1	Trucks (CAT 735)	m^2	41.6	$ 364.67	$ 15,180.38	From Hay River to Roberts Bay
0	Tractor trailer	m^3	86.8	$ 364.67	$ -	From Hay River to Roberts Bay
1	Crewcab pickup (Ford F35	m^3	33.8	$ 364.67	$ 12,326.20	From Hay River to Roberts Bay
5	Haul equipment to Shippin	each	5	$ 17,250.00	$ 86,250.00	hauling 8 trailers from Edmonton to Hay River / source: Doris cost estimate
Subtotal Mobilisation					**$ 138,770**	
Subtotal Demobilisation					**$ 145,708**	Assumes same cost as mobilisation, updated by 5%
Total					***$ 284,478***	

Camp Cost

Description	Units	Cost Code	Unit Cost	Quantity			Total	Task Cost	
				Year 1 (Camp Demolition+ Water Management)	Year 2 (Water Management)	Year 3 (Water Management + Dam Breach)			
Camp Management	day	OC.01	$677.00	152	152	75	379	$256,583	
Camp Operations	per day per person	OC.02	$150.00	1960.487819	760	375	3095.487819	$464,323	15 person crew for 82 days and 5 person crew for 70 days
Camp Rental	year	OC.03	$400,000.00	1	1	1	3	$1,200,000	
Travel allowance	charter flights	OC.05	$10,000.00	7	0	0	7	$70,000	charter flights for 15 person crews
	commercial flights	OC.04	$750.00	20	60	42	122	$91,500	4 person crew for water management; 8 person crew for dam breach, including engineer/surveyor 10 days to breach the dam
								$2,082,406	

Worksheet 3: Unit Rates

Cost Code	Item	Unit rate	Unit	Comment	Source
Equipment					
E.01	Dozer (CAT D7)	$ 166.50	hr	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.02	Dozer (CAT D4)	$ 86.60	hr	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.03	Dozer (CAT D4) w/ Tiller	$ 99.59	hr	15% added for tiller attachment	Nuna 2012 equipment rates
E.04	Truck (CAT 730)	$ 138.70	hr	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.05	Excavator (CAT 330 CL)	$ 185.00	hr	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.06	Loader (CAT IT38/930)	$ 82.30	hr	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.07	Skidder (CAT Bobcat)	$ 80.10	hr	hourly equipment rate (less operator)	Nuna 2012 equipment rates
E.08	Helicopter	$ 2,100.00	hr	fuel surcharge applies	IMiskolczi (from Angela Holtzapfel@HBML ESR)
E.09	Welding Equipment	$ 52.58	day	300 Amps, gas/diesel driven	2009 BC Blue Book + 10% Northern Allowance, 10% fuel factor
E.10	Power washer	$ 110.00	day	Hot water pressure washer - 3000 PSI	www.abtoolrentals.com/equipment.asp?action=category&category=190&key=190%2D0079
E.11	Drum crusher	$ 35.60	hr	30 tones, mobile	RSMeans, 2005; adjusted to 2009 dollars based on CPI + 15% rate increase to 2012
E.12	Oil-water separator	$ 27.50	hr	10 GPM, underground	RSMeans, 2005; adjusted to 2009 dollars based on CPI + 15% rate increase to 2012
E.13	Air Track Drill	$ 296.34	hr		2011 BC Blue Book + 10% Northern Allowance + 5% rate increase to 2012 +10% fuel factor
E.14	Tractor Trailer (6 axle lowbed+booster)	$ 71.78	hr	hourly equipment rate (less operator)	2011 BC Blue Book + 10% Northern Allowance + 5% rate increase to 2012
E.15	Flatbed truck (6x4, 5 tonne)	$ 24.83	hr	hourly equipment rate (less operator)	2011 BC Blue Book + 10% Northern Allowance + 5% rate increase to 2012
E.13	Clemro Crusher	$ 787.40	hr	200 tons/hr (cost less operator)	Nuna 2012 Equipment Rates
Materials					
M.01	Liner - HDPE	$ 28.93	m^2	supply and install	from JDS (Surface Water Management Options Analysis)
M.02	Liner - geotextile	$ 26.63	m^2	supply and install	from JDS (Surface Water Management Options Analysis)
M.03	Fuel (Diesel)	$ 1.17	L	2008 Landed fuel cost at Hope Bay	Maritz (from Jeff Reinson @ Newmont)
M.04	Explosives	$ 21.38	m^2	15% freight cost added	RSMeans, 2005; adjusted to 2009 dollars based on CPI + 15% rate increase to 2012
M.05	Silt Fencing	$ 1.32	m	15% freight cost added	Cost Mine 2011; original price quoted in linear ft
M.06	Coco-matting	$ 1.79	m^2	15% freight cost added	Cost Mine 2011; original price quoted in sq. yards
M.07	Seed/Fertilizer	$ 15.67	kg	15% freight cost added	Arctic Alpine seed mix+ fertilizer (2009)
M.08	Winter road	$ 16,675.00	km	open and maintain for 2 months	NUNA Logistics (from Court Smith) + 15% cost increase to 2012
M.09	Hazardous Waste Disposal fee	$ 10,000.00	m^3	Disposal + handling and cleaning fee	SRK estimate
M.10	Demolition Debris Disposal Fee (@Hay R	$ 5.51	m^3	Disposal + handling fee	Personal communication with Rob Jamieson@Hay River Disposals Ltd.
M.12	Bentonite chips	$ 570.96	m^3	In 50 pound bags, 15% freight cost added	Holly North Production Supplies Limited
M.13	Plastic wrapping	$ 1.00	m^2	in 14 ft wide rolls	web search; shrinkit-inc.com accessed June15, 2012
Labour					
L.01	Labour general	$ 56.96	hr		Nuna Blended 2012 rate, POH included
L.02	Labour - Trades	$ 85.26	hr	Electrician, Welder, plumber etc.	Nuna Blended 2012 rate, POH included
L.05	Supervision	$ 97.70	hr		Nuna Blended 2012 rate, POH included
L.06	Truck Drivers	$ 65.81	hr	Heavy Equipment	Nuna Blended 2012 rate, POH included
L.07	Heavy Equipment Operator	$ 71.32	hr	Light equipment	Nuna Blended 2012 rate, POH included
L.08	Technician (Consultant)	$ 130.00	hr	Staff Consultant	SRK-Estimate (all inclusive)
L.09	Note: Loading Rate includes allowances for (EI, CPP, MSP/Benefits/Travel/OT)				
Shipping					
S.01	Outbound Shipping - Soils	$ 989.00	m^3	1.7 t/m^3 bulk density	(7.75 m^3/seacan based on 29,000 lbs limit per seacan, seacan is 38.5 m^3) - from NTCL 17APR 12
S.02	Outbound Shipping - Haz Waste	$ 200.00	m^3	1.0 t/m^3 bulk density	(7.75 m^3/seacan based on 29,000 lbs limit per seacan, seacan is 38.5 m^3) - from NTCL 17APR 12
S.03	Outbound Shipping - Demolition	$ 200.00	m^3	0.733 t/m^3 bulk density	$7661/seacan (seacan is 38.5 m^3) - from NTCL 17APR 12
S.04	Shipping cost per seacan	$ 7,661.00	each		NTCL 17Apr 2012
Hydrocarbon Soils and Haz Waste					
H.01	Excavate impacted soil	$ 19.18	m^3		WESA estimate say reference
H.02	Low temperature thermal desorption	$ 100.00	m^3		WESA estimate say reference
H.03	Rehydrate and backfill	$ 10.69	m^3		WESA estimate say reference
H.04	Regrade and reshape	$ 2.38	m^2		WESA estimate say reference
H.05	Tipping Fee for HC Soils at Hay River	$ 100.00	tonne		Communication with Hay River Landfill Tsharp 18APR12
Owner's cost					
OC.01	Camp management	$ 677.00	day		Newmont
OC.02	Camp operations	$ 150.00	day	includes food and camp maintenance	Newmont
OC.03	Camp rental	$ 400,000.00	year	25 man mobile camp	Newmont
OC.04	Commercial flight	$ 750.00	person	flight from Yellowknife to Cambridge Bay and return	
OC.05	Charter flight	$ 10,000.00	flight	Return from Yellowknife	

Worksheet 4: Task Unit Rate Calculations

Cost Code	Item	Unit	Productivity (Unit/hr)	Unit Rates: Total Unit Cost	Unit Rates: Material Unit Rate	Unit Rates: Labour Unit Rate	Unit Rates: Equipment Unit Rate	Labour: General Labour ($ 56.96)	Labour: Trades - Electrical ($ 85.26)	Labour: Trades - Mechanic ($ 85.26)	Labour: Trades - Plumbing ($ 85.26)	Labour: Engineer/ Technician ($ 130.00)	Labour: Light Equipment Operator ($ 65.81)	Equipment: Heavy Equipment Operator ($ 71.32)	Equipment: Dozer - CAT D7 ($ 166.50)	Equipment: Excavator - Cat 330 ($ 185.00)	Equipment: Loader - CAT 966 ($ 82.30)	Equipment: Skidder CAT 242 ($ 80.10)	Equipment: Truck - CAT 730 ($ 138.70)	Equipment: Tractor Trailer ($ 71.78)	Equipment: Flatbed truck (5 tonne) ($ 24.83)	Equipment: Helicopter ($ 2,100.00)	Equipment: Drill ($ 296.34)	Drum crusher (35.6)	Power washer (11)	Welding Equipment (52.58)	Crusher (787.4)	Note / Source
Decomissioning																												
C.1.01	Decomission and remove all heating fuel tanks and place into lined facility	each	4.00	$ 66.89	$ -	$ 46.31	$ 20.58	2						1			1												Disconnect and remove all fuel drums and disconnect all Tidy Tanks from all structures
C.1.02	Decomission above ground storage tanks	each	0.5	$ 398.36	$ -	$ 398.36	$ -	2	1																				Disconnect all fuel lines and electrical parts
C.1.03	Decomission potable water supply	each	0.25	$ 1,166.24	$ -	$ 981.24	$ 185.00	1	1		1			0.25		0.25													Disconnect all electrical and plumbing (intake and distribution)
C.1.04	Decomission waste incinerator	each	0.17	$ 1,083.75	$ -	$ 960.30	$ 123.45	1		1				0.25			0.25												Disconnect and remove fuel storage
C.1.05	Decommission Main Camp Facility electricity	each	0.25	$ 568.88	$ -	$ 568.88	$ -	1	1																				De-energise main electrical board, disconnect auxiliary power (if exists)
C.1.06	Decommission electrical generators	each	0.46	$ 599.98	$ -	$ 510.52	$ 89.46	2	1					0.5			0.5												De-energise main breaker board, disconnect external fuel tanks (if needed) / loader used for lifting; source - RSMeans (260505252100)
C.1.07	Dismantle Satelite/Comunication Equipment	each	0.5	$ 313.10	$ -	$ 313.10	$ -	2	0.5																				source - SRK estimate
C.1.08	Prep portable trailers for moving (remove cladding, apply shrinkwrap etc.)	each	0.25	$ 1,045.76	$ 55.00	$ 826.16	$ 164.60	3						0.5			0.5												
C.1.09	Decommision Airstip - Place large X's at each end of strip	each	0.5	$ 277.84	$ 50.00	$ 227.84	$ -	2																					Assumed material cost for a high density plastic, nails and sandbags.
C.1.10	Dismantle airstip approach lights	each	4	$ 35.56		$ 35.56	$ -	1	1																				
C.1.11	Dismantle Hoper, Crusher	each	0.05	$ 2,844.40		$ 2,844.40	$ -	1	1																				
Decontamination																													
C.2.01	Collect hazardous chemical waste and place in suitable containers	m3	0.17	$ 1,947.00	$ -	$ 1,453.20	$ 493.80	3						1			1												Includes all chemicals on site / jm_Estimate
C.2.02	Drain and power-wash heating fuel tanks (Tidy Tanks)	each	6.00	$ 20.82	$ -	$ 18.99	$ 1.83	2																	1				Drain fuel from tanks and wash exterior with hot water (collect water for treatment)
C.2.03	Drain above ground fuel storage tank	each	0.5	$ 227.84	$ -	$ 227.84	$ -	2																					Drain fuel /source - SRK estimate
C.2.04	Pressure wash above ground fuel tank	each	0.16	$ 780.75	$ -	$ 712.00	$ 68.75	2																		1			
C.2.05	Drain and power-wash empty fuel drums	each	12	$ 16.35	$ -	$ 15.44	$ 0.92	2						1											1				Drain fuel and tripple-rinse drum (collect water for treatment)
C.2.06	Flush sewage treatment unit and collect sewage sludge	each	0.4	$ 504.33	$ -	$ 373.95	$ 130.38	2						0.5			0.5									1			Flush treatment unit with water (collect water for treatment)/source - SRK estimate
C.2.07	Empty incinerator and collect ashes	m3	0.25	$ 535.08	$ -	$ 370.48	$ 164.60	1						0.5			0.5												Place ashes and unburned contents into containers / see C.6.04
C.2.08	Operate oil/water separator	m3	6.60	$ 27.56	$ -	$ 25.89	$ 1.67	3																	1				Collect skimmed oil from seperator and place in suitable container - 15 minutes per 55 gal. drum
C.2.09	Empty soil from 45 gallon drums	each	4	$ 92.56	$ -	$ 46.31	$ 46.25	2						1		1													
C.2.10	Liner pressure wash cleaning	m2	360	$ 0.35	$ -	$ 0.32	$ 0.03	2																		1			
Demolition																													
C.3.01	Crush empty fuel drums	each	20.00	$ 15.16	$ -	$ 9.26	$ 5.90	2						1			1								1				
C.3.02	Cut Tank Farm geomembrane to manageable size	sq. m	1200.00	$ 0.14	$ -	$ 0.14	$ -	3																					source - SRK estimate
C.3.03	Remove intake hoses and cut to manegeable size	Lm	100	$ 9.78	$ -	$ 1.50	$ 8.29	2						0.5			0.5											1	source - SRK estimate
C.3.04	Dismantle pollution control berm	each	0.50	$ 227.84	$ -	$ 227.84	$ -	2																					
C.3.05	Demolish office buildings/ shop structures/ living quarters	m3	53.00	$ 10.61	$ -	$ 5.92	$ 4.69	3						2	1		1												Demolish empty wood structures (offices, shacks, etc.)/ source - ECHOS
C.3.06	Demolish helipads/ float plane dock	m3	75	$ 2.81	$ -	$ 1.71	$ 1.10	1						1			1												Demolish wood structure / source - SRK estimate
C.3.07	Demolish Above ground storage tanks	m3	5	$ 242.92	$ -	$ 48.44	$ 194.48	3						1		1												1	
C.3.08	Dismantle Old Equipment (torch)	each	0.5	$ 446.92	$ -	$ 341.76	$ 105.16	3																			1		
C.3.08	Cut off top of drill casings	each	2.00	$ 54.77	$ -	$ 28.48	$ 26.29	1																		1			
C.3.10	Clean up debris from site	m2	2529	$ 0.13	$ -	$ 0.10	$ 0.03	3						1			1												source - SRK estimate
C.3.11	Dismantle radio tower	each	0.04	$ 14,052.00	$ -	$ 9,612.00	$ 4,440.00	2	1			1		1		1													source - SRK estimate
C.3.12	Prep stacks for shipping	m	0.50	$ 421.16	$ -	$ 256.56	$ 164.60	1						1			1												Estimate
C.3.13	Dismantle Power Generator Stacks	m	0.50	$ 113.92	$ -	$ 113.92	$ -	1																					
C.3.14	Removing Cables and Posts	each	1.00	$ 370.24	$ -	$ 185.24	$ 185.00	2						1		1													
C.3.15	Remove Tank Insullation	each	0.30	$ 646.73	$ -	$ 379.73	$ 267.00	2										1											
C.3.16	Remove pipes, ducts, and electrical cables	m	2.00	$ 99.59	$ -	$ 99.59	$ -	2	1																				
C.3.17	Remove waste from Doris Mountain (helicopter support)	m3	1.00	$ 2,343.92		$ 243.92	$ 2,100.00	2				1											1						
Material Relocations																													
C.4.01	Load demolition debris/solid waste in containers	m3	48.00	$ 8.16	$ -	$ 2.97	$ 5.18							2	1		1												source - SRK calculated from first principles
C.4.02	Empty Seacan of debris at the landfill	each	5.7	$ 86.55	$ -	$ 24.98	$ 61.57							2	1	1													
C.4.04	Haul waste to Roberts Bay jetty in 20 ft container (33.2 m3/container)	m^3	59.67	$ 2.31	$ -	$ 1.10	$ 1.20						1							1									Productivity calculation shown on 'Relocation Unit Cost' Worksheet
C.4.06	Haul Containers on skids from beach laydown to Roberts Bay Jetty	each	1.20	$ 198.18	$ -	$ 59.43	$ 138.75							1	1														
C.4.07	Haul Material From Doris Windy Road to Roberts Bay	m^3	36.31	$ 3.79	$ -	$ 1.81	$ 1.98						1							1									Productivity calculation shown on 'Relocation Unit Cost' Worksheet
C.4.08	Haul Material From North Dam To Roberts Bay	m^3	51.64	$ 2.66	$ -	$ 1.27	$ 1.39						1							1									Productivity calculation shown on 'Relocation Unit Cost' Worksheet
C.4.09	Haul Material From Reagent Pad To Roberts Bay	m^3	66.90	$ 2.06	$ -	$ 0.98	$ 1.07						1							1									Productivity calculation shown on 'Relocation Unit Cost' Worksheet
C.4.10	Haul Mateiral From Airstrip to Roberts Bay	m^3	75.48	$ 1.82	$ -	$ 0.87	$ 0.95						1							1									Productivity calculation shown on 'Relocation Unit Cost' Worksheet
C.4.11	Haul Mateiral to Jetty (Roberts Bay)	m^3	85.74	$ 1.60	$ -	$ 0.77	$ 0.84						1							1									Productivity calculation shown on 'Relocation Unit Cost' Worksheet
C.4.12	Load soils into megabags	m^3	4.00	$ 65.75	$ -	$ 44.93	$ 20.81	2					1			0.45													
Earth works																													
C.5.01	Install HDPE Liner	m^2	175	$ 31.70	$ 28.93	$ 1.71	$ 1.06	4						1		1													
C.5.02	Load, haul, dump, place: 1 truck with <0.5 km haul distance	m^3	40	$ 17.47	$ -	$ 5.21	$ 12.26						1	2	1	1			1										
C.5.03	Load, haul, dump, place: 1 truck with <1.0 km haul distance	m^3	30	$ 23.29	$ -	$ 6.95	$ 16.34						1	2	1	1			1										
C.5.04	Excavate: Spoil locally, no trucks	m^3	100	$ 2.56	$ -	$ 0.71	$ 1.85							1		1													
C.5.05	Regrade surface - rough grading, D7	m^2	100	$ 2.38	$ -	$ 0.71	$ 1.67							1	1														
C.5.06	Reslope Stockpiles - D7	m^3	75	$ 3.17	$ -	$ 0.95	$ 2.22							1	1														
C.5.07	Relocate core box pallet (<0.5 km)	ea	6	$ 35.10	$ -	$ 21.38	$ 13.72	1						1			1												
C.5.08	Install soil stabilization measures (straw/coconut matting)	m^2	269	$ 4.05	$ 1.79	$ 1.27	$ 0.99	3.5						2		1	1												
C.5.09	Drill, blast Quarry	m^3	65	$ 30.01	$ 21.38	$ 4.07	$ 4.56	1				0.5		2										1					
C.5.10	Trackpack using loaded rock truck	m^2	100	$ 2.05		$ 0.66	$ 1.39						1						1										
C.5.11	Scaling (loose rock)	hr	1	$ 256.32	$ -	$ 71.32	$ 185.00							1		1													
C.5.12	Load, haul, dump place: 2 trucks with <1.0km haul distance	m^3	75	$ 12.04	$ -	$ 3.66	$ 8.39						2	2	1	1			2										
C.5.13	Seeding/Fertilizing: By hand, high application rate	m^2	320	$ 0.77	$ 0.24	$ 0.53	$ -	3					0																
C.5.14	Summer identification of low-lying areas	day	0.08	$ 6,627.52	$ 100.00	$ 2,243.52	$ 4,284.00	1				1											0.17						
C.5.15	Remove culvert and create swale	lm	5	$ 87.05	$ -	$ 50.05	$ 37.00	2				0.5		1		1													
C.5.16	Load, haul, dump, 2 trucks<0.5 km haul distance	m^3	80	$ 8.32	$ -	$ 2.54	$ 5.78						2	1		1			2										
C.5.17	Crown road	km	0.25	$ 985.38	$ -	$ 319.38	$ 666.00			0.1				1	1														
Other																													
C.6.01	Sample HC contaminated soils / confirmatory samples	each	2	$ 93.48	$ -	$ 93.48	$ -	1				1																	
C.6.02	Band together core pallets	each	12	$ 9.49	$ -	$ 9.49	$ -	2			0		0		0														
C.6.03	Construction of Vent Raise Seal	each	0.042	$ 12,064.56	$ 3,000.00	$ 8,076.96	$ 987.60	3				1		0.5			0.5												

