

February 9, 1999

Mr. Philippe di Pizzo, Executive Director

Nunavut Water Board

P.O. Box 119

Gjoa Haven, N.W.T. X0E 1J0

**RE: BHP – BOSTON GOLD PROJECT
RECLAMATION COST REVIEW**

Dear Philippe,

INTRODUCTION

As requested, I have prepared this review of reclamation costs for the Boston Gold Project, which is owned by BHP Diamonds Inc. (BHP). The site is located at Aimaoktak Lake, on the eastern side of Bathurst Inlet and just north of the Arctic Circle. BHP's activities at the site involve advanced exploration of the gold mineralized rock.

OBJECTIVES

The objectives of the work include:

- reviewing the proposed Abandonment and Restoration (A & R) Plan to assess if it is complete, and that the proposed reclamation measures are reasonable, and,
- review the estimated cost of carrying out the reclamation work.

INFORMATION SOURCES

The following documents were reviewed in preparing this reclamation cost estimate:

- Exploration & Bulk Sampling Program Waste Rock Disposal Plan, BHP, Oct. 1998,
- Spill Contingency Plan, BHP, Aug. 1998,

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- Abandonment & Restoration Plan, BHP, Sept. 1998,
- Hope Bay Gold, color brochure, BHP Nov. 1997,
- Water Licence NWB1BOS9801,
- Amendment to Water Licence NWB1BOS9801,
- Estimate for Security Deposit for the Boston Gold Project, letter to Nunavut Water Board, BHP, Oct. 1998, and,
- assorted site photographs taken by Nunavut Water Board personnel, Sept. 1998.

I have not inspected the facilities at the Boston Gold Project. The following reclamation review and cost estimate is based on the above information sources.

SITE DESCRIPTION

The Boston Gold Project is located on a peninsula situated on the south shore of Aimaoktak Lake. The terrain consists of glacial tills, clays and some bedrock outcrops. Vegetation includes Arctic shrubs, mosses and lichens.

Surface disturbances have been limited to a compact footprint of about 4 hectares, plus 1.5 hectares for the airstrip. Additional disturbances presumable exist at diamond drill sites. Activities have consisted of drilling and underground bulk sampling. The latter has involved excavation of about 22,000 tonnes of ore and 114,000 tonnes of waste rock. Openings to the underground consist of a portal and a vent raise. Surface facilities include: ore and waste stockpiles, an ore processing plant, and numerous small buildings (offices, camp, shop, storage, etc.)

A & R PLAN

BHP has prepared a general A & R Plan which describes the type of activities to be carried out when the exploration activities are complete. The proposed activities,

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although non-specific, appear to be acceptable. There is additional information regarding the scope of the anticipated reclamation activities in the BHP letter of Oct. 1998, which deals with the estimate for reclamation security.

The general reclamation plan involves sealing the openings to the underground workings, contouring of the ore and waste stockpiles, removal of buildings and equipment, and final revegetation of the disturbed areas. Buildings and equipment are to be dismantled; combustible debris will be burnt on site and the remaining material will be removed from the site by aircraft or “Cat-train” to Roberts Bay.

It is understood from the 1997 work by Rescan, that most of the rocks are net acid consuming and that some of the samples have uncertain acid generation potential. Kinetic testing on some of these rocks has not indicated a potential for future development of acidic drainage. Consequently, this assessment is based on the preliminary conclusion that none of the rocks are potentially acid generating. The kinetic testing is ongoing. This closure cost assessment may need to be revised if the results of the continued testwork indicate that some of the rock may ultimately become acid generating.

RECLAMATION COST ESTIMATE

In order to evaluate the cost estimate provided by BHP, a second estimate has been prepared using the RECLAIM model. The output is attached. This estimate assumes that the work is conducted by a third party contractor.

In general, BHP has provided a reasonable estimate of the cost for reclamation of Boston Gold Project site. Few differences were found between this estimate and BHP’s estimate. A comparison of the total costs for the three major components of the reclamation work is presented in the following table.

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SUMMARY – RECLAMATION COST ESTIMATE**BHP – BOSTON GOLD PROJECT**

COMPONENT	BHP ESTIMATE	B.C.L. ESTIMATE
Direct reclamation activities	\$249,000	\$248,787
Camp/accommodation	\$68,775	\$70,000
Freight/worker transportation	\$1,384,800	\$1,529,370
Engineering/project management & contingency	\$0	\$520,284
TOTAL COST	\$1,702,575	\$2,378,440

The cost of the direct reclamation activities is the same as estimated by BHP. BHP's unit cost for many reclamation activities are higher than the "typical" costs contained in the RECLAIM Model. It is assumed that BHP has reviewed the proposed activities and decided that the cost at the Boston Gold site will be as they have indicated. Presumably this is due to factors associated with the remoteness of the site or other difficulties in achieving the reclamation objectives. This cost estimate has used BHP's unit costs where they are higher than those in the RECLAIM Model.

The most significant cost aspect of reclamation of the Boston Gold Project site will be the costs of transportation. This applies to the removal of equipment and materials, and personnel. BHP has provided an estimate of the tonnes of material to be removed from the site. It is expected that 547 tonnes will be removed by aircraft and 597 will be removed by Cat train.