Worksheet 5: Relocation Unit Cost Calculations

Hauling Distance to Roberts Bay			
Doris Camp	5.3	km	One Way
Windy Camp	14.82	km	One Way
North Dam	7.6	km	One Way
Reagent Pads	3.7	km	One-Way
Airstrip	2.2	km	One-Way

C.4.03 - Productivity of hauling bulk materials on skids at Roberts Bay			
By Skid - SnowCAT (equivalent to D7)			Note: Cost of winter road not included
Equipment Cost	$ 166.50	per hr	Includes fuel
Labour Cost	$ 71.32	per hr	
Average speed	9	km/hr	Sleds assumed as being available on site
Hauling capacity	2	skids	One container per skid
Load	1	container	
Distance:	1.5	km	
Time Required 1 round trip:	**0.83**	**hrs**	**Includes 0.5hr unloading time**
Productivity:	**1.20**	**skid/hr**	

C.4.04 - Productivity of hauling bulk materials from Doris North to Roberts Bay			
Equipment Cost	$ 71.78	per hr	Includes fuel
Labour Cost	$ 85.26	per hr	
Average speed	38	km/hr	Sleds assumed as being available on site
Hauling capacity	2	Containers	One container per skid
Cargo capacity	33.2	m^3	Standard 20 ft container
Space utilization ratio	0.7		
Load	46.48	m^3	CargoCapacity x #ofContainers x SpaceUtilizationRatio
Distance:	5.3	km	
Time Required 1 round trip:	**0.78**	**hrs**	**Includes 0.5hr unloading time**
Productivity:	**59.67**	**m^3/hr**	

C.4.07 - Productivity of hauling bulk materials from Doris Windy Road to Roberts Bay			
Tractor trailer with Lowboy, 2x20 ft seacans per trip			
Equipment Cost	$ 71.78	per hr	Includes fuel
Labour Cost	$ 85.26	per hr	
Average speed	38	km/hr	Sleds assumed as being available on site
Hauling capacity	2	Containers	One container per skid
Cargo capacity	33.2	m^3	Standard 20 ft container
Space utilization ratio	0.7		
Load	46.48	m^3	CargoCapacity x #ofContainers x SpaceUtilizationRatio
Distance:	14.82	km	
Time Required 1 round trip:	**1.28**	**hrs**	**Includes 0.5hr unloading time**
Productivity:	**36.31**	**m^3/hr**	

C.4.08 - Productivity of hauling bulk materials from North Dam to Roberts Bay			
Tractor trailer with Lowboy, 2x20 ft seacans per trip			
Equipment Cost	$ 71.78	per hr	Includes fuel
Labour Cost	$ 85.26	per hr	
Average speed	38	km/hr	Sleds assumed as being available on site
Hauling capacity	2	Containers	One container per skid
Cargo capacity	33.2	m^3	Standard 20 ft container
Space utilization ratio	0.7		
Load	46.48	m^3	CargoCapacity x #ofContainers x SpaceUtilizationRatio
Distance:	7.6	km	
Time Required 1 round trip:	**0.90**	**hrs**	**Includes 0.5hr unloading time**
Productivity:	**51.64**	**m^3/hr**	

C.4.9 - Productivity of hauling bulk materials from Reagent Pad to Roberts Bay			
Tractor trailer with Lowboy, 2x20 ft seacans per trip			
Equipment Cost	$ 71.78	per hr	Includes fuel
Labour Cost	$ 85.26	per hr	
Average speed	38	km/hr	Sleds assumed as being available on site
Hauling capacity	2	Containers	One container per skid
Cargo capacity	33.2	m^3	Standard 20 ft container
Space utilization ratio	0.7		
Load	46.48	m^3	CargoCapacity x #ofContainers x SpaceUtilizationRatio
Distance:	3.7	km	
Time Required 1 round trip:	**0.69**	**hrs**	**Includes 0.5hr unloading time**
Productivity:	**66.90**	**m^3/hr**	

C.4.10 - Productivity of hauling bulk materials Airstrip to Roberts Bay			
Tractor trailer with Lowboy, 2x20 ft seacans per trip			
Equipment Cost	$ 71.78	per hr	Includes fuel
Labour Cost	$ 85.26	per hr	
Average speed	38	km/hr	Sleds assumed as being available on site
Hauling capacity	2	Containers	One container per skid
Cargo capacity	33.2	m^3	Standard 20 ft container
Space utilization ratio	0.7		
Load	46.48	m^3	CargoCapacity x #ofContainers x SpaceUtilizationRatio
Distance:	2.2	km	
Time Required 1 round trip:	**0.62**	**hrs**	**Includes 0.5hr unloading time**
Productivity:	**75.48**	**m^3/hr**	

C.4.11 - Productivity of hauling bulk materials in Roberts Bay			
Tractor trailer with Lowboy, 2x20 ft seacans per trip			
Equipment Cost	$ 71.78	per hr	Includes fuel
Labour Cost	$ 85.26	per hr	
Average speed	38	km/hr	Sleds assumed as being available on site
Hauling capacity	2	Containers	One container per skid
Cargo capacity	33.2	m^3	Standard 20 ft container
Space utilization ratio	0.7		
Load	46.48	m^3	CargoCapacity x #ofContainers x SpaceUtilizationRatio
Distance:	0.8	km	
Time Required 1 round trip:	**0.54**	**hrs**	**Includes 0.5hr unloading time**
Productivity:	**85.74**	**m^3/hr**	

Worksheet 6: Structure Quantities

Demolition Bulking Factors	
Tents - Empty	1.3
Wood Structures - Empty	1.5
Wood Structures - w/ Interior Wall Allowance	2
Steel Structures - Empty	1.5
Steel Structures - w/ Interior Wall Allowance	2
Mechanical Equipment	1.1
Liners	3
Pipelines	3

Structure Volumes

Area	Structure	Quantity	Length (m)	Width/Dia. (m)	Footprint Area (m^2)	Avg Height (m)	Wall thickness (m)	Floor Thickness (m)	Roof Length (m)	Roof Thickness (m)	Wall Volume (m^3)	Floor Volume (m^3)	Roof Volume (m^3)	Total Collapse Volume (m3)	Loose Volume (m^3)	Standing Volume (m^3)	Surface area (m^2)	Source
Accomodation Complex	Portable Trailers	64	17.6	3.1	54.6	2.5	0.15	0.3	3.1	0.16	15.525	16.4	8.7	2600		**136.4**		As built ACAD, height/wall/roof thickness est. from design doc
	Building A to B Corridor	2	71.4	3.1	221.3	2.5	0.15	0.3	3.1	0.16	0	66.4	35.4	204	**305.45**	**553.4**		As built ACAD, height/wall/roof thickness est. from design doc
	Arctic Corridor	1	26.5	2	53.0	2.5	0.15	0.3	2	0.16	21.4	15.9	8.5	46	**68.63**	**132.5**		As built ACAD, height/wall/roof thickness est. from photo
	Cabins	7	4.27	4.27	18.2	2.5	0.15	0.3	4.27	0.3	6.4	5.5	5.5	121	**242.83**	**45.6**		As built ACAD, height/wall/roof thickness est. from photo
	Smoke Shack Tent	1	7.42	3.78	28.0	2.5	0.01	0.1	3.78	0.05	0.6	2.8	1.4	5	**6.20**	**70.1**		As built ACAD, height/wall/roof thickness est. from photo
	Sea-can 20'	1	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	1		**37.2**		As built ACAD, height/wall/roof thickness est. from photo
	Storage Sea-can	1	12.3	4.9	60.3	2.75	0.15	0.3	4.9	0.16	14.2	18.1	9.6	42		**165.7**		As built ACAD, height/wall/roof thickness est. from photo
Tank Farm	Fuel Tanks	5	-	14.6	167.4	9.9	0.006	0.005		0.005	1.4	0.8	0.8	15	**22.77**	**1657.4**	**1903.5**	As built ACAD,thickness est. from design doc
	Geotextile	1			11000.0			0.003			0.0	33.0	0.0	33	**99.00**	**0.0**		Fuel Tank Farm design doc
	Liner	1			5500.0			0.003			0.0	16.5	0.0	17	**49.50**	**0.0**		Fuel Tank Farm design doc
	Pipes (Tanks to Fuel Station)	1	265	0.15	0.018									5	**14.05**	**0.0**		Rough Length Estimate based on Judgement (3" pipes)
	Pipes (Fire Suspension to Tanks)	1	265	0.15	0.018									5	**14.05**	**0.0**		Rough Length Estimate based on Judgement (3" pipes)
	Containment Berm	1	278	5	962.000											**0.0**		As built Acad
Permanent Power Generator	Extent of the Area	1	35.54	59.19	2103.0						0.0	0.0	0.0	0		**0.0**		As built Acad, height thickness est. from photo
Temporary Power Generator	Tent	1	21.61	12	259.3	5	0.01	0.3	12.0	0.05	3.4	77.8	13.0	94	**122.36**	**1296.6**		As built ACAD, thickness est. from photo
Sewage Treatment Plant	Sewage Sea-cans 40'	9	12.23	2.44	29.8	2.5	0.15	0.3	2.44	0.16	11.0	9.0	4.8	223		**74.6**		As built ACAD, est from photo
	Sewage Pipes	1	200	0.1	0.01									2	**4.71**	**0.0**		Length est. from Piping As Built Doc, Diameter from Pipe Design Spec
	Fresh Water Pipes	1	360	0.15	0.02									6	**19.09**	**0.0**		Length est. from Piping As Built Doc, Diameter from Pipe Design Spec
Fire Water Storage Tank	Fire Water Tank	1	-	9.65	73.1	7.32	0.006	0.006		0.005	0.7	0.4	0.4	1	**4.41**	**535.4**	**176.6**	As built AutoCad, height thickness est. from design doc
	Fire Water Pipes	1	260	0.2032	0.03									8	**25.29**	**0.0**		Length est. from Piping As Built Doc, Diameter from Pipe Design Spec
	Pump House Sea-can	1	12.2	2.44	29.8	2.5	0.15	0.3	2.44	0.16	11.0	8.9	4.8	25		**74.4**		As built Acad, height/thickness est. from photo
Muster Station	Tent	1	14.76	6.16	90.9	2.5	0.01	0	6.16	0.05	1.0	0.0	4.5	6	**7.27**	**227.3**		As built Acad, height/thickness est. from photo
	Wood flooring	1	14.76	6.16	90.9			0.3			0.0	27.3	0.0	27	**35.46**			
	Sea-Can 20'	2	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	3		**37.2**		As built Acad, height/thickness est. from photo
Warehouse/Core Shack	Tent	1	36.15	17.17	620.7	5	0.01	0.3	17.17	0.05	5.3	186.2	31.0	223	**289.35**	**3103.5**		As built Acad, height/thickness est. from photo
	Bent. Shack Tent	1	7.21	4.94	35.6	2.5	0.01	0.3	4.94	0.05	0.6	10.7	1.8	13	**17.00**	**89.0**		As built Acad, height/thickness est. from photo
	Core Log Tent	1	7.21	4.94	35.6	2.5	0.01	0.3	4.94	0.05	0.6	10.7	1.8	13	**17.00**	**89.0**		As built Acad, height/thickness est. from photo
	wood flooring, shelving, and lofts	1			310.3	0.3								93	**186.21**	**93.1**		Estimated
	Orbit Trailer	1	12.26	3.7	45.4	2.5	0.15	0.3	3.7	0.16	12.0	13.6	7.3	33		**113.4**		As built Acad, height/thickness est. from photo
	Sea-can 20'	12	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	17		**37.2**		As built Acad, height/thickness est. from photo
	Sea-can 40''	5	12.23	2.44	29.8	2.5	0.02	0.02	2.44	0.02	1.5	0.6	0.6	13		**74.6**		As built Acad, height/thickness est. from photo
	Geotech Trailer	1	12.26	3.7	45.4	2.5	0.15	0.3	3.7	0.16	12.0	13.6	7.3	33		**113.4**		As built Acad, height/thickness est. from photo
	Contractor Tents	2	5.18	5.43	28.1	2.5	0.01	0.3	5.43	0.05	0.5	8.4	1.4	21	**26.98**	**70.3**		As built Acad, height/thickness est. from photo
Offices/Mine Dry Complex	Arctic Corridor	1	112.32	2.58	289.8	2.5	0.15	0.3	2.58	0.16	86.2	86.9	46.4	219	**329.21**	**724.5**		As built Acad, height/thickness est. from photo
	Mine Dry	1	40	23.92	956.8	5	0.15	0.3	23.92	0.16	95.9	287.0	153.1	536	**1072.02**	**4784.0**		As built Acad, height/thickness est. from photo
	Admin	1	40.44	12.72	514.4	5	0.15	0.3	12.72	0.16	79.7	154.3	82.3	316	**632.73**	**2572.0**		As built Acad, height/thickness est. from photo
	Office	1	14.96	14.72	220.2	5	0.15	0.3	14.72	0.16	44.5	66.1	35.2	146	**291.63**	**1101.1**		As built Acad, height/thickness est. from photo
	Sea-can 20''	11	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	16		**37.2**		As built Acad, height/thickness est. from photo
	Sea-can 40''	3	12.23	2.44	29.8	2.5	0.02	0.02	2.44	0.02	1.5	0.6	0.6	8		**74.6**		As built Acad, height/thickness est. from photo
Temporary Water Management Pond	Fluid	1			3307.0	2						0.0	0.0	0.0	6614		**6614.0**		
	Liner	1			5617.0			0.003					16.9		17	**50.55**	**0.0**		
	Containment Berm Volume	1	294	3.65	1073.1	2.07											**2221.3**		
Portal & UG Works	Extent	1			1446.0												**0.0**		
	Plug	1	15	7.6	114.0	6.2								707	**918.84**	**706.8**		Estimated
Underground Wash Bay	Tent	1	15.6	9.96	155.4	5	0.01	0	12	0.05	2.6	0.0	9.4	12	**15.49**	**776.9**		est. from photo
	Sea-cans 20''	24	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	35		**37.2**		est. from photo
	Sea-can 40''	3	12.23	2.44	29.8	2.5	0.02	0.02	2.44	0.02	1.5	0.6	0.6	8		**74.6**		est. from photo
Swick Shop	Tent	1	24.53	9.34	229.1	3.75	0.01	0	9	0.05	2.5	0.0	11.0	14	**17.65**	**859.2**		est. from photo
Water Intake Structure and Pumping Facilitiy					0.0						0.0	0.0	0.0	0	**3.00**	**0.0**		Estimate
Sedimentation Pollution Control Pond	Geotextile	1			8200.0			0.003						25	**0.00**	**0.0**		
	Liner	1			2000.0			0.003						6	**0.00**	**0.0**		Design Documents
	RO plant Sea-can 40''	4	12.23	2.44	29.8	2.5	0.02	0.02	2.44	0.02	1.5	0.6	0.6	11		**74.6**		As built Acad, height/thickness est. from photo
	Sedimentation Pond Backfill				1293.0	1										**1293.0**		1 m thick thermal cover
	Breach Volume (Sedimentation)	1	23	18	414.0	3.4										**1407.6**	**13.8**	
	Breach Volume (Pollution)	1	23	18	414.0	2.9										**1200.6**	**13.8**	
UG Mechanical Shop	Shop building	1	24.84	18.37	456.3	5	0.15	0.3	12.72	0.16	64.8	136.9	50.6	252	**756.79**	**2281.6**		est. from photo
	Sea-can 20''	10	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	14		**37.2**		est. from photo
	Sea-can 40''	6	12.23	2.44	29.8	2.5	0.02	0.02	2.44	0.02	1.5	0.6	0.6	16		**74.6**		est. from photo
Helipads	Helipads	6	7.27	4.13	30.0	0.5					0.0	0.0	0.0	15	**15.01**	**15.0**		Foot Print AutoCad, height thickness est. from photo
	Heli Building 1	1	8	5.11	40.9	2.5	0.15	0.4	5.11	0.16	9.8	16.4	6.5	102	**204.40**	**102.2**		As built Acad, height/thickness est. from photo
	Heli Building 2	1	5.05	2.95	14.9	2.5	0.15	0.4	2.95	0.16	6.0	6.0	2.4	37	**74.49**	**37.2**		As built Acad, height/thickness est. from photo
	Office	1	7.45	4.54	33.8	2.5	0.15	0.4	4.54	0.16	9.0	13.5	5.4	85	**169.12**	**84.6**		As built Acad, height/thickness est. from photo
	Lift Station	1	5.89	2.45	14.4	2.5	0.15	0.4	4.54	0.16	6.3	5.8	4.3	36	**72.15**	**36.1**		As built Acad, height/thickness est. from photo
	Washcar	1	3.23	6.24	20.2	2.5	0.15	0.4	6.24	0.16	7.1	8.1	3.2	50	**100.78**	**50.4**		As built Acad, height/thickness est. from photo
	Sea-cans 20''	10	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	37		**37.2**		
Fresh Water Pipelines	Piping	1	830	0.18	0.03									21	**63.36**	**0.0**		As built Acad
Waste Rock Pile	Pile	1			13396.88											**0.0**		
	Liner Cover	1	278	13.42	17127.64	0.3								5138		**5138.3**		As built Acad
Ore Pile	Extent	1	74.5	47.2	3516.40											**0.0**		As built Acad
	Liner Cover	1	236	8.9	5616.80													
Sewage Discharge Pipelines	Piping	1	1190	0.18	0.03									30	**90.85**	**0.0**		As built Acad
Sedimentation Berm	Berm	1	77	8	617.00	1										**24.0**	**3.6**	As built Acad
Run-off Diversion Berm	Breach (Berm)	4	10	6.3	63.00	1.5										**378.0**		
	Cutt-off Sections	4	2	4.2	33.60											**0.0**		Estimate
	Liner	4	2	4.2	33.60			0.003						0.10	**0.30**	**0.0**		Estimate
Sumps	Sump 1 & 2	2		3	7.07	2										**28.3**		
Drainage channel		1	295	2												**881.8**	**590.0**	from Global Mapper Cut/Fill volumes
Camp Pads		1			152044.00												**152044.0**	from Interim Water Management Plan
Roberts Bay																**0.0**		
Jetty	Rock fill removal	1	39	26.8	1045.2	0.97										**1013.8**		Jetty As-built estimate
RB Tank Farm	Fuel Tanks	3	-	25.76	521.2	9.75	0.006	0.005		0.005	2.4	2.6	2.6	23	**34.10**	**5081.4**	**3369.8**	Fuel Tank Farm design doc/ photos
	Geotextile	1			20600.0			0.003						62	**185.40**			
	Liner	1			10300.0			0.003						31	**92.70**	**0.0**		Nuna As built Acad est
	Pipes (Tanks to Fuel Station)	1	110	0.15	0.018									2	**5.94**	**0.0**		Nuna As built Acad est
	Containment Berm (breach)	1	11.8	19.6	231.280	2.9										**670.7**		As Built drawing
Q1 Tank Farm (old)	Fuel tank	1	-	25.76	521.2	9.75	0.006	0.005		0.005	2.4	2.6	2.6	8	**11.37**	**5081.4**	**1123.3**	As built Acad, height/thickness est. from photo
	Geotextile	1			13042.0			0.003						39	**117.38**			
	Liner	1			6521.0			0.003						20	**58.69**	**0.0**		estimated from As built Acad
	Pipes (Tank to Fuel Station)	1	75	0.15	0.018									1	**4.05**	**0.0**		As built Acad, est. from photo
	Empty fuel drums	150		0.6	0.283	0.15								0.04	**0.06**			
	Sea-cans 20''	40	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	58		**37.2**		As built Acad, est. from photo
	Fuel Transfer Facitility Trailers	2	12.24	3.4	41.6	2.5	0.15	0.3	3.4	0.16	11.7	12.5	6.7	62		**104.0**		As built Acad, est. from photo
	Containment Berm (breach)	1	25.86	10.8	279.3	1.8										**502.7**		
Mechanical Shop Complex	Nuna Shop	1	15.58	30.84	480.5	5	0.15	0.3	31	0.16	69.6	144.1	77.3	291	**582.11**	**2402.4**		Nuna As built Acad est, height/thickness Photo Est.
	Tent	1	11.58	7.95	92.1	5	0.15	0.3	31	0.16	29.3	27.6	57.4	114	**148.66**	**460.3**		Nuna As built Acad est, height/thickness Photo Est.
	Trailers	3	12.09	2.4	29.0	2.5	0.15	0.3	2.4	0.16	10.9	8.7	4.6	73		**72.5**		Nuna As built Acad est, height/thickness Photo Est.
	Site Service Shack	1	11.8	9.6	113.3	2.5	0.15	0.3	9.6	0.16	16.1	34.0	18.1	68	**136.32**	**283.2**		Nuna As built Acad est, height/thickness Photo Est.
	Sea-can 20''	28	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	41		**37.2**		Nuna As built Acad est, height/thickness Photo Est.
	Sea-can 40''	12	12.23	2.44	29.8	2.5	0.02	0.02	2.44	0.02	1.5	0.6	0.6	32		**74.6**		Nuna As built Acad est, height/thickness Photo Est.
Waste Management Facility	Facility	1	12.23	10.52	128.7	2.5	0.15	0.3	10.52	0.16	17.1	38.6	20.6	76	**152.49**	**321.6**		Nuna As built Acad est, height/thickness Photo Est.
	Sea-can 20''	11	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	16		**37.2**		Nuna As built Acad est, height/thickness Photo Est.
Laydown Area	Pad				24491.6											**0.0**		Nuna As built Acad est, height/thickness Photo Est.
	Sea-can 20''	11	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	16		**37.2**		Nuna As built Acad est, height/thickness Photo Est.
Overburden Dump					10448.0											**0.0**		
Fuel Transfer Road	Road	1			3378.0											**0.0**		
Communication Tower	Tower	1	1.7	1.7	1.4	10	0.05	0.05	1.70	0.05	3.4	0.1	0.1	4	**5.53**	**14.5**		Nuna As built Acad est, height/thickness Photo Est.
	Shack																	
Beach Laydown Area	Magazines	5	12.17	4.5	54.8						0.0	0.0	0.0	0		**0.0**		Nuna As built Acad est, Photo Est.
Orbit Drill Shop	Shop Tent	1	9.26	15.23	141.0	5	0.01	0.1	15.2	0.05	2.4	14.1	7.1	24	**30.68**	**705.1**		Nuna As built Acad est, height/thickness Photo Est.
	Sea-can 20''	12	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	17		**37.2**		Nuna As built Acad est, height/thickness Photo Est.
	Sea-can 40''	2	12.23	2.44	29.8	2.5	0.02	0.02	2.44	0.02	1.5	0.6	0.6	5		**74.6**		Nuna As built Acad est, height/thickness Photo Est.
Airstrip		1														**0.0**		
Airstrip					68475.0											**0.0**		Nuna As built Acad, photo est
	Ground Lighting fixtures	1	1900	0.025	47.5	0.025										**1.2**		Nuna As built Acad, photo est
South Apron		1			5517.2											**0.0**		
North Apron	Wood Shack	1	5	2.44	12.2	2.5	0.15	0.3	3.1	0.16	5.6	3.7	2.5	12	**17.58**	**30.5**		Nuna As built Acad, photo est
	Portable Trailers	1	8	3.1	24.8	2.5	0.15	0.3	3.1	0.16	8.3	7.4	4.0	20		**62.0**		Nuna As built Acad, photo est
	Sea-can 20''	1	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	1		**37.2**		Nuna As built Acad, photo est
Explosives Mixing Facility	Prill Tent	1	9.41	9.13	85.9	5	0.01	0.3	9.1	0.05	1.9	25.8	4.3	32	**41.50**	**429.6**		Nuna As built Acad, photo est
	Washbay	1	9.31	5.05	47.0	5	0.16	0.3	5.1	0.16	23.0	14.1	7.5	45	**66.90**	**235.1**		Nuna As built Acad, photo est
	Shed	1	1.78	2.54	4.5	2.5	0.15	0.3	2.5	0.16	3.2	1.4	0.7	5	**7.98**	**11.3**		Nuna As built Acad, photo est
	Sea-can 20''	6	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	9		**37.2**		Nuna As built Acad, photo est
																0.0		
Reagent Pads																**0.0**		
Equipment Laydown					21870.0											**0.0**		Nuna As built Acad, photo est
Material Laydown					33839.8											**0.0**		Nuna As built Acad, photo est
Ammonium Nitrate Storage Area	Extent				3858.0			0.3						1157	**1504.62**	**0.0**		Nuna As built Acad, photo est
	Liner	1			2800.0			0.003						8	**25.20**	**0.0**		Nuna As built Acad, photo est
	Containment Berm	1	63.4	0.5	2800.0	0.3										**840.0**		length=19.5x12.2 (8x2 22' seacans)
Geotech Drill Shop	Drill Shop	1	15.24	9.3	141.7	5	0.01	0	9.3	0.05	2.5	0.0	7.1	10	**12.40**	**149.6**		Nuna As built Acad, photo est
	Sea-can 20''	13	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	19		**37.2**		Nuna As built Acad, photo est
Westarc Drill Shop	Tent	1	18.36	11.68	214.4	5	0.01	0	11.7	0.05	3.0	0.0	10.7	14	**17.84**	**180.2**		Nuna As built Acad, photo est
	Sea-can 20''	10	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	14		**37.2**		Nuna As built Acad, photo est
Waste Management Area																**0.0**		
Land Farm	Liner	1			4384.0			0.003						13	**39.46**	**0.0**		Nuna As built Acad, design document est
	Non-woven Geotextile	1			8768.0			0.003						26	**78.91**	**0.0**		Nuna As built Acad, design document est
	Containment Berm	1	89.3	33.72	3011.2											**0.0**		
Batch Plant Pad	Tent	1	36.65	20.2	740.3	5	0.01	0.3	11.7	0.05	5.7	222.1	21.4	249	**323.94**	**3701.7**		Nuna As built Acad, photo est
Purn Pan	Burn Pan	1	3.29	2.71	8.9	2	0.005	0.005			0.1	0.0		0	**0.25**	**17.8**		
Quarry #2																**0.0**		
Crusher	Regrade area	1	82.4	32.4	2668											**0.0**		Nuna as built ACAD estimated
Overburden Drump	Regrade area	1			26344											**0.0**		Nuna as built ACAD estimated
Treated Sewage Discharge Areas	Extent	2	6.63	4.01	27	1								53	**69.12**	**0.0**		
North Dam																**0.0**		
Tail Lake Access	Bridge	1	30	2	60.0			0.3				18.0		18	**27.00**	**0.0**		Nuna As built Acad, photo est
	Dock	1	10	7	70.0			1				70.0		70	**105.00**	**0.0**		Nuna As built Acad, photo est
	Breach Volume (Core Material)	1	17.6	53.6	943.4	7.45										**7028.0**	**614.2**	
Dam	Breach Volume	1	65.5	62	3844.0	8.07										**31,021**	**2367.2**	
Cover Surface Area	East Side	1	23.8	8	190.4													
	West Side	1	23.9	8	191.2													
	Base	1	30.6	20	612.0													
	Total				**993.6**													
Frozen Core Plant	Plant	1	30.48	12.19	371.6	5	0.05	0	12.19	0.16	21.3	0.0	59.4	81	**121.17**	**1857.8**		Nuna As built Acad, photo est
	Saphalt mixing equipment	3	6.1	2.44	14.9	2.5	1	1			42.7	14.9	0.0	173	**259.13**	**37.2**		
	Sea-can 20''	2	6.1	2.44	14.9	2.5	0.02	0.02	2.44	0.02	0.9	0.3	0.3	3		**37.2**		Nuna As built Acad, photo est
	Sea-can 40''	2	12.23	2.44	29.8	2.5	0.02	0.02	2.44	0.02	1.5	0.6	0.6	5		**74.6**		Nuna As built Acad, photo est
Vent Raise																**0.0**		
Ventilation and Heating Facilities	Air Heaters															**0.0**		
Fuel Storage Area	Enviro Tank	1														**0.0**		
	Liner	1			410.0			0.003						1	**3.69**	**0.0**		Vent Raise Design document est
	Geotextiles	1			820.0			0.003						2	**7.38**	**0.0**		Vent Raise Design document est
Doris Windy Road																**0.0**		
AWR					101334.9											**0.0**		
Quarry A					5130.3											**0.0**		
Quarry B					5178.9											**0.0**		
Quarry D					12661.9											**0.0**		
Explosives Storage Facility	magazines	2	13.4	3.6	2805.8											**0.0**		Nuna As built Acad, photo est
	Gate	1	12	0.2	0.3	1.5								4	**5.40**	**0.5**		Estimate
Secondary Road																**0.0**		
Secondary Road	Road	1	1569		16674.5											**0.0**		Nuna As built Acad, photo est
Tail Lake Road	bridge deck	1	32	4.79	153.3			0.3			0.0	46.0	0.0	46	**91.97**	**0.0**		Nuna As built Acad, photo est
	Girders	4	30	0.3	9.0	1.5								14	**13.50**			
	Tailings Pipes	1	1569	0.4	0.1	0.4								251	**753.12**	**0.1**		
	Culvert	1	18.8													**0.0**		Estimate -From asbuilt drawings
Doris Mountain																**0.0**		
Communication Tower	Tower	2	1.7	1.7	1.4	10	0.05	0.05	1.70	0.05	3.4	0.1	0.1	7	**11.07**	**14.5**		Nuna As built Acad est
	Equipment Shack	1	3.17	3.03	4.8	2.5	0.1	0.2	3.03	0.1	3.1	1.9	1.0	6	**8.97**	**12.0**		Nuna As built Acad est
TOTAL:						**83.845**	**1.875**								11634.55			

Waste Volume Summary

Item	Destination	Qnty	Unit	Trips Required
Hazardous Waste			L	1
Sludge/Solid Waste	to Doris treatment plant	0.303	m^3	1

Demolition Preparation

			Decommision										
Area	**Structure**	**# of Units**	**Electrical**	**Heating System**	**Plumbing System**	**Total**	**Heating Tanks**	**Hazardous Material Vol Estimate (L)**	**Total Hazardous Volume (L)**	**Special Item**	**Special Item Description**		**Source**
Doris Camp													
Accomodation Complex	Trailer Camp	1	1	1	1	3	1		**0**				Accomodation Design Doc, as built ACAD
	Cabins	5	1	1	1	15	1		**0**				As built ACAD
Fuel Tank Farm	Fuel Transfer Facility	1	1			1			**0**				Accomodation Design Doc, as built ACAD
	Piping and Controls	1				0			**0**				As built ACAD
	Above Ground Tanks	5				0		5,022	**25,112**		Residual Fuel (in each)		As built ACAD
Permanent Power Generator	Debris								**500**		Debris		
Temporary Power Generator	Power House	1	1	1		2	1		**0**				Estimated from ACAD
	Mobile Generator	1				0			**0**				Estimated from ACAD
	Fuel Unit	2				0			**0**				As built ACAD
Sewage Treatment Plant	Sewage Treatment Facility	1	1	1	1	3	1		**0**				Estimated from ACAD
	Sludge Storage Tank	1				0		1000	**1000**		Sludge/Solid Waste		Estimate from Sewage Treament Plant Specs
	Chemical Tank	1				0		1000	**1000**		Chemical		Estimate from Sewage Treament Plant Specs
Fire Water Storage Tank	Pump House	1	1		1	2			**0**				Estimated from ACAD
Muster Station	Fuel Unit	1				0			**0**				Estimated from ACAD
	Muster Tent	1	1	1		2	1		**0**				Estimated from ACAD
Warehouse/Core Shack	Fuel Unit	1				0			**0**				Estimated from ACAD
	CoreShack/Warehouse	1	1			1	1	5000	**5000**				
	Contractor Tents	2	1	1		4	1		**0**				Estimated from ACAD
UG Mechanical Shop	Maintenance Shop	1	1	1	1	3	1	200	**200**		Chemicals/Grease/Waste		Estimated from ACAD
Office/Mine Dry	Office/Admin/Mine Dry	3	1	1	1	9	1		**0**				Estimated from ACAD
Portal and Underground WorksWater Treatment	Undeground Works	1	1			1			**0**				Estimated from ACAD
Underground washbay	generators	4				0			**0**				Estimated from ACAD
	Washbay	1	1	1	1	3	1		**0**				Estimated from ACAD
Swick Shop	Shop Tent	1	1	1		2	1		**0**				Estimated from ACAD
Water Intake/Pumping Facility	pumping facitility sea-can	1	1		1	2			**20**		Debris		Estimated from ACAD
	Generator Fuel Tank	1				0			**0**				Estimated from ACAD
Sedimentation Pollution Control Pond	Piping & Wiring	1	1			1			**0**				Estimated from aerial photo
	RO plant	1	1	1		2	1	200	**200**		Sludge		Estimated from ACAD
Fresh Water Pipelines	Pipelines	1	1			1			**0**				Estimated from ACAD
Heli Pad	Offices/Buildings	3	1	1	1	9	1		**200**		Grease		Estimated from ACAD
Sewage Discharge Pipelines	Pipelines	1	1			1			**0**				Estimated from ACAD
Robert's Bay						0			**0**				
New Tank Farm	Fuel Transfer Facility	1	1			1			**0**				As built ACAD
	Above Ground Tanks	4				0		15,635	**62,541**		Residual Fuel (in each)		As built ACAD
Old Tank Farm	Fuel Transfer Facility	1	1			1			**0**				As built ACAD
	Above Ground Tanks	1				0		15,635	**15,635**		Residual Fuel (in each)		As built ACAD
Mechanical Shop Complex	Nuna Shop	1	1	1	1	3	1	1000	**1000**		Grease/Waste		Nuna as built ACAD
	Tent	1	1	1		2	1		**0**				Nuna as built ACAD
	Site Service Shack	1	1	1		2	1		**0**				Nuna as built ACAD
Waste Management Facility	Facility	1	1	1	1	3	1	500	**500**		Waste (ashe)		Nuna as built ACAD, waste est
Laydown Area	Electric System	1	1			1		5000	**5000**		Debris		Nuna as built ACAD, Photo Est.
Overburden Area	Pad								**10**		Debris		
Communication Tower	Tower	1	1			1			**5**		Debris		Nuna as built ACAD, Photo Est.
Beach Laydown	Laydown Area	0	0	0	0	0			**1**		Debris		
Orbit Drill Shop	Shop	1	1	1	1	3	1	50	**50**		Grease		Nuna as built ACAD, Photo Est.
Air Strip						0			**0**				
North Apron	Traffic Control Tower	1	1			1			**0**				Nuna as built ACAD, Photo Est.
Explosive Mixing Facility	Facilities	1	1	1		2	1	100	**100**		Dye		Nuna as built ACAD, Photo Est.
Reagent Pads						0			**0**				
Equipment Laydown Area									**20**		Debris		
Material Laydown Area									**20**		Debris		
Geotech Drill Shop	Drill Shop	1	1	1		2	1	50	**50**		Grease		Nuna as built ACAD, Photo Est.
Westarc Drill Shop	Drill Shop	1	1	1		2	1	50	**50**		Grease		Nuna as built ACAD, Photo Est.
Waste Management Area						0			**0**				
Landfarm	Soil Pond	1				0			**34**		Contaminated Soil		Nuna as built ACAD,
Burn Pan	Ashe	1				0		100	**100**		Ashe		Nuna as built ACAD, Photo Est.
Quarry 2	Debris								**2.668**		Debris		Estimate
North Dam						0			**0**				
Frozen Core Plant	Plant	1	1	1		2	1		**0**				Nuna as built ACAD, Photo Est.
Vent Raise	Vent Rise Facility	1		1	1	2			**0**				Estimate
	Enviro Tank	1											Estimate
	Liner												
Secondary Road	Debris								**20**		Debris		
Doris Mountain						0			**0**				
communication tower	equipment	1				0			**0**				Nuna as built ACAD, Photo Est.