Included in the transportation cost is the cost of mobilizing a D6 dozer to reclaim waste piles and backfill the portal. It may be less costly to mobilize a smaller dozer or even a

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Bobcat type dozer, even if the cost of the reclamation work increases slightly. This aspect could be revised upon more detailed review of the work to be conducted.

It is assumed here that demobilization by air will be to Yellowknife. The air freight costs used here are based on typical cost/tonne rates for comparable distances in northern Canada.

BHP has assumed that a Hercules aircraft would be used for all of this work. This may be optimistic, as the aircraft may be committed to another project. (Currently, the only Hercules stationed in northern Canada is working out of the country.) The reclamation of the Boston Gold Project may be too small (in each season when the work is carried out) to permit retaining the aircraft for this project. Consequently, it is assumed here that 20% of the demobilization would be conducted using smaller, and more costly, aircraft.

There does not appear to an allowance for moving personnel to and from the site. An estimate, as indicated on the RECLAIM spreadsheet, provides a total of \$36,660 for transportation of personnel.

BHP has proposed removing much of the heavy equipment via a Cat train to Roberts Bay. Review of this cost element is beyond my experience. However, provision at a cost rate of \$700/tonne (1/2 to 2/3 of the cost of air transport) appears reasonable. In addition to the cost of the Cat train, there should be provision for the cost of a barge to remove the items from Roberts Bay. An allowance of \$50,000 for a barge is provided here.

In addition to the costs anticipated by BHP, there may be additional costs for engineering (sealing underground openings, vegetation mixtures, completion of ARD kinetic testing, etc.) and project management (detailed coordination of the decommissioning work and expediting of removal of materials). In keeping with conventional engineering practice, and especially considering that I have not inspected the site or examined the transportation logistics in detail, this estimate includes a contingency of 25%.

PROJECT NAME: BHP - BOSTON PROJECT

Date: 09-Feb-99

BEST ESTIMATE FOR UNIT COSTS

ACTIVITY/MATERIAL	UNITS	QUANTITY	COST CODE	UNIT COST	COST
Plug portal	m3	10	CSFS	1000	\$10,000
Backfill to ground contour	m3	1067	DSS	1.35	\$1,440
			NA	0	\$0
Remove exhaust raise fan	each	1	NA	1000	\$1,000
Plug raise	m3	5	NA	2000	\$10,000
			NA	0	\$0
Remove fans/pumps from U/G	each	1	NA	8000	\$8,000
			NA	0	\$0
Recontour rock piles	m3	14500	DSS	1.35	\$19,575
			NA	0	\$0
Sample plant, dismantle & burn	each	1	NA	6000	\$6,000
Crusher plant, dismantle & burn	each	1	NA	16000	\$16,000
Shop, dismantle & burn	each	1	NA	16000	\$16,000
Offices etc. dismantle & burn	all	1	NA	20000	\$20,000
			NA	0	\$0
Site services, dismantle	all	1	NA	17000	\$17,000
			NA	0	\$0
Wastes, collect for burial/removal	all	1	NA	13000	\$13,000
			NA	0	\$0
Contour pad, camp area	m2	8800	DSS	1.35	\$11,880
Scarify roads	ha	0.47	SCFY	3215	\$1,511
Revegetation	ha	7.98	VHFS	5000	\$39,900
			NA	0	\$0
Contaminated soil, excavate	m3	40	SC1S	12	\$480
Contaminated soil, remove to Ekati	tonne	40	HERC	1200	\$48,000
Contaminated soil, treat	m3	40	CSRL	25	\$1,000
			NA	0	\$0
Mobilize workers	each	78	MM<H	235	\$18,330
Demobilize workers	each	78	MM<H	235	\$18,330
worker accomodation	manda	400	MHW	175	\$70,000
D6 dozer standby cost		1	NA	30000	\$30,000
fuel		1	NA	36000	\$36,000
			NA	0	\$0
Air frieght materials, DC-4	tonne	109	DC4H	2750	\$299,750
Air frieght materials, Hercules	tonne	433	HERC	1220	\$528,260
Cat Train	tonne	597	NA	700	\$417,900
Barge @ Roberts Bay		1	NA	50000	\$50,000
heliccpter for personnel, reveg.	hours	160	HELL	930	\$148,800
Sub-total			NA	0	\$1,858,157
Engineering/project management	%	3	NA	0	\$55,745
Contingency	%	25	NA	0	\$464,539
TOTAL					\$2,378,440

COMMENTS:

revegetation area, 5.32 ha x 1.5 to provide multiple passes for fertilizer & seeds

Mob workers based on 400 mandays over 3 years = 130 mandays/year, over 10 weeks

is 13 men, with one rotation gives two trips in, or 26 man trips per year, over 3 years gi

78 man trips in and 78 man trips out.

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The total cost for reclamation of the BHP Boston Gold Project is estimated to be \$2,378,440 including the 25% contingency.

I trust that this report addresses your requirements for reclamation review of the Boston Gold Project. Please contact me if you have any questions.

Yours truly,

Brodie Consulting Ltd.



M. J. Brodie, P.Eng.