118.3708831

Worksheet 7: Earthwork Quantities

Earthwork Volumes/Quantities

Bulking Factors	
Soil/Rock Pad	1.2
Cover shrinkage factor	1.1

Reclamation Areas

Work Area	Location	Total Area (m^2)	Area Scarified (m^2)	Area Regraded (m^2)	Area Requiring Fill (m^2)	Coconut-matting Area (m^2)	Seeding Area (m^2)	Source/Comment
Roberts Bay	Beach Laydown Area		11,830					Nuna ACAD, Photo Est.
Quarry #2	Overburden Dump					7,600	7,600	Nuna ACAD, Photo Est.
	Sewage Discharge Area				20	400	400	Estimated 2x(10mx20m)

Earthwork Areas

Work Area	Item	Qnty	Length (m)	Width (m)	Height (m)	Side Slope (percent)	Area (m^2)	In-situ Volume (m^3)	Loose Volume (m^3)	Source / Comments
Doris Camp										
Accomodation Area (Pad X)	Regrade area					1	21050			as built ACAD estimated
Tank Farm (Pad R)	Excavate crush material							2800	3360	Fuel Tank Farm Design Docs
	Regrade area		80.65	61.1		1	4928			Fuel Tank Farm Design Docs
Warehouse (Pad Y)	Regrade area					1	8440			as built ACAD estimated
(Pad B)	Regrade area					1	6910			as built ACAD estimated
Mine Dry (Pad C)	Regrade area					1	13030			as built ACAD estimated
Pad D	Regrade area					1	5943			est from Nuna As built ACAD
Pad E/P (UG Maintentance)	Regrade area					1	11000			as built ACAD estimated
Portal Area	Regrade area					1	1800			as built ACAD estimated
Pad I - Waste Rock	Regrade area					1	11500			as built ACAD estimated
Pad G	Regrade area					1	5340			Nuna as built ACAD estimated
Pad F (washbay area)	Regrade area					1	8750			Nuna as built ACAD estimated
Pad Q/ J/H (ore pile)	Regrade area					1	9870			as built ACAD estimated
Water Intake/Pumping Facility	Regrade area					1	2226			as built ACAD estimated
Roberts Bay										
Jetty	Escavate rock fill				1.3		1900	2470		as built ACAD estimated
	Regrade area					1	1900			as built ACAD estimated
NewTank Farm	Regrade area					1	11530			as built ACAD estimated
	Excavate crush material				0.6			9400		Tank Farm Design Documents
Old Tank Farm	Regrade area					1	3650			as built ACAD estimated
	Excavate crush material				0.6			2190		as built ACAD estimated
Mechanical Shop Complex	Regrade area					1	4780			Nuna as built ACAD estimated
Waste Management Facility	Regrade area					1	3050			Nuna as built ACAD estimated
Laydown Area	Regrade area					1	15530			Nuna as built ACAD estimated
Overburden Dump	Regrade area/side slope					18	11530			Nuna as built ACAD estimated
Fuel Transfer Access Road	Crown road					1	3375			Nuna as built ACAD estimated
Airstrip										
Airstrip/Aprons	Regrade area					1	81945			existing + expand (upto explosive facility) ACAD Estimated
Reagent Pads										
Upper and Lower Pads	Regrade area					1	75550			as built ACAD estimated
Waste Management Area										
Land Farm	Excavate crush/surfacing material							1366		Landfarm Design Documents estimated.
	Contamitated Soil							100	Contamitaed soil	Estimated
	Regrade area					1	26750			Nuna as built ACAD estimated
Batch Plant Pad	Regrade area					1	12130			Nuna as built ACAD estimated
Quarry #2										
Crusher	Regrade area					1	25630			Nuna as built ACAD estimated
Overburden Drump	Regrade area					1	28420			Nuna as built ACAD estimated
North Dam										
Tail Lake Access Road	Crown Road					1	3429			Nuna as built ACAD estimated
Frozen Core Plant	Regrade area					1	7510			Nuna as built ACAD estimated
Vent Raise										
Fuel Storage Area	Excavate crush material							123		Design Document estimated
	Regrade area					1	4150			Nuna as built ACAD estimated
Doris Windy Road										
Explosives Storage Facility	Regrade area					1	2050			Nuna as built ACAD estimated
Secondary Road										
Tail Lake Road	Regrade area					1	17500			Nuna as built ACAD estimated

Worksheet 8: Water Management

Activity	Task	Unit	Cost Code	Unit Cost	Quantity				Activity Total	Source / Comments
					Year 1	Year2	Year3	Total		
Operate and maintain water management system	Pump technician	day	day rate	$ 1,890	152	152	75	379	$ 716,310.00	152 days open water season (May1 to Sept. 30); half season in Year 3 to draw down water in preparation for dam breaching
	Support person (camp, etc.)	day	day rate	$ 1,890	0	152	0	152	$ 287,280.00	camp costs in years 1 and 3 covered under facilities demolition costs
	Site Services Support &Maintenance	LS	--	$ 50,000	1	1	0.5	2.5	$ 125,000.00	
	Spare Parts & Consumables	LS	--	$ 20,000	1	1	0.5	2.5	$ 50,000.00	
TOTAL									**$ 1,178,590.00**	

Appendix C
Updated Windy Camp and Patch Lake Facility Closure Cost Estimate

	Patch Lake		Windy	
	By Task	By Facility	By Task	By Facility
Direct Cost Items	**Cost (rounded to nearest $ 1,000)**			
1. Transportation infrastructure (roads, airstrips, docks)		**$3,000.00**		**$3,000.00**
Remediation of Permafrost Degradation Areas	$3,000.00		$3,000.00	
2. Drill Sites/Drill Hole Abandonment		**$0.00**		**$22,000.00**
Drill sites restoration	$0.00		$3,000.00	
Drill sites abandonment	$0.00		$19,000.00	
3. Drainage / Diversion Channels		**$0.00**		**$5,000.00**
Breach of Diversion Berm	$0.00		$5,000.00	
4. Facilities Demolition		**$104,000.00**		**$314,000.00**
Collection and Disposal of Non-Hazardous Wastes	$0.00		$5,000.00	
Remediation of Permafrost Degradation Areas	$41,000.00		$6,000.00	
Stabilization of Tank Farm Spoil Piles	$19,000.00		$3,000.00	
Site Re-Vegetation and Drainage Control	$3,000.00		$10,000.00	
Remediation of Hydrocarbon Contaminated Soils	$41,000.00		$98,000.00	
Salvaging Usable Equipment and Supplies	$0.00		$23,000.00	
Demolition of Remaining Structures	$0.00		$164,000.00	
Collection and Disposal of Hazardous Waste	$0.00		$5,000.00	
5. Off-site Shipping for Disposal	$261,000.00	**$261,000.00**	$2,066,000.00	**$2,066,000.00**
6. Off-Site Disposal Fees	$26,000.00	**$26,000.00**	$297,000.00	**$297,000.00**
Total Direct Costs		**$394,000.00**		**$2,707,000.00**
7. Mobilization & Demobilization		$947,000.00		$855,000.00
8. Engineering and Consultants Services		$119,000.00		$96,000.00
9. General and Administration costs		$6,000.00		$16,000.00
10. Contingency		$68,000.00		$33,000.00
11. Post-closure Monitoring		$200,000.00		$200,000.00
Total Indirect Costs		**$1,340,000.00**		**$1,200,000.00**
Closure Cost - Subtotal		**$1,734,000.00**		**$3,907,000.00**
Closure Cost - Total		**$5,641,000.00**		

Table B2: Cost Itemised by Task- Patch Lake

Work Area Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Activity Total	Subtotals	Source / Comments
DIRECT CLOSURE COSTS												
Remediation of Permafrost Degradation Areas											$ 42,031	
PLF	2	1	1	Regrade Old Tank Farm	Stake-out low-lying areas in summer to place fill	1	day	C.5.09	$ 3,815.68	$ 3,816		For old tank farm and road restoration areas
PLF	2	1	2		Regrade spoil piles to ensure positive drainage	200	m^2	C.5.04	$ 2.38	$ 476		Assumed 10% of total area
PLF	2	1	3		Cover area with 1 m thermal cover of rock	3,000	m^3	C.4.08	$ 12.04	$ 36,126		Assumes 10% of area requires 0.3m of fill
PLF	2	2	1	Erosion Control	Install erosion control measures (coco matting)	200	m^2	C.5.07	$ 3.48	$ 696		Assumed 10% of total area
PLF	2	3	1	Reclaim winter road tracks	Fill in low lying areas (fill from spoil piles) - Road to Patch Lake	119	m^3	C.5.06	$ 7.68	$ 917		Assumes 25% of area requires 0.3m of fill
Stabilization of Tank Farm Spoil Piles											$ 19,241	
PLF	3	1	1	Regrade	Regrade spoil piles to ensure positive drainage (w/ Excavator)	3,630	m^2	C.5.05	$ 5.13	$ 18,609		
PLF	3	1	2	Erosion Control	Install erosion control measures (coco matting)	182	m^2	C.5.07	$ 3.48	$ 632		Assumed 5% of total area
Site Re-vegetation and Drainage Control											$ 1,500	
PLF	4	1	1	Revegetate regraded areas	Revegetate old tank farm and regraded road surfaces	-	m^2	C.3.02	$ 0.77	$ -		SRK estimate from previous closure cost estimates
PLF	4	2	1	Drianage control	Install silt fencing	1	LS		$ 1,500.00	$ 1,500		Assumes 3 thermal berms cosntructed and 100 m of silt fencing installed
Remediation of Hydrocarbon Contaminated Soils											$ 328,047	
PLF	5	1	1		Excavate impacted soil and place in megabags	264	m^3	C.3.03	$ 97.95	$ 25,850		
PLF	5	1	2		backfill with ROQ	264	m^3	C.4.08	$ 12.04	$ 3,178		
PLF	5	1	3		Regrade and reshape	291	m^2	C.5.05	$ 5.13	$ 1,492		
PLF	5	1	4		In-Situ bioremediation	39	m^3	H.07	$ 260.00	$ 10,140		
Off-site Shipping for Disposal											$ 260,997	
PLF	7	1	1		Non-hazardous waste	0	m^3	S.03	$ 200.00	$ -		
PLF	7	1	2		Hydrocarbon contaminated soil	264	m^3	S.01	$ 989.00	$ 260,997		
Off-Site Disposal Fees											$ 26,390	
PLF	8	1	1		Non-hazardous waste	0	m^3	M.10	$ 5.51	$ -		
PLF	8	1	2		Hydrocarbon contaminated soil	264	m^3	H.05	$ 100.00	$ 26,390		
					SUBTOTAL DIRECT COSTS						**$ 678,206**	
INDIRECT CLOSURE COSTS												
Contingency											$ 67,821	
-	1	1	-	Contingency	10 % of direct costs (less off-site shipping and disposal fees)	10%	%	x	$ 678,205.71	$ 67,821		
Patch Lake Mobilization & Demobilization											$ 688,607	
-	2	1	1	Winter Closure activities	Mobilization	1	ls	x	$ 335,905.91	$ 335,906		
-	2	1	2		Demobilization	1	ls	x	$ 352,701.20	$ 352,701		
Winter Road Construction/Maintenance											$ 25,680	
-	3	1	1	Construct and maintain Winter Road	Winter 2012	0.7	km	M.08	$ 18,342.50	$ 12,840		Mobilise equipment for Phase 1
-	3	1	2		Winter 2013	0.7	km	M.08	$ 18,342.50	$ 12,840		
Equipment stand-by											$ 233,168	
	4	1	1	Stand-by time	Spring 2012	92.0	days	x	$ 1,084.50	$ 99,774		May 1st to July 31
	4	1	2		Fall 2012	123.0	days	x	$ 1,084.50	$ 133,394		October 1st to January 31st
General and Administration costs											$ 5,651	
-	4	1	-	Travel allowance		3.00	person	OC.04	$ 750.00	$ 2,250		Travel allowance for hydrocarbon decontamination crew
-	4	2	-	Camp Management		-	day	OC.01	$ 677.00	$ -		
-	4	3	-	Camp Operations		22.7	per day per person	OC.02	$ 150.00	$ 3,401		
-	4	4	-	Camp Rental		-	year	OC.03	$ 400,000.00	$ -		Includes 12 man-months for hydrocarbons decontamination
Field support											$ 73,813	
-	5	1	-	Supervision		8	days	x	$ 789.72	$ 5,968		
-	5	2	-	Equipment maintenance support - Mechanic	10% of project duration	1	days	x	$ 852.60	$ 644		
-	5	3	-	Helicopter Support		8	days	x	$ 2,100.00	$ 67,200		4 hrs min. per day
Hydrocarbon decontamination											$ 45,000	
-	6	1	-	Engineering Design		1	LS	x	$ 15,000.00	$ 15,000		
-	6	2	-	Confirmatory Sampling and Analysis		1	LS	x	$ 30,000.00	$ 30,000		
Post-closure Monitoring											$ 200,000	
	8	1	1	Yearly Monitoring Cost	for 5 years	5.0	LS	x	$ 40,000.00	$ 200,000		Includes 1 week monitoring site work, sample testing, monitoring report, geotechnical inspection and report, vegetation specialist inspection and report
Other											$ -	
-	6	1	-	Contractor profit	% of direct and other indirect costs (excluding contingency)	0%	%	of	$ 1,750,123.43	$ -		
-	6	2	-	Bonding	% of direct cost	0%	%	of	$ 678,205.71	$ -		
-	6	4	-	Freight costs (included in material costs)		15%	%		-	$ -		
					SUBTOTAL INDIRECT COSTS						**$ 1,339,738**	
CLOSURE COSTS - TOTAL										**$**	**2,017,944**	

Table B3: Cost Itemised by Task- Windy Camp

Work Area Code	Item	Task	Sub-task	Activity	Task	Quantity	Unit	SRK Cost Code	Unit Cost	Activity Total	Subtotals (2012 rates)	Source / Comments
DIRECT COSTS												
Collection and Disposal of Hazardous Waste											$5,463	
WC	3	1	1	Consolidate and haul to jetty	Collect waste and place in suitable containers	2.8	m^3	C.1.01	$ 1,947.00	$5,452		Collect chemicals from all buildings and shops
WC	3	1	2		Haul containers to jetty for shipping off-site	2.8	m^3	C.5.09	$ 3.97	$11		
Salvaging Usable Equipment and Supplies											$22,722	
WC	5	2	1	Potable water supply system	Decommission	1.0	ls	C.2.02	$ 1,166.24	$1,166		Disconnect intake, plumbing, electrical, disconnect filtration unit
WC	5	2	2		Dismantle	1.0	ls	C.4.03	$ 3,995.40	$3,995		
WC	5	2	3		Load treatment units and tanks on skids for transport	4.0	m^3	C.5.14	$ 740.48	$2,962		Load treatment unit and holding tanks on skids and haul to Doris Camp
WC	5	3	1	Waste incinerator	Decommission (mechanical)	1.0	each	C.2.03	$ 1,083.75	$1,084		Disconnect fuel lines, etc.
WC	5	3	2		Collect ashes and place in containers	1.0	m^3	C.5.03	$ 341.76	$342		place residual waste in empty fuel drums
WC	5	3	3		Dismantle (welding crew)	1.0	each	C.4.04	$ 1,430.14	$1,430		
WC	5	3	4		Load onto skids for transport off site (other sites/third party)	6.8	m^3	C.5.14	$ 740.48	$4,998		
WC	5	4	1	Camp Heating Systems	Decommission electrical, mechanical	1.0	ls	C.2.04	$ 568.88	$569		
WC	5	4	2		Load reuseable components in containters for transport to Doris Camp	1.0	m^3	C.4.06	$ 113.92	$114		
WC	5	5	1	Shop/Office Furniture	Load reuseable components in containters for transport to Doris Camp	28.0	m^3	C.4.06	$ 113.92	$3,190		
WC	5	6	1	Communication equipment	Dismantled and packaged	1.0	ls	C.4.07	$ 313.10	$313		
WC	5	7	1	Transportation	Haul materials to Doris Camp	82.3	m^3	C.5.08	$ 2.62	$215		
WC	5	7	2		Unload container	82.3	m^3	C.5.07	$ 28.48	$2,343		
Demolition of Remaining Structures											$164,453	
WC	6	1	1	Building Demolition	Manual demolition beyond rock pads	886.2	m^2	C.4.09	$ 129.44	$114,706		
					Mechanical demolition on rock pads	3,479.1	m^3	C.4.10	$ 8.70	$30,277		
WC	6	1	2		Load debris into seacans for transport (to Roberts Bay)	1,605.4	m^3	C.5.02	$ 8.16	$13,092		
WC	6	1	2		Haul to Roberts Bay for shipping off-site	1,605.4	m^3	C.5.09	$ 3.97	$6,377		
Remediation of Permafrost Degredation Areas											$8,078	
WC	7	1	1	Permafrost degradation	Place rockfill butress on slope near the tank farm	600.0	m^3	C.6.03	$ 7.68	$4,609		Rockfill sourced from water intake bldg. pad foundation
WC	7	2	1	Erosion Control	Install erosion control measures (coco matting)	500.0	m^2	C.6.04	$ 3.48	$1,741		
WC	7	3	1	Fill in low-lying areas of winter road	Fill in low-lying areas with rock fill to prevent ponding	225.0	m^3	C.6.03	$ 7.68	$1,728		
Collection and Disposal of Non-Hazardous Waste											$5,496	
WC	9	1	1	Summer Debris Collection	Collect misc debris scattered around site and stockpile	40,000.0	m^2	C.5.01	$ 0.13	$5,132		
WC	9	1	2		Load stockpiled debris into containter for transport (to landfill)	30.0	m^3	C.5.02	$ 8.16	$245		Assumed one Seacan of garbage
WC	9	2	1	Off-site disposal items	Haul materials to Roberts Bay Jetty	30.0	m^3	C.5.09	$ 3.97	$119		
Site Revegetation and Drainage Control											$9,972	
WC	10	1	1	Revegetate regraded areas	Revegetate	2,647.8	m^2	C.6.10	$ 0.77	$2,036		SRK estimate from previous closure cost estimates
WC	10	2	1	Regrade	Stake-out low-lying areas in summer to place fill	1.0	days	C.6.08	$ 3,815.68	$3,816		
WC	10	2	2		Regrade camp areas to ensure positive drainage	1,247.8	m^2	C.6.02	$ 2.38	$2,967		
WC	10	2	3		Fill in low-lying areas with soil to prevent ponding	150.0	m^3	C.6.03	$ 7.68	$1,152		
Remediation of Hydrocarbon Contaminated Soils											$97,609	
WC	11	1	1	Soil Bioremediation	Apply nutrients	113.5	m^3	H.07	$ 260.00	$29,510		assumed unit rate of nutrient application and factored up by 100
WC	11	2	1	Excavate and haul soil offsite for disposal	Excavate and place in sacks	639.0	m^3	C.5.18	$ 65.75	$42,008		see HC Contaminated Soil Quantities sheet
WC	11	2	2		Place megabags in containers	639.0	each	C.5.04	$ 14.04	$8,970		
WC	11	2	3		Haul containers to Roberts Bay for shipping	639.0	m^3	C.5.09	$ 3.97	$2,538		
WC	11	3	1	Excavate and haul soil to Doris OVB Dump	Excavate and place in sacks	65.0	m^3	C.5.18	$ 65.75	$4,273		
WC	11	3	2		Place megabags in containers	65.0	each	C.5.04	$ 14.04	$913		
WC	11	3	3		Haul containers to Doris OVB Dump	65.0	m^3	C.5.09	$ 3.97	$258		
WC	11	3	4		Empty megabags	65.0	m^3	C.5.19	$ 31.33	$2,036		
WC	11	4	1	Backfilling excavation with crushed rock	Load, Haul, Dump, Place from Quarry D (less than 1 km)	589.8	m^3	C.5.10	$ 12.04	$7,102		
Off-site Shipping for Disposal											$2,066,149	
WC	12	1	1	Ship off-site for disposal by barge	Hazardous waste	2.8	m^3	S.02	$ 200.00	$560		
WC	12	1	2		Non-Hazardous waste and demolition debris	2,347.0	m^3	S.03	$ 200.00	$469,393		
WC	12	1	3		Hydrocarbon contaminated soils	1,614.0	m^3	S.01	$ 989.00	$1,596,197		
Off-Site Disposal Fees											$297,299	
WC	13	1	1	Disposal fees in licensed facility	Hazardous waste	1.0	LS	M.09	$ 10,000.00	$10,000		
WC	13	1	2		Non-hazardous waste and demolition debris	2,347.0	m^3	M.10	$ 5.51	$12,928		
WC	13	1	3		Disposal fees at Hay River	2,743.7	t	H.05	$ 100.00	$274,372		
Final Reclamation of Drill Holes											$19,712	
WC	14	1	1	Drill Hole Decommisioning and Reclamation	Cut off drill steel and cap; backfill depressions	1.0	LS		$ 19,711.72	$19,712		
					TOTAL DIRECT COSTS						**$2,696,952**	
INDIRECT CLOSURE COSTS												
Contingency											$33,350	
-	1	1	-	Contingency	10% of direct costs	10%	%	x	$333,503	$33,350.34		
Mobilization & Demobilization											$ 855,030	
-	2	1	1	Summer 2012 - Closure activities	Mobilization	1.0	ls	x	$ 417,087.64	$417,088		Equipment relocated from Patch Lake
-	2	1	2	Summer 2013 - Windy Camp to Hay River	Demobilization	1.0	ls	x	$ 437,942.03	$437,942		Equipment demobilised to Edmonton
General and Administration costs											$ 15,854	
-	5	1	-	Travel allowance		5	person	OC.04	$ 750.00	$3,750		
-	5	2	-	Camp Management		-	day	OC.01	$ 677.00	$0		
-	5	3	-	Camp Operations		80.7	day per pers	OC.02	$ 150.00	$12,104		
-	5	4	-	Camp Rental		-	year	OC.03	$ 400,000.00	$0		
Field support											$ 20,573	
-	6	1	-	Supervision		16.1	days	x	$ 1,172	$18,921		
-	6	2	-	Equipment maintenance support - Mechanic	10% of project duration	2	days	x	$ 1,023	$1,651		
-	6	3		Helicopter Support		-	days	x	$ 2,100	$0		minimum of 4 hr per day
Hydrocarbon decontamination											$ 75,000	
-	7	1	-	Engineering Design		1.0	LS	x	$ 25,000	$25,000		
-	7	2	-	Confirmatory Sampling and Analysis		1.0	LS	x	$ 50,000	$50,000		
Post-closure Monitoring											$ 200,000	
	8	1	1	Yearly Monitoring Cost	for 5 years	5.0	LS	x	$ 40,000	$200,000		Includes 1 week monitoring site work, sample testing, monitoring report; geotechnical inspection and report; vegetation specialist inspection and report
Other											$ -	
-	9	1	-	Contractor profit	% of direct and other indirect costs (excluding contingency)	-	%	of	$ 3,663,408	$0.00		included in equipment unit rates and POH (i.e. Production Overhead) labor cost
-	9	2	-	Bonding	% of direct cost	-	%	of	$ 2,696,952	$0		
				Subtotal Indirect Costs	**SUBTOTAL INDIRECT COSTS**						**$ 1,199,807**	
CLOSURE COSTS - TOTAL											**$3,896,758**	

Table B4. Drill Hole Abandonments Notes:

Windy Camp

1 Assume 10 holes with a 2x5 m drill pad to be remediated.
2 No backfilling of holes is required
3 Unit rates for regrading drill pad surface and filling drill holes are found on the Windy Task Unit rate worksheet.

Activity	Task	Quantity	Unit	Cost Code	Unit Cost	Activity Total	Subtotals	Source / Comments
DIRECT COSTS								
Other Areas								
Drill Sites							$19,712	
Reclaim Drill holes	Cut of top of drill pipes and cap	889	ea	C.4.08	$ 20.74	$18,437		412 holes @Naartok + 19 @Wolverine + 385 @Doris
	Load debris into containers for disposal	10	m^3	C.5.02	$ 8.16	$81		
Regrade	Fill in low-lying areas (assumed sourced within 0.5km)	100	m^3	C.6.03	$ 7.68	$768		assume 10 holes to be remediated; 2x5 m area
Stabilize	Supply and place coconut matting	100	m^2	C.6.04	$ 3.48	$348		
Revegetate	Seed/Fertilize, by hand, high application rate	100	m^2	C.6.10	$ 0.77	$77		
Subtotal Direct Costs - Other Areas							**$19,712**	
TOTAL DIRECT COSTS							**$19,712**	

Table B5. Mob/Demob cost

Windy Mob/Demob Cost Notes

1 It is assumed that no equipment is available on site
2 All equipment is hauled from Edmonton to Hay River
3 All equipment is shipped by barge from Hay River to Hope Bay
4 The shipping cost is calculated on a revenue-tonne basis (Hay River to Cambridge Bay). 2011 rates (from NTCL) +5% fuel surcharge+5% rate increase to 2012
5 Demobilisation is assumed to have the same cost as mobilisation

No. of units	Description	Units	Quantity	Unit cost	2012 Task cost	Notes
	Crew					
	Note: Labour costs included in loaded Labour Unit Rates found on the Unit Rates and Task Unit Rates worksheets					
	Construction equipment	Footprint				
1	Bobcat	m^3	11.0	$ 332.96	$ 3,657.90	From Hay River to Roberts Bay
1	Loader	m^2	10.2	$ 332.96	$ 3,400.45	From Hay River to Roberts Bay
1	Dozer	m^2	20.3	$ 332.96	$ 6,750.26	From Hay River to Roberts Bay
1	Excavator	m^2	38.1	$ 332.96	$ 12,687.55	From Hay River to Roberts Bay
1	small equipment	m^3	24.1	$ 332.96	$ 8,025.01	From Hay River to Roberts Bay
1	Trucks (CAT 735)	m^2	41.6	$ 332.96	$ 13,860.35	From Hay River to Roberts Bay
1	Tractor trailer	m^3	86.8	$ 332.96	$ 28,907.95	From Hay River to Roberts Bay
1	Crewcab pickup (Ford F350)	m^3	33.8	$ 332.96	$ 11,254.35	From Hay River to Roberts Bay
	Truck equipment to Hay River (6 trucks)	each	8	$ 15,000.00	$ 120,000.00	= hauling 8 trailers from Edmonton / source: Doris cost estimate
SUBTOTAL MOBILISATION					**$ 417,087.64**	
SUBTOTAL DEMOBILISATION					**$ 437,942.03**	Assumes same cost as mobilisation, updated by 5%
CLOSURE COST TOTAL					***$ 855,029.67***	
% mobilisation assigned to Windy Closure		%	100%	$ 417,087.64	***$ 417,087.64***	
% demobilisation assigned to Windy Closure		%	100%	$ 437,942.03	***$ 437,942.03***	
Total assigned to Windy Closure					***$ 855,029.67***	

Camp costs

Description	Units	Cost Code	Quantity	Unit Cost	Task Cost	
Camp Management	day	OC.01	0	$677.00	$0	
Camp Operations	per day per person	OC.02	81	$150.00	$12,104	5 person crew for 21 days
Camp Rental	year	OC.03	0	$400,000.00	$0	assumed that people will stay at Doris Camp
Travel allowance	charter flights	OC.05	0	$10,000.00	$0	charter flights for 15 person crews
	commercial flights	OC.04	5	$750.00	$3,750	maximum of 2 weeks rotations
					$15,854	

Table B6. Indirect Unit Rates for Patch Lake

Mob/Demob Costs

Crew mobilization costs included in loaded labour rates

The barging fee for equipment is calculated on a square foot basis

No. of units	Description	Units	Quantity	Unit cost	2012 Task cost	Notes
	Crew					
	Note: Labour costs included in loaded Labour Unit Rates found on the Unit Rates and Task Unit Rates worksheets					
	Construction equipment	Footprint				The shipping fee for equipment is calculated on a revenue-tonne basis (Hay River to Cambridge Bay). 2011 rates from NTCL+5% fuel surcharge+5% rate increase to 2012
0	Bobcat	m^3	11.0	$ 332.96	$ -	From Hay River to Roberts Bay
1	Loader	m^2	10.2	$ 332.96	$ 3,400.45	From Hay River to Roberts Bay
1	Dozer	m^2	20.3	$ 332.96	$ 6,750.26	From Hay River to Roberts Bay
1	Excavator	m^2	38.1	$ 332.96	$ 12,687.55	From Hay River to Roberts Bay
0	small equipment	m^3	24.1	$ 332.96	$ -	From Hay River to Roberts Bay
1	Trucks (CAT 735)	m^2	41.6	$ 332.96	$ 13,860.35	From Hay River to Roberts Bay
0	Tractor trailer	m^3	86.8	$ 332.96	$ -	
1	Crewcab pickup (Ford F350)	m^3	33.8	$ 332.96	$ 11,254.35	
-	Truck equipment to Hay River (6 trucks)	each	8	$ 15,000.00	$ 120,000.00	= hauling 8 trailers from Edmonton / source: Doris cost estimate
	Subtotal Demobilisation				**$ 335,905.91**	
	Subtotal Demobilisation				**$ 352,701.20**	Assumes same cost as mobilisation, updated by 5%
	Total				**$ 688,607.11**	
	% mobilisation assigned to Windy Closure		100%	$ 335,905.91	$ 335,905.91	
	% assigned to Windy Closure		100%	$ 352,701.20	$ 352,701.20	
	Total assigned to Patch Lake Closure				***$ 688,607.11***	

Camp costs

Description	Units	Cost Code	Quantity	Unit Cost	Task Cost	
Camp Management	day	OC.01	0	$677.00	$0	it is assumed that people will be staying at Doris Camp
Camp Operations	per day per person	OC.02	23	$150.00	$3,401	3 person crew for 10 days
Camp Rental	year	OC.03	0	$400,000.00	$0	it is assumed that people will be staying at Doris Camp
Travel allowance	charter flights	OC.05	0	$10,000.00	$0	charter flights for 15 person crews
	commercial flights	OC.04	3.00	$750.00	$2,250	maximum of 2 weeks rotations
					$5,651	

Table B8. Unit Rates for Patch Lake

Cost Code	Item	Unit rate	Unit	Comment	Source
Equipment					
E.01	Dozer (CAT D7)	$ 166.50	hr	hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
E.02	Dozer (CAT D4)	$ 86.80	hr	hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
E.03	Truck (CAT 730)	$ 138.70	hr	hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
E.04	Excavator (CAT 330 CL)	$ 185.00	hr	hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
E.05	Loader (CAT IT28/930)	$ 82.30	hr	hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
E.06	Skidsteer (Bobcat)	$ 80.10	hr	hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
E.07	Welding Equipment	$ 52.58	day	300 Amps, gas/diesel driven	2009 BC Blue Book + 10% Northern Allowance+ 15% rate increase to 2012
E.08	Power washer	$ 110.00	day	Hot water pressure washer - 3000 PSI	www.abtoolrentals.com/Painting-Pressure-Washing.page + 10% rate increase to 2011
E.09	Drum crusher	$ 35.60	hr	30 tones, mobile	RSMeans, 2005; adjusted to 2009 dollars based on CPI +15% rate increase to 2012
E.10	Oil-water separator	$ 27.50	hr	10 GPM, underground	RSMeans, 2005; adjusted to 2009 dollars based on CPI +15% rate increase to 2012
E.11	Air Track Drill	$ 269.34	hr		2011 BC Blue Book + 10% Northern Allowance + 5% rate increase to 2012 +10% fuel facto
E.12	Helicopter	$ 2,100.00	hr	Fuel surcharge applies per operation hours	I Miskolczi (from Angela Holtzapfel@Newmont ESR)
E.13	Clemro Crusher	$ 787.40	hr	200 tons/hr (cost less operator)	Nuna 2012 Equipment Rates
E.14	Tractor Trailer (6 axle lowbed+booster)	$ 71.78	hr	hourly equipment rate (less operator)	2011 BC Blue Book + 10% Northern Allowance + 5% rate increase to 2012
E.15	Flatbed truck (6x4, 5 tonne)	$ 24.83	hr	hourly equipment rate (less operator)	2011 BC Blue Book + 10% Northern Allowance + 5% rate increase to 2012
Materials					
M.01	Explosives	$ 21.38	m^2	15% freight cost added	RSMeans, 2005; adjusted to 2009 dollars based on CPI+15% rate increase to 2012
M.02	Liner - HDPE	$ 28.93	m^2	supply and install	from JDS (Surface Water Management Options Analysis)
M.03	Liner - geotextile	$ 26.62	m^2	supply and install	from JDS (Surface Water Management Options Analysis)
M.04	Fuel (Diesel)	$ 1.17	L	2008 Landed fuel cost at Hope Bay	Maritz (from Jeff Reinson @ Newmont)
M.05	Silt Fencing	$ 1.32	m	15% freight cost added	Cost Mine 2011; original price quoted in linear ft
M.06	Coco-matting	$ 1.79	m^2	15% freight cost added	Cost Mine 2011; original price quoted in sq. yards
M.07	Seed/Fertilizer	$ 15.67	kg	15% freight cost added	Arctic Alpine seed mix (2009)
M.08	Winter road	$ 16,675.00	km	open and maintain for 2 months	NUNA Logistics 2009 (from Court Smith) + 15% cost increase to 2012
M.09	Hazardous Waste Disposal fee (@Hay River)	$ 10,000.00	20 ft seacan	Disposal + handling and cleaning fee	SRK estimate
M.10	Demolition Debris Disposal Fee (@Hay River)	$ 5.51	m^3	Disposal + handling fee	Personal communication with Rob Jamieson@Hay River Disposals Ltd.
M.11	Landfill Dump Fee (@Quarry#2 landfill)	$ 57.25	m^3	Dump fee = $71/t (0.733 t/$m^3$ bulk density)	Maritz (from Newmont)
M.12	Bentonite chips	$ 570.96	m^3	In 50 pound bags, 15% freight cost added	Holly North Production Supplies Limited
Labour					
L.01	Labour general	$ 56.96	hr		Yukon Gov. Fair Wage Sched. Apr. 2012 (82% Loading Rate Added)
L.02	Labour - Trades	$ 85.26	hr	Mechanic, Electrician, Welder, Plumber, Carpenter etc	Yukon Gov. Fair Wage Sched. Apr. 2012 (82% Loading Rate Added)
L.03	Light Equipment Operator	$ 65.81	hr	Trucks	Yukon Gov. Fair Wage Sched. Apr. 2012 (82% Loading Rate Added)
L.04	Heavy Equipment Operator	$ 71.32	hr	Dozer, excavator	Yukon Gov. Fair Wage Sched. Apr. 2012 (82% Loading Rate Added)
L.05	Supervision	$ 97.70	hr		Yukon Gov. Fair Wage Sched. Apr. 2008 (82% Loading Rate Added)*+15% rate increase to 2012
L.06	Engineer (Consultant)	$ 145.00	hr	Int./Junior Eng.	SRK-Estimate (all inclusive)
Shipping					
S.01	Outbound Shipping - Soils	$ 989.00	m^3	1.7 t/m^3 bulk density	(7.75 m^3/seacan based on 29,000 lbs limit per seacan, seacan is 38.5 m^3) - from NTCL 17APR 12
S.02	Outbound Shipping - Haz Waste	$ 200.00	m^3	1.0 t/m^3 bulk density	(7.75 m^3/seacan based on 29,000 lbs limit per seacan, seacan is 38.5 m^3) - from NTCL 17APR 12
S.03	Outbound Shipping - Demolition	$ 200.00	m^3	0.733 t/m^3 bulk density	$7661/seacan (seacan is 38.5 m^3) - from NTCL 17APR 12
Hydrocarbon Soils and Hazardous Waste					
H.01	Excavate impacted soil	$ 19.18	m^3		WESA estimate
H.02	Low temperature thermal desorption	$ 100.00	m^3		WESA estimate
H.03	Rehydrate and backfill	$ 10.69	m^3		WESA estimate
H.04	Regrade and reshape	$ 2.38	m^2		WESA estimate
H.05	Tipping Fee for HC Soils at Hay River	$ 100.00	tonne		Communication with Hay River Landfill Tsharp 18APR12
H.06	Tipping Fee for Haz Waste at Disposal Site				
H.07	In-situ Bioremediation	$ 260.00	m^3		$260,000/1000$m^3$ EBA Report (Evaluation of Risk and Remedial Options, 2010)
Stand by equipment rates					
SB. 01	Dozer (CAT D7)	$ 83.25	hr	50 % hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
SB. 02	Excavator (CAT 330 CL)	$ 92.50	hr	50 % hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
SB. 03	Loader (CAT 966 F)	$ 41.15	hr	50 % hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
SB. 04	Skidder (CAT 242B)	$ 40.05	hr	50 % hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
Note: Loading Rate from Nuna					
Owner's cost					
OC.01	Camp management	$ 677.00	day		Newmont
OC.02	Camp operations	$ 150.00	day	includes food and camp maintenance	Newmont
OC.03	Camp rental	$ 400,000.00	year	25 man mobile camp	Newmont
OC.04	Commercial flight	$ 750.00	person	flight from Yellowknife to Cambridge Bay and return	
OC.05	Charter flight	$ 10,000.00	flight	Return from Yellowknife	

Fuel Rate Calculations

Equipment	HP	Fuel Consumption Factor (L/hr/HP)	Fuel Rate ($/hr)	Fuel Rate Source
Dozer	240	0.135	$37.91	CAT Handbook
Dozer	84	0.135	$13.27	CAT Handbook
Truck	435	0.065	$33.08	CAT Handbook
Excavator	268	0.130	$40.76	CAT Handbook
Loader	283	0.121	$40.06	CAT Handbook
Grader	62	0.14	$10.16	CAT Handbook
Welding Equipment	N/A	-	$3.23	Estimated
Power Washer	11	0.1	$1.29	ABToolRentals Catalogue
Drum Crusher	N/A	-	$3.23	Estimated
Air Track Drill	215	0.13	$32.70	CAT Handbook
Helicopter	-	-	$100.00	Estimated
Celmro Crusher	200	0.13	$30.42	Estimated (Chris Eliott)

Table B9. Unit Rates for Windy Camp

Cost Code	Item	Unit rate	Unit	Comment	Source
Equipment					
E.01	Dozer (CAT D7)	$ 166.50	hr	hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
E.02	Dozer (CAT D4)	$ 86.80	hr	hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
E.03	Truck (CAT 730)	$ 138.70	hr	hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
E.04	Excavator (CAT 330 CL)	$ 185.00	hr	hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
E.05	Loader (CAT IT28/930)	$ 82.30	hr	hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
E.06	Skidsteer (Bobcat)	$ 80.10	hr	hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
E.07	Welding Equipment	$ 52.58	day	300 Amps, gas/diesel driven	2009 BC Blue Book + 10% Northern Allowance+ 15% rate increase to 2012
E.08	Power washer	$ 110.00	day	Hot water pressure washer - 3000 PSI	www.abtoolrentals.com/Painting-Pressure-Washing.page + 10% rate increase to 2011
E.09	Drum crusher	$ 35.60	hr	30 tones, mobile	RSMeans, 2005; adjusted to 2009 dollars based on CPI +15% rate increase to 2012
E.10	Oil-water separator	$ 27.50	hr	10 GPM, underground	RSMeans, 2005; adjusted to 2009 dollars based on CPI +15% rate increase to 2012
E.11	Air Track Drill	$ 269.34	hr		2011 BC Blue Book + 10% Northern Allowance + 5% rate increase to 2012 +10% fuel facto
E.12	Helicopter	$ 2,100.00	hr	Fuel surcharge applies per operation hours	I Miskolczi (from Angela Holtzapfel@Newmont ESR)
E.13	Clemro Crusher	$ 787.40	hr	200 tons/hr (cost less operator)	Nuna 2012 Equipment Rates
E.14	Tractor Trailer (6 axle lowbed+booster)	$ 71.78	hr	hourly equipment rate (less operator)	2011 BC Blue Book + 10% Northern Allowance + 5% rate increase to 2012
E.15	Flatbed truck (6x4, 5 tonne)	$ 24.83	hr	hourly equipment rate (less operator)	2011 BC Blue Book + 10% Northern Allowance + 5% rate increase to 2012
Materials					
M.01	Explosives	$ 21.38	m^2	15% freight cost added	RSMeans, 2005; adjusted to 2009 dollars based on CPI+15% rate increase to 2012
M.02	Liner - HDPE	$ 28.93	m^2	supply and install	from JDS (Surface Water Management Options Analysis)
M.03	Liner - geotextile	$ 26.62	m^2	supply and install	from JDS (Surface Water Management Options Analysis)
M.04	Fuel (Diesel)	$ 1.17	L	2008 Landed fuel cost at Hope Bay	Maritz (from Jeff Reinson @ Newmont)
M.05	Silt Fencing	$ 1.32	m	15% freight cost added	Material Quote: Layfield, Jan. 2008
M.06	Coco-matting	$ 1.79	m^2	15% freight cost added	RSMeans, 2005; adjusted to 2009 dollars based on CPI
M.07	Seed/Fertilizer	$ 15.67	kg	15% freight cost added	Arctic Alpine Seed mix+ fertilizer (2009)
M.08	Winter road	$ 16,675.00	km	open and maintain for 2 months	NUNA Logistics 2009 (from Court Smith) + 15% cost increase to 2012
M.09	Hazardous Waste Disposal fee (@Hay River)	$ 10,000.00	20 ft container	Disposal + handling and cleaning fee	SRK estimate
M.10	Demolition Debris Disposal Fee (@Hay River)	$ 5.51	m^3	Disposal + handling fee	Personal communication with Rob Jamieson@Hay River Disposals Ltd.
M.11	Landfill Dump Fee (@Quarry#2 landfill)	$ 57.25	m^3	Dump fee = $71/t (0.733 t/$m^3$ bulk density)	Maritz (from Newmont)
M.12	Bentonite chips	$ 570.96	m^3	In 50 pound bags, 15% freight cost added	Holly North Production Supplies Limited
Labour					
L.01	Labour general	$ 56.96	hr		Yukon Gov. Fair Wage Sched. Apr. 2012 (82% Loading Rate Added)
L.02	Labour - Trades	$ 85.26	hr	Mechanic, Electrician, Welder, Plumber, Carpenter etc.	Yukon Gov. Fair Wage Sched. Apr. 2012 (82% Loading Rate Added)
L.03	Light Equipment Operator	$ 65.81	hr	Trucks	Yukon Gov. Fair Wage Sched. Apr. 2012 (82% Loading Rate Added)
L.04	Heavy Equipment Operator	$ 71.32	hr	Dozer, excavator	Yukon Gov. Fair Wage Sched. Apr. 2012 (82% Loading Rate Added)
L.05	Supervision	$ 97.70	hr		Yukon Gov. Fair Wage Sched. Apr. 2008 (82% Loading Rate Added)*+15% rate increase to 2012
L.06	Engineer (Consultant)	$ 145.00	hr	Int./Junior Eng.	SRK-Estimate (all inclusive)
Shipping					
S.01	Outbound Shipping - Soils	$ 989.00	m^3	1.7 t/m^3 bulk density	(7.75 m^3/seacan based on 29,000 lbs limit per seacan, seacan is 38.5 m^3) - from NTCL 17APR 12
S.02	Outbound Shipping - Haz Waste	$ 200.00	m^3	1.0 t/m^3 bulk density	(7.75 m^3/seacan based on 29,000 lbs limit per seacan, seacan is 38.5 m^3) - from NTCL 17APR 12
S.03	Outbound Shipping - Demolition	$ 200.00	m^3	0.733 t/m^3 bulk density	$7661/seacan (seacan is 38.5 m^3) - from NTCL 17APR 12
S.04	Outbound Shipping - Haz Waste (HR to disposal)				
Hydrocarbon Soils and Haz Waste					
H.01	Excavate impacted soil	$ 19.18	m^3		WESA estimate
H.02	Low temperature thermal desorption	$ 100.00	m^3		WESA estimate
H.03	Rehydrate and backfill	$ 10.69	m^3		WESA estimate
H.04	Regrade and reshape	$ 2.38	m^2		WESA estimate
H.05	Tipping Fee for HC Soils at Hay River	$ 100.00	tonne		Communication with Hay River Landfill Tsharp 18APR12
H.06	Tipping Fee for Haz Waste at Disposal Site				
H.07	In-situ Bioremediation	$ 260.00	m^3		$260,000/1000$m^3$ EBA Report (Evaluation of Risk and Remedial Options, 2010)
Stand-by equipment rates					
SB. 01	Dozer (CAT D7)	$ 83.25	hr	50% of hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
SB. 02	Dozer (CAT D4)	$ 43.40	hr	50% of hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
SB. 03	Truck (CAT 730)	$ 69.35	hr	50% of hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
SB. 04	Excavator (CAT 330 CL)	$ 92.50	hr	50% of hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
SB. 05	Loader (CAT IT28/930)	$ 41.15	hr	50% of hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
SB. 06	Skidder (Bobcat)	$ 40.05	hr	50% of hourly equipment rate (less operator)	Nuna 2012 Equipment Rates
Note: Loading Rate includes allowances for (EI, CPP, MSP/Benefits/Travel/OT)					
Owner's cost					
OC.01	Camp management	$ 677.00	day		Newmont
OC.02	Camp operations	$ 150.00	day	includes food and camp maintenance	Newmont
OC.03	Camp rental	$ 400,000.00	year	25 man mobile camp	Newmont
OC.04	Commercial flight	$ 750.00	person	flight from Yellowknife to Cambridge Bay and return	
OC.05	Charter flight	$ 10,000.00	flight	Return from Yellowknife	

Fuel Rate Calculations

Equipment	HP	Fuel Consumption Factor (L/hr/HP)	Fuel Rate ($/hr)	Fuel Rate Source
Dozer	240	0.135	$37.91	CAT Handbook
Dozer	84	0.135	$13.27	CAT Handbook
Truck	435	0.065	$33.08	CAT Handbook
Excavator	268	0.130	$40.76	CAT Handbook
Loader	283	0.121	$40.06	CAT Handbook
Grader	62	0.14	$10.16	CAT Handbook
Welding Equipment	N/A		$3.23	Estimated
Power Washer	11	0.1	$1.29	ABToolRentals Catalogue
Drum Crusher	N/A		$3.23	Estimated
Air Track Drill	215	0.13	$32.70	CAT Handbook
Helicopter	-		$100.00	Estimated
Celmro Crusher	200	0.13	$30.42	Estimated (Chris Eliott)
Tractor Trailer (6 axle low bed + booster)	280	0.0315	$10.32	Estimated based on personal communication with Kenworth
Flatbed truck (6x4, 5 tonne)	600	0.0196	$13.76	Estimated based on personal communication with Kenworth

Fuel Consumption Factors (L per hour per HP)		
Backhoe	0.11	CAT Handbook
Excavator	0.130	CAT Handbook
Lifting	0.100	Estimated
Loader	0.121	CAT Handbook
Dozer	0.135	CAT Handbook
Grader	0.14	CAT Handbook
Truck	0.065	CAT Handbook
Compactor	0.13	CAT Handbook
Drill	0.13	Estimated
Tractor trailer	0.0196	5 MPG fuel mileage
Flatbed truck	0.0315	8 MPG fuel mileage

Table B10. Task Unit Rate Calculations for Windy Camp

				Unit Rates				Labour					Equipment									Hauling		= Fuel Rate [$/hr]
								$ 56.96	$ 85.26	$ 145.00	$ 65.81	$ 71.32	$ 166.50	$ 86.80	$ 185.00	$ 82.30	$ 138.70	$ 2,100.00	$ 269.34	$ 35.60	$ 11.00	$ 787.40	$ 1.07	$ 24.83	= Equipment/Labor Hourly Rate [$/hr
Cost Code	Item	Unit	Productivity (Unit/hr)	Total Unit Cost	Material Unit Rate	Labour Unit Rate	Equipment Unit Rate	General Labour	Tradesman - Electrical	Engineer/ Technician	Light Equipment Operator	Heavy Equipment Operator	Dozer - CAT D7	Dozer - CAT D4	Excavator - Cat 330	Loader - CAT 966	Truck - CAT 735	Helicopter	Drill	Drum crusher	Power washer	Crusher	Skid - per km/m3	Skid per km	Note / Source
Decontamination																									
C.1.01	Collect hazardous chemical waste and place in suitable containers	m^3	0.17	$ 1,947.00	$ -	$ 1,453.20	$ 493.80	3				1				1									Includes all chemicals on site / jm_Estimate
C.1.02	Drain above ground fuel storage tanl	each	0.5	$ 227.84	$ -	$ 227.84	$ -	2																	Drain fuel /source - SRK estimate
C.1.03	Drain and power-wash empty fuel drums	each	12	$ 10.41	$ -	$ 9.49	$ 0.92	2													1				Drain fuel and tripple-rinse drum (collect water for treatment
C.1.04	Operate oil/water separator	each	4	$ 45.47	$ -	$ 42.72	$ 2.75	3													1				
Demolition																									
C.2.01	Decomission above ground storage tanks	each	0.5	$ 398.36	$ -	$ 398.36	$ -	2	1																Disconnect all fuel lines and electrical part
C.2.02	Crush empty fuel drums	each	20	$ 15.16	$ -	$ 9.26	$ 5.90	2				1				1				1					Load/operate/unload drum crusher / source - SRK estimate
C.2.03	Cut Tank Farm geomembrane to manageable size	sq. m	80	$ 2.14	$ -	$ 2.14	$ -	3																	source - SRK estimate
C.2.04	Expose and remove tank farm liner	m^2	90.0	$ 3.48	$ -	$ 1.43	$ 2.06	1				1			1										source - SRK estimate
C.2.05	Demolish wooden buildings/ shop structures/ living quarters	m^3	53	$ 10.61	$ -	$ 5.92	$ 4.69	3				2	1			1									Demolish empty wood structures (offices, shacks, etc.)/ source - RSMeans
C.2.06	Collect miscellaneous debris from around site	m^2	2529	$ 0.13	$ -	$ 0.10	$ 0.03	3				1				1									
C.2.07	Demolish containment steel fence	Lm	25.00	$ 17.09	$ -	$ 9.69	$ 7.40	3				1			1										
Soil Remediation																									
C.3.01	Field Investigatior	each	0.05	$ 5,678.40	$ 500.00	$ 5,178.40	$ -	2		1															20 hr field investigatior
C.3.02	Revegetate (seeding&fertilising by hand; high application rate)	m^2	320.00	$ 0.77	$ 0.24	$ 0.53	$ -	3																	
C.3.03	Load HC contaminated soils into megabags	m^3	3.50	$ 97.95	$ -	$ 32.55	$ 65.40	2					1				0.45								
C.3.04	Unload soils from megabags	m^3	10.00	$ 31.33	$ -	$ 12.83	$ 18.50	1				1			1										
Material Relocations																									
C.4.01	Load demolition debris/solid waste in containers	m^3	48.00	$ 8.16	$ -	$ 2.97	$ 5.18					2	1			1									
C.4.02	Unload debris from containers	m^3	132.8	$ 3.72	$ -	$ 1.07	$ 2.65					2	1		1										15 min to unload 1 seacan
C.4.03	Load large above ground storage tank on skid	each	0.5	$ 854.40	$ -	$ 484.40	$ 370.00	3				1			1										
C.4.04	Load generator on skid	each	8	$ 46.28	$ -	$ 23.16	$ 23.13	2				1			1										
C.4.05	Haul waste to Quarry #2 in 20 ft container (33.2 m^3/container), round trip	m^3		$ -	$ -	$ -																	18.0		Details - See Worksheet 5
C.4.06	Haul waste to Doris Camp (8.35 km), round trip	m^3	106	$ 2.95	$ -	$ -	$ -																	18.0	Details - See Worksheet 5
C.4.07	Haul waste to Roberts Bay Jetty (13.5 km), round trip	m^3	65	$ 1.82	$ -	$ -	$ -																	25.8	Details - See Worksheet 5
C.4.08	Load, haul, dump place: 2 trucks with <1.0km haul distance	m^3	75	$ 12.04	$ -	$ 3.66	$ 8.39				2	2	1		1		2								
Earth works																									
C.5.01	Drill and blast	m^3	100	$ 27.90	$ 21.38	$ 3.01	$ 3.52	1.5		0.5		2				1			1						source - RSMeans
C.5.02	Install HDPE Liner	m^2	175	$ 31.70	$ 28.93	$ 1.71	$ 1.06	4				1			1										
C.5.03	Crusher: crush materials	m^3	125	$ 10.60	$ -	$ 2.17	$ 8.44	1				3			1	1						1			
C.5.04	Regrade surface - rough grading, D7	m^2	100	$ 2.38	$ -	$ 0.71	$ 1.67					1	1												source - RSMeans
C.5.05	Regrade surface - with excavator	m^2	50	$ 5.13	$ -	$ 1.43	$ 3.70					1			1										
C.5.06	Backfill depressions	m^3	20	$ 7.68	$ -	$ 3.57	$ 4.12					1				1									source - RSMeans
C.5.07	Install soil stabilization measures (straw/coconut matting)	m^2	269	$ 3.48	$ 1.79	$ 1.01	$ 0.69	3.5				1			1										source - RSMeans
C.5.08	Trackpack using loaded rock truck	m^2	100	$ 2.05	$ -	$ 0.66	$ 1.39				1						1								source - SRKjm estimate
C.5.09	Delineation of low-lying areas	day	0.125	$ 3,815.68	$ 100.00	$ 1,615.68	$ 2,100.00	1		1								0.125							1 day to stake low-lying areas in the field, material allowance included for stake
C.5.10	Install silt fencing	m	30	$ 5.12	$ 1.32	$ 3.80	$ -	2																	
C.5.11	Backfill drill holes with bentonite chip	lm	100.00	$ 19.09	$ 17.95	$ 1.14	$ -	2																	
Equipment relocation																									
C.6.01	Dozer relocation	km	8	$ 29.73	$ -	$ 8.92	$ 20.81					1	1												
C.6.02	Excavator relocatior	km	8	$ 32.04	$ -	$ 8.92	$ 23.13					1			1										
C.6.03	Loader relocation	km	15	$ 10.24	$ -	$ 4.75	$ 5.49					1				1									

Table B11. Task Unit Rate Calculations for Windy Camp

				Unit Rates				Labour							Equipment													
								$ 56.96	$ 85.26	$ 85.26	$ 85.26	$ 145.00	$ 65.81	$ 71.32	$ 166.50	$ 185.00	$ 82.30	$ 138.70	$ 71.78	$ 24.83	$ 2,100	$ 269.34	$ 35.60	$ 11.00	$ 5.26	$ 787.40	
Cost Code	Item	Unit	Productivity (Unit/hr)	Total Unit Cost	Material Unit Rate	Labour Unit Rate	Equipment Unit Rate	General Labour	Trades - Electrical	Trades - Mechanic	Trades - Plumbing	Engineer/ Technician	Light Equipment Operator	Heavy Equipment Operator	Dozer - CAT D7	Excavator - Cat 330	Loader - CAT IT28/930	Truck - CAT 730	Tractor Trailer	Flatbed truck (5 tonne)	Helicopter	Drill	Drum crusher	Power washer	Welding Equipment	Crusher	Note / Source
C. 1.00	Blank = No task to be performed		1	$ -	$ -	$ -	$ -																				
Hazardous waste																											
C.1.01	Collect hazardous chemical waste and place in suitable containers	m^3	0.17	$ 1,947.00	$ -	$ 1,453.20	$ 493.80	3						1			1										Includes all chemicals on site / jm_Estimate
Decomissioning																											
C.2.01	Decomission and remove all heating fuel tanks and place into lined facility	each	4.00	$ 66.89	$ -	$ 46.31	$ 20.58	2						1			1										Disconnect and remove all fuel drums and disconnect all Tidy Tanks from all structures
C.2.02	Decomission potable water supply	each	0.25	$ 1,166.24	$ -	$ 981.24	$ 185.00	1	1		1			0.25		0.25											Disconnect all electrical and plumbing (intake and distribution)
C.2.03	Decomission waste incinerator	each	0.17	$ 1,083.75	$ -	$ 960.30	$ 123.45	1		1				0.25			0.25										Disconnect and remove fuel storage
C.2.04	Decommission Main Camp Facility electricity	each	0.25	$ 568.88	$ -	$ 568.88	$ -	1	1																		De-energise main electrical board, disconnect auxiliary power (if exists)
C.2.05	Decommission Propane tanks (Kitchen)	each	1.00	$ 56.96	$ -	$ 56.96	$ -	1																			source - SRK estimate
Decontamination																											
C.3.01	Drain and wash heating fuel tanks (living quarters)	each	12.00	$ 10.41	$ -	$ 9.49	$ 0.92	2																1			Drain fuel and tripple-rinse drum (collect water for treatment)
C.3.02	Drain and power-wash heating fuel tanks (Tidy Tanks)	each	6.00	$ 20.82	$ -	$ 18.99	$ 1.83	2																1			Drain fuel from tanks and wash exterior with hot water (collect water for treatment)
C.3.03	Supply and install oil/water separator	each	0.50	$ 255.34	$ 27.50	$ 227.84	$ -	2																			Install valve on empty 55 Gal. drum
C.3.04	Operate oil/water separator	each	4.00	$ 45.47	$ -	$ 42.72	$ 2.75	3																1			Collect skimmed oil from seperator and place in suitable container - 15 minutes per 55 gal. drum
Demolition																											
C.4.01	Crush empty fuel drums	each	20.00	$ 15.16	$ -	$ 9.26	$ 5.90	2						1			1						1				
C.4.02	Cut Tank Farm geomembrane to manageable size	sq. m	80.00	$ 2.14	$ -	$ 2.14	$ -	3																			source - SRK estimate
C.4.03	Dismantle potable water supply	each	0.08	$ 3,995.40	$ -	$ 3,501.60	$ 493.80	3			1			0.5			0.5										source - SRK estimate
C.4.04	Dismantle incinerator	each	0.08	$ 1,430.14	$ -	$ 1,367.04	$ 63.10	2																	1		source - SRK estimate
C.4.05	Demolish office buildings/ shop structures/ living quarters (by mechanical equipment)	m^3	53.00	$ 10.61	$ -	$ 5.92	$ 4.69	3						2	1		1										Demolish empty wood structures (offices, shacks, etc.)/ source - ECHOS
C.4.06	Collect reusable items from offices/shops/main camp	m^3	2.00	$ 113.92	$ -	$ 113.92	$ -	4																			
C.4.07	Dismantle communication equipment	each	0.50	$ 313.10	$ -	$ 313.10	$ -	2	0.5																		
C.4.08	Cut off top of drill casings	each	3.00	$ 20.74	$ -	$ 18.99	$ 1.75	1																	1		
C.4.09	Demolish office buildings/ shop structures/ living quarters (by manual labor)	m^2	2.63	$ 129.44	$ -	$ 104.06	$ 25.38	3		1				0.25		0.25	0.25										
C.4.10	Demolish office buildings/ shop structures/ living quarters (mechanised)	m^3	52.00	$ 8.70	$ -	$ 3.56	$ 5.14	2						1		1	1										
Material Relocations																											
C.5.01	Clean up debris from site	m^2	2529.00	$ 0.13	$ -	$ 0.10	$ 0.03	3						1			1										source - SRK estimate
C.5.02	Load demolition debris/solid waste in containers	m^3	48.00	$ 8.16	$ -	$ 2.97	$ 5.18							2	1		1										source - SRK calculated from first principles
C.5.03	Load solid waste in 55 Gal drums	m^3	0.25	$ 341.76	$ -	$ 341.76	$ -	1.5																			source - RSMeans
C.5.04	Load drums/tanks in container	each	15.00	$ 14.04	$ -	$ 8.55	$ 5.49	1						1			1										
C.5.05	Load large above ground storage tank on skid	each	0.50	$ 854.40	$ -	$ 484.40	$ 370.00	3						1		1											
C.5.06	Unload debris from containers	m^3	132.80	$ 3.72	$ -	$ 1.07	$ 2.65							2	1	1											
C.5.07	Manually unload seacan container	m^3	4.00	$ 28.48	$ -	$ 28.48	$ -	2																			
C.5.08	Haul waste to Doris Camp in 20 ft container (33.2 m3/container)	m^3	88.76	$ 2.62	$ -	$ 0.74	$ 1.88						1		1												Productivity calculation shown on 'Relocation Unit Cost' Worksheet
C.5.09	Haul waste to Roberts Bay jetty in 20 ft container (33.2 m3/container)	m^3	58.48	$ 3.97	$ -	$ 1.13	$ 2.85						1		1												Productivity calculation shown on 'Relocation Unit Cost' Worksheet
C.5.10	Load, haul, dump, place: 2 trucks with <1.0km haul distance	m^3	75.00	$ 12.04	$ -	$ 3.66	$ 8.39						2	2	1	1		2									
C.5.11	Consolidate core boxes	hr	1.00	$ 210.58	$ -	$ 128.28	$ 82.30	1						1			1										Ship large propane tanks and envirotanks 1/skid / source - calculated from first principles
C.5.12	Load Seacan containers onto barges for off-site shipping	each																									
C.5.13	Decomission reusable structures	each	1.00	$ 99.59	$ -	$ 99.59	$ -	1	0.5																		
C.5.14	Load reusable structures on skids for hauling	each	0.50	$ 740.48	$ -	$ 370.48	$ 370.00	2						1		1											source - SRK estimate
C.5.15	Unload reusable structures from skids	each	0.50	$ 740.48	$ -	$ 370.48	$ 370.00	2						1		1											
C.5.16	Prepare structures for mobilization	m^2	6.75	$ 20.58	$ -	$ 20.58	$ -	2	0.1				0.25														source - SRK estimate
C.5.17	Load/unload containers onto lowbed																										
C.5.18	Load soils into megabags	m^3	4.00	$ 65.75	$ -	$ 44.93	$ 20.81	2					1			0.45											
C.5.19	Unload soils from megabags	m^3	10.00	$ 31.33	$ -	$ 12.83	$ 18.50	1						1		1											
Earth works																											
C.6.01	Drill and blast	m^3	100.00	$ 27.90	$ 21.38	$ 3.01	$ 3.52	1.5				0.5		2			1					1					source - ECHOS
C.6.02	Regrade surface - rough grading, D7	m^2	100.00	$ 2.38	$ -	$ 0.71	$ 1.67							1	1												source - ECHOS
C.6.03	Backfill depressions	m^3	20.00	$ 7.68	$ -	$ 3.57	$ 4.12							1			1										source - ECHOS
C.6.04	Install soil stabilization measures (straw/coconut matting)	m2	269.00	$ 3.48	$ 1.79	$ 1.01	$ 0.69	3.5						1		1											source - ECHOS
C.6.05	Crusher: crush quarry rock	m^3	125.00	$ 11.94	$ -	$ 2.17	$ 9.77	1						3	1	1	1									1	source - SRKjm estimate
C.6.06	Expose and remove tank farm liner	m^2	90.00	$ 3.48	$ -	$ 1.43	$ 2.06	1						1		1											source - SRK estimate
C.6.07	Trackpack using loaded rock truck	m^2	100.00	$ 2.05	$ -	$ 0.66	$ 1.39						1					1									
C.6.08	Delineation of low-lying areas	day	0.13	$ 3,815.68	$ 100.00	$ 1,615.68	$ 2,100.00	1				1									0.125						1 day to stake low-lying areas in the field, material allowance included for stakes
C.6.09	Install HDPE Liner	m^2	175.00	$ 31.70	$ 28.93	$ 1.71	$ 1.06	4						1		1											
C.6.10	Revegetate (seeding&fertilising by hand; high application rate)	m^2	320.00	$ 0.77	$ 0.24	$ 0.53	$ -	3																			
C.6.11	Backfill drill holes with bentonite chips	lm	100.00	$ 19.09	$ 17.95	$ 1.14	$ -	2																			
Equipment relocation																											
C.7.01	Dozer relocation	km	9.9	$ 24.02	$ -	$ 7.20	$ 16.82							1	1												
C.7.02	Excavator relocation	km	9.9	$ 25.89	$ -	$ 7.20	$ 18.69							1		1											
C.7.03	Loader relocation	km	15	$ 10.24	$ -	$ 4.75	$ 5.49							1			1										

Table B12. Relocation Unit Cost Calculations for Patch Lake

Unit rate of hauling bulk materials from Patch Lake on winter road			
By Skid - SnowCAT (equivalent to D7)			Note: Cost of winter road not included
Equipment Cost	$ 166.50	per hr	Includes fuel
Labour Cost	$ 56.96	per hr	
Average speed	$ 9.00	km/hr	Skids assumed as being available on site
Hauling capacity	$ 1.00	skids	One container per skid
Cargo capacity	$ 33.20	m^3	Standard 20 ft container
Space utilization ratio	$ 0.70		
Load	$ 23.24	m^3	CargoCapacity x # of Containers x Space Utilization Ratio
Cost	**$ 1.07**	**per km*m^3**	**Cost Per Hour ÷ Avg Speed ÷ Load**
Cost per skid	**$ 24.83**	**per km**	**Cos tPer Hour ÷ Avg Speed ÷ # of Skids**
Unit rate of hauling bulk materials from Patch Lake on All Weather Road			
By Truck - CAT 735			
Load	$ 15.00	m^3	
Cost	$ 138.70	per hr	
Average speed	$ 50.00	km/hr	
Cost	$ 0.18	per km*m^3	
Fleet productivity (100 %)	$ 134.73	m^3 per hr	
Hauling distance	$ 8.35	km	Patch Lake to Doris Quarry 2
# of trucks	$ 3.00		
Cycle time	$ 20.04	minutes	Patch to Doris and back
Real productivity	107.78	m^3 per hr	Demolition debris
Unit rate of hauling demolition waste in containers from Patch to Doris Camp on All Weather Road			
Tractor trailer with Lowboy, 2x20 ft seacans per trip			
Cost	$ 71.78	per hr	
Average speed	38	km/hr	
Hauling distance	8.35	km	
Hauling capacity	2	containers	
Cargo capacity	33.2	m^3	
Space utilization ratio	0.7		
Load	46.48	m^3	
Cost	$ 2.947	per m^3	
Productivity	105.76	m^3 per hr	
Return trip time	26.37	minutes	
Unit rate of hauling demolition waste in containers from Patch to Roberts Bay on All Weather Road			
Tractor trailer with Lowboy, 2x20 ft seacans per trip			
Cost	$ 71.78	per hr	
Average speed	38	km/hr	
Hauling distance	13.5	km	
Hauling capacity	2	containers	
Cargo capacity	33.2	m^3	
Space utilization ratio	0.7		
Load	46.48	m^3	
Cost	$ 1.823	per m^3	
Productivity	65.42	m^3 per hr	
Return trip time	42.63	minutes	

Table B13. Relocation Unit Cost Calculations for Windy Camp

Unit rate of hauling bulk materials from Windy on All Weather Road			
By Truck - CAT 735			
Load	15	m^3	
Cost	$ 167.60	per hr	
Average speed	50	km/hr	
Cost	$ 0.22	per km*m^3	
Fleet productivity (100 %)	125.00	m^3 per hr	
Hauling distance	9.00	km	Patch Lake to Doris Quarry 2
#of trucks	3.00		
Cycle time	21.60	minutes	Patch to Doris and back
Real productivity	100.00	m^3 per hr	Demolition debris
Unit rate of hauling demolition waste in containers from Windy to Doris Camp on All Weather Road			
Tractor trailer with Lowboy, 2x20 ft seacans per trip			
Cost	$ 71.78	per hr	
Average speed	38	km/hr	
Hauling distance	9.95	km	
Hauling capacity	2	containers	
Cargo capacity	33.2	m^3	
Space utilization ratio	0.7		
Load	46.48	m^3	
Cost	$ 2.473	per m^3	
Productivity	88.76	m^3 per hr	
Return trip time	31.42	minutes	
Unit rate of hauling demolition waste in containers from Windy to Roberts Bay on All Weather Road			
Tractor trailer with Lowboy, 2x20 ft seacans per trip			
Cost	$ 71.78	per hr	
Average speed	38	km/hr	
Hauling distance	15.1	km	
Hauling capacity	2	containers	
Cargo capacity	33.2	m^3	
Space utilization ratio	0.7		
Load	46.48	m^3	
Cost	$ 1.629	per m^3	
Productivity	58.48	m^3 per hr	
Return trip time	47.68	minutes	
By Skid - SnowCAT (equivalent to D7)			(Only if Winter Road option were still in play)
Cost	$ 159.90	per hr	
Average speed	9	km/hr	Sleds assumed as being available on site
Hauling capacity	2	skids	One container per skid
Cargo capacity	33.2	m^3	Standard 20 ft container
Space utilization ratio	0.7		
Load	46.48	m^3	CargoCapacity x #ofContainers x SpaceUtilizationRatio
Cost	$ 0.38	per km*m^3	CostPerHour÷AvgSpeed÷Load
Cost per skid	$ 8.88	per km	CostPerHour÷AvgSpeed÷#ofSkids
Unit rate for shipping from Roberts Bay to Hay River (in 20 ft containers)			
Demolition debris			
Volume of container	33.20	m^3	20 ft standard shipping containers
Volume of demolition waste	-	m^3	bulk volume of demolition debris
Container space utilization	0.75	%	SRKjm estimate
Cost of container per year	$ 1,300.00	each	personal communication with NTCL
cost of inbound shipping	$ 4,217.60	each	cost of inbound shipping from Tuktoyaktuk , per empty container / source - personal communication with NTCL
Cost of outbound shipping (demolition waste)	$ 551.61	m^3	$ 0.3791 per pound minus 10% / source - personal communication with NTCL
Bulk density of demolition debris	0.733333333	t/m^3	bulk density of demolition waste (SRKjm estimate)
Unit rate for demolition waste	$ 676.25	m^3	unit rate of shipping demolition waste from Roberts Bay to Hay River
Hydrocarbon contaminated soils			
Volume of soils	1,613.95		
Container space utilization	0.5	%	SRKjm estimate
Bulk density of soils	1.7	t/m^3	SRKjm estimate
Cost of outbound shipping (soils)	$ 1,278.73	m^3	$ 0.3791 per pound minus 10%
Unit rate for contaminated soils	$ 1,361.83	m^3	unit rate of shipping contaminated soils (sealed in 55 gallon drums) from Roberts Bay to Hay River

Table B15. Waste Volumes for Windy Camp
Volume Summary

Area	Item (description)	# of units	Unit Loose volume (m^3)	Total Loose volume (m^3)	Destination: All Off Site	Destination: Off Site + Reuse
Tanks	Tidy tank	8	1.35	10.78	Off Site	Doris
	Oil barrels for heating (Crushed)	6	0.04	0.25	Hay River	Hay River
	Aviation fuel barrels (205L) (Crushed)	5	0.04	0.21	Hay River	Hay River
Hazardous Waste	Misc. chemical bottles	1	2.80	2.80	Hay River	Hay River
Tank Farm	LLDPE Liner	1	12.00	12.00	Hay River	Hay River
Reuseable Eq./Supplies	Propane tank - large	6	4.32	25.92	Off Site	Off Site
	Propane tanks - small	3	1.55	4.64	Off Site	Off Site
	Water treatment unit and holding tanks	4	8.30	33.19	Off Site	Doris
	Waste Incinerator	1	6.75	6.75	Off Site	Off Site
	Heating System components	1	1.00	1.00	Hay River	Doris
	Communication Equipment	1	1.00	1.00	Off Site	Off Site
	Total vol. reuseable equipment sent to Doris/offsite				82.3	83.3
Camp Demolition	Tidy tank stands	8	1.50	12.00	Off Site	Doris
	Building - Fire suppression tank	1	23.99	23.99	Hay River	Hay River
	Tent (wood only)	32	9.4	299.52	Hay River	Hay River
	Tent (fabric)	32	2.70	86.40	Hay River	Hay River
	Cabin	4	26.15	104.60	Hay River	Doris
	Mess Hall1 (271 m2)	1	221.75	221.75	Hay River	Hay River
	Mess Hall2	1	255.87	255.87	Hay River	Hay River
	Driller's Dry (wood)	1	28.34	28.34	Hay River	Hay River
	Driller's Dry (fabric)	1	2.66	2.66	Hay River	Hay River
	Add-on to Driller's Dry	1	17.71	17.71	Hay River	Hay River
	Admin Building	1	108.02	108.02	Hay River	Doris
	Geology Office (not on dwg)	1	288.46	288.46	Hay River	Doris
	Core Logging Shack	1	135.34	135.34	Hay River	Doris
	Mechanical Shop	1	14.70	14.70	Hay River	Doris
	Helicopter shack-weatherhaven1	1	15.87	15.87	Hay River	Hay River
	Helicopter shack	1	140.34	140.34	Hay River	Hay River
	Helicopter shack-weatherhaven2	1	8.09	8.09	Hay River	Hay River
	Helicopter shack-weatherhaven3	1	12.69	12.69	Hay River	Hay River
	Helicopter pads (average dimension)	3	46.69	140.06	Hay River	Hay River
	Misc building near helipad2and3	1	51.54	51.54	Hay River	Hay River
	Trailers	3	26.54	79.62	Hay River	Doris
	Shipping containers	3	36.25	108.75	Hay River	Doris
	Misc small buildings near mech shop	1	33.52	33.52	Hay River	Hay River
	Water intake building	1	16.91	16.91	Hay River	Hay River
	Pallets	16	0.73	11.66	Hay River	Doris
	Other Misc. Debris allowance	1	30.00	30.00	Hay River	Hay River
	Total demolition volume			m^3	**2,236.4**	**1,385.3**
	Total volume to landfill:			m^3	**2,252.7**	**1,400.5**
	Total volume shipped off-site			m^3	**94.3**	**38.3**
	Total volume shipped to Hay River			m^3	**2,347.0**	**1,438.8**
	Total volume shipped to Doris Camp			m^3	**-**	**908.1**

Demolition Bulking Factors	
Tents - Empty	1.1
Wood Structures - Empty	1.3
Wood Structures - w/ Interior Wall Allowance	1.5
Steel Structures - Empty	1.3
Steel Structures - w/ Interior Wall Allowance	1.5
Mechanical Equipment	1.1
Liners	3
Pipelines	3

# of reusable structures:	26
Remobilized structures floor surface area:	891.558

Quantity Calculations

Area	Structure	Length (m)	Width/dia. (m)	Footprint Area (m2)	Avg. Height (m)	Wall thickness (m)	Floor thickness (m)	Roof Length (m)	Roof Thickness (m)	Wall Volume (m^3)	Floor Volume (m^3)	Roof Volume (m^3)	Total Volume (m^3)	Loose Volume (m^3)	Comments
Tanks	Crushed 45 gal drums		0.6		0.15								0.042		
Tank Farm	Liner			800	0.005								4.0	12.0	
Reuseable Equipment	Propane tank large	5.5	1		1								4.3		
	Propane tank small	3.5	0.8		0.75								1.5		
	Incinerator	1.5	1.5	2.25	3								6.8	6.8	
Camp Demolition	Tindy Tank Stands	1	1	1	1.5								1.5	1.5	No bulking factor applied.
	Fire suppression tank building	6	4	24	2.4	0.15	0.3	4.5	0.15	7.2	7.2	4.05	18.5	24.0	
	Tent (wood only)	6	4	24			0.3				7.2		7.2	9.36	
	Tent (fabric)	6	7.5	45		0.01				2.7			2.7	2.7	length of arch = 7.5 m; no bulking factor
	Cabin	6	4.5	27	2.4	0.15	0.3	5.0	0.15	7.6	8.1	4.5	20.1	26.1	roof angle = 15 deg.
	Mess Hall 1	23	11.5	264.5	2.4	0.15	0.3	12.7	0.15	24.8	79.35	43.6	147.8	221.7	Includes interior wall allowance
	Mess Hall 2	25	12	300	2.8	0.15	0.3	13.2	0.15	31.1	90	49.5	170.6	255.9	Includes interior wall allowance
	Driller's Dry (wood)	16.2	4.5	72.7			0.3				21.8		21.8	28.3	length = 14 ribs, 0.85m apart; width = 4m
	Driller's Dry (fabric)	16.2			15	0.01				2.4			2.4	2.7	height 4 m, arc length 15 m
	Add-on to Driller's Dry	5	4	20.0	2.4	0.1	0.3	4.4	0.15	4.3	6	3.3	13.6	17.7	5x4 m footprint, 2.4 m high
	Admin Building	18	7	126.0	4.9	0.1	0.3	7.7	0.15	24.5	37.8	20.8	83.1	108.0	18x7 m footprint, avg height = 2.4m
	Geology office	27.7	6.7	185.6	4.9	0.15	0.3	7.4	0.15	50.3	111.4	30.6	192.3	288.5	2 story bldg.
	Core Logging Shack	27.7	5.1	142.4	2.4	0.15	0.3	5.7	0.15	24.0	42.7	23.5	90.2	135.3	
	Mechanical shop	20	7.2	144.0	5.5		0	11.3	0.05			11.3	11.3	14.7	
	Helicopter shack														
	Weatherhaven 1	7.3	5.3	38.7	2.5	0.01	0.3			2.8	11.6		14.4	15.9	
	Shack	8.2	8.9	72.5	5.5	0.15	0.3			28.0	43.5	22.0	93.6	140.3	
	Weatherhaven 2	5.9	3.5	20.5	2.5	0.01	0.3			1.2	6.2		7.4	8.1	
	Weatherhaven 3	6.9	4.5	31.3	2.5	0.01	0.3			2.2	9.4		11.5	12.7	
	Helipads														
	Helipad1	6.1	4.8	29.5	0.5								14.8	22.1	
	Helipad2	11	7.4	80.9	0.5								40.4	60.6	
	Helipad3	11.8	6.5	76.4	0.5								38.2	57.3	
	Water Treatment Unit and holding tanks	6.3	3.7	23.0	2.4	0.15	0.3	4.0	0.15	7.3	13.8	3.8	24.9	37.3	
	Misc building 1	6.9	4.5	31.3	3.0	0.15	0.3	5.0	0.15	10.5	18.8	5.2	34.4	51.5	
	Trailers	6	2.5	15.0	2.4	0.15	0.3	2.8	0.15	6.2	9.0	2.5	17.7	26.5	
	Water intake building	3	3	9.0	2.4	0.15	0.3	3.3	0.15	4.4	5.4	1.5	11.3	16.9	
	Pallets	1.8	1.8		0.15								0.5	0.7	
													Total Volume (m^3)	1605.4	

Total demolition volume	1605.4	m^3
Total volume shipped off-site	1605.4	m^3
Total volume shipped to Hay River	1605.4	m^3
Total volume shipped to Doris Camp	0.0	m^3

Table B15 continued. Waste Volumes for Windy Camp
Manual Demolition Calculations

Area	Structure	Length (m)	Width/dia. (m)	Avg. Height (m)	Roof Length (m)	Wall Area (m^2)	Floor Area (m^2)	Roof Area (m^2)	Wall Demolition (Hrs)	Floor Demolition (Hrs)	Roof Demolition (Hrs)	Total Demolition time (Hrs)
Work Productivity Factors for manual Demolition (m2/hr)	**Studs**					**12.1**	**23.2**	**23.2**				
	Plywood					**13.9**	**12.4**	**17.4**				
	Insulation					**30.2**		**30.2**				
	Tent Structure						92					
	Fire suppression tank building	6	4	2.4	4.5	48	24	27	9.0	3.0	3.609556976	15.6
	Tent (wood only)	6	4			0	24	0	0.0	3.0	0	3.0
Camp Demolition	Cabin	6	4.5	2.4	5.0	50.4	27	29.7	9.5	3.3	3.970512674	16.8
	Mess Hall 1	23	11.5	2.4	12.7	165.6	264.5	290.95	31.1	32.7	38.8963186	102.7
	Mess Hall 2	25	12	2.8	13.2	207.2	300	330	38.9	37.1	44.11680749	120.1
	Driller's Dry (wood)	16.2	4.5			0	72.675	0	0.0	9.0	0	9.0
	Add-on to Driller's Dry	5	4	2.4	4.4	43.2	20	22	8.1	2.5	2.941120499	13.5
	Admin Building	18	7	4.9	7.7	245	126	138.6	46.0	15.6	18.52905915	80.1
	Geology office	27.7	6.7	4.9	7.4	335.52384	185.59	204.149	63.0	23.0	27.29212767	113.2
	Core Logging Shack	27.7	5.1	2.4	5.7	160.154112	142.378	156.6158	30.1	17.6	20.93754272	68.6
	Helicopter shack	8.2	8.9	5.5		186.976512	72.4535	0	35.1	9.0	0	44.1
	Helipad1	6.1	4.8	0.5		10.94	29.524	0	2.1	3.7	0	5.7
	Helipad2	11	7.4	0.5		18.35	80.85	0	3.4	10.0	0	13.4
	Helipad3	11.8	6.5	0.5		18.25	76.375	0	3.4	9.5	0	12.9
	Water Treatment Unit and holding tanks	6.3	3.7	2.4	4.0	48.475392	23.0368	25.34048	9.1	2.9	3.387700236	15.3
	Misc building 1	6.9	4.5	3.0	5.0	69.67728	31.257	34.3827	13.1	3.9	4.596530172	21.5
	Trailers	6	2.5	2.4	2.8	41.4528	15	16.5	7.8	1.9	2.205840375	11.8
	Water intake building	3	3	2.4	3.3	29.2608	9	9.9	5.5	1.1	1.323504225	7.9
	Tent (fabric)	6	7.5			0	45	0	0.0	5.6	0	5.6
	Driller's Dry (fabric)	16.2	15			0	242.25	0	0.0	30.0	0	30.0
	Weatherhaven 1	7.3	5.3			0	38.69	0	0.0	4.8	0	4.8
	Weatherhaven 2	5.9	3.5			0	20.51	0	0.0	2.5	0	2.5
	Weatherhaven 3	6.9	4.5			0	31.257	0	0.0	3.9	0	3.9
	Mechanical shop	20	7.2	5.5	11.3	0	144	0	0.0	17.8	0	17.8
	Total Footprint	1901.35	m^2								**722.1**	**72.2142086**	**10.3163155**
	Time to demolish	722.1	Hrs								**man-hrs**	**man-days**	**weeks**
	Overall productivity	2.6	m^2/hr										

Manual and Mechanical Demolition Calculations

Area	Structure	Length (m)	Width/dia. (m)	Avg. Height (m)	Roof Length (m)	Wall Area (m^2)	Floor Area (m^2)	Roof Area (m^2)	Building Volume	Wall Demolition (Hrs)	Floor Demolition (Hrs)	Roof Demolition (Hrs)	Total Demolition time (Hrs)
Work Productivity Factors for Manual Demolition (m^2/hr)	**Studs**					**12.1**	**23.2**	**23.2**					
	Plywood					**13.9**	**12.4**	**17.4**					
	Insulation					**30.2**		**30.2**					
	Tent Structure						**92**						
Mechanical Demolition (m^3/hr)							**52**						
	Fire suppression tank building	6	4	2.4	4.5				57.6	0.0	0.0	0	1.1
	Tent (wood only)	6	4	0.3					7.2	0.0	0.0	0	0.1
Camp Demolition	Cabin	6	4.5	2.4	5.0	50.4	27	29.7		9.5	3.3	3.970512674	16.8
	Mess Hall 1	23	11.5	2.4	12.7				634.8	0.0	0.0	0	12.2
	Mess Hall 2	25	12	2.8	13.2				840	0.0	0.0	0	16.2
	Driller's Dry (wood)	16.2	4.5	0.3					21.8025	0.0	0.0	0	0.4
	Add-on to Driller's Dry	5	4	2.4	4.4				48	0.0	0.0	0	0.9
	Admin Building	18	7	4.9	7.7				617.4	0.0	0.0	0	11.9
	Geology office	27.7	6.7	4.9	7.4				905.085312	0.0	0.0	0	17.4
	Core Logging Shack	27.7	5.1	2.4	5.7				347.174515	0.0	0.0	0	6.7
	Helicopter shack	8.2	8.9	5.5		186.976512	72.4535	0		35.1	9.0	0	44.1
	Helipad1	6.1	4.8	0.5		10.94	29.524	0		2.1	3.7	0	5.7
	Helipad2	11	7.4	0.5		18.35	80.85	0		3.4	10.0	0	13.4
	Helipad3	11.8	6.5	0.5		18.25	76.375	0		3.4	9.5	0	12.9
	Water Treatment Unit and holding tanks	6.3	3.7	2.4	4.0	48.475392	23.0368	25.34048		9.1	2.9	3.387700236	15.3
	Misc building 1	6.9	4.5	3.0	5.0	69.67728	31.257	34.3827		13.1	3.9	4.596530172	21.5
	Trailers	6	2.5	2.4	2.8	41.4528	15	16.5		7.8	1.9	2.205840375	11.8
	Water intake building	3	3	2.4	3.3	29.2608	9	9.9		5.5	1.1	1.323504225	7.9
	Tent (fabric)	6	7.5			0	45	0		0.0	5.6	0	5.6
	Driller's Dry (fabric)	16.2	15			0	242.25	0		0.0	30.0	0	30.0
	Weatherhaven 1	7.3	5.3			0	38.69	0		0.0	4.8	0	4.8
	Weatherhaven 2	5.9	3.5			0	20.51	0		0.0	2.5	0	2.5
	Weatherhaven 3	6.9	4.5			0	31.257	0		0.0	3.9	0	3.9
	Mechanical shop	20	7.2	5.5	11.3		144			0.0	17.8		17.8
	Total Footprint	886.203	m^2					**Total**	3479.06233				
	Time to demolish	214.1	Hrs		214.1	21.40793799	3.05827686						
	Overall productivity	4.1	m^2/hr		man-hrs	man-days	weeks						
	Total Volume	3479.06	m^3										
	Time to demolish	66.9	Hrs		66.9	6.690504475	0.95578635						
	Overall productivity	52.0	m^3/hr		man-hrs	man-days	weeks						

Table B16. Earthwork Quantities for Patch Lake

Location	Length (m)	Width (m)	Area (m^2)	Source
Tank Farm			2000	
Old Tank Farm			2500	
Main Tank Farm spoil pile			2545	ACAD-PL Closure Plan Fig. 4
Soil pile west of current tank farm			1085	
Road from Shop to Patch Lake			1592	Estimated disturbance from Autocad site photo
Winter trail west of facilities	$ 2.00	935	1870	Estimated disturbance from Autocad site photo
Total Main site			6216	Estimated disturbance from Autocad site photo
Assumed Landfill area			100	Estimated based on demo volume from Patch lake

Table B17. Earthwork Quantities for Windy Camp

Reclamation Areas

Location	Itam	Total Area (m^2)	Area Regraded (m^2)	Area Requiring Fill (m^2)	Coco-matting Area (m^2)
Tank Farm	Tank Farm	1,400	1400	0	350
Main Camp	Summer debris collection area	40,000			
	Total camp area (shops+laydown+living)	24,955	1248	500	500
Winter road (to top of hill)	Area requiring fill	750		750	0
		67,105			

Bulking Factors	
Soil/Rock Pad	1.2
Cover shrinkage factor	1.1

					Area (m^2)				In-situ Volume (m^3)		Loose Volume (m^3)		
Work Area	Item	Qnty	Length (m)	Width (m)	Base Case (all off-site)	Off-site +Reuse	Height/ Thickness (m)	Side Slope (x:1)	Base Case	Off-site +Reuse	Base Case	Off-site +Reuse	Source / Comments
Tank Farm	Excavate bedding				800	800	0.2		**160**	**160**			ACAD/aerial site photo
	Remove Liner				**800**	800							ACAD/aerial site photo
	Slope buttress		50	5	250	250	2		500	500	**600**	**600**	ACAD/aerial site photo
Landfill	Bedding (crushed rock) (0.3m on each side of liner)				751	467	0.6		451	280	**518**	**322**	Area based on waste placed 3m high
	Liner				826	514							Includes 10% wastage
	Run-of-quarry cover (0.5m)				**751**	**467**	0.5		375	233	**432**	**268**	
Camp	Fill Low-lying areas				500	500	0.3		**150**	**150**	**180**	**180**	ACAD/aerial site photo
Winter road to Patch	Fill Low-lying areas				750	750	0.3		**225**	**225**	**270**	**270**	ACAD/aerial site photo

Table B18. Volumes of HC Impacted Soils for Patch Lake

Area Designation (from EBA 2012)	Location	Area (m^2)	Volume (m^3)	Source	Remediation method
P1A	North laydown area	38	76	EBA 2012 (Phase III Site Assessment)	Removal
P1B	South-west of former drill shop	13	7	EBA 2012 (Phase III Site Assessment)	In-Situ Bioremediation
P1C	Former drill shop footprint	120	18	EBA 2012 (Phase III Site Assessment)	Removal
P3	Incinerator	29	87	EBA 2012 (Phase III Site Assessment)	Removal
P5	Power generator	16	32	EBA 2012 (Phase III Site Assessment)	In-Situ Bioremediation
Other	Various	75	22	EBA 2012 (Phase III Site Assessment)	Removal
Total		**291**	**242**		
Total Removal Volume (Loose) to Hay River			**264**		
Total Bioremediation Volume			**39**		
Total Removal Volume (Loose) to Doris OVB Dump			**0**		
Backfill volume required			**349**	Assumed 1 m thick cover; loose volume based on 1.2 shrinkage factor	

Bulking Factors	
Soil/Rock Pad	1.3
Cover shrinkage factor	1.2

Table B19. Volumes of HC Impacted Soils for Windy Camp

IN-SITU Volume Estimate for Hydrocarbon Contaminated Soils (EBA (2012) and assumed)				
Area Designation (from EBA (2012))	Surface area (m^2)	Volume Estimate		Remediation Method
		Assumed Thicknes of contaminated soil (m)	Equivalent IN-SITU Volume of contaminated soil (m^3)	
W1	85	0.5	42.5	Removal
W2	124	2	248	Removal
W3	23	1	23	Removal
W4	44	2.5	110	Removal
W5B	1	0.5	0.5	in situ Bioremediation
W5D	2	2	4	in situ Bioremediation
W5E	9	2	18	Removal
W5G	4	2	8	in situ Bioremediation
W5H	20	2	40	in situ Bioremediation
W6	200	0.25	50	Removal
W8	61	1	61	in situ Bioremediation
Subtotal for Areas Identified by EBA (2012)	**573**		**605**	
Area under old fuel tanks (area is 38m x 21m. Assumed to be impacted by hydrocarbons)	800	1	800	Removal
Total	**1373**		**1405**	
		Equivalent LOOSE (Excavated) Volume	**639**	
		Equivalent RECOMPACTED Volume	**590**	

Bulking factor	
Soil/Rock Pad	1.3
Cover shrinkage factor	1.2

			Notes
Total Removal Volume (Loose) to Hay River	1,613.95	m^3	
Total Bioremediation Volume	113.5	m^3	
Total Removal Volume (Loose) to Doris OVB Dump	65.0	m^3	
Backfill volume required	1,302.0	m^3	Assumed 1 m thick cover; loose volume based on 1.2 shrinkage factor