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July 8, 2009

Mr. Kevin McDonnell
Director-Water Resources Branch
Department of Environment
Government of the Yukon
P.O. Box 2703 (V-8)
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Subject: Cost Estimate of Remaining Decommissioning and Reclamation Liabilities at Brewery Creek Mine as of June 24, 2009

Executive Summary

SteveJan Consultants Inc. (SJCI) has prepared an updated closure liability cost estimate for the Brewery Creek Mine located near the town of Dawson City in the Yukon Territory. The report was commissioned by the Department of Environment of the Yukon Government (GY). The update is based on a joint site inspection and follow-up meeting by the author with Yukon Government staff accompanied by Alexco staff (and their consultant from SRK Consultants) on June 24, 2009. It follows a GY site inspection on September 11, 2008 and Alexco/SRK inspection on October 1, 2009 which assessed work remaining as of that date. It was later agreed to conduct a joint inspection and to agree during the site visit on remaining work. This report provides the results of that site visit and meeting. This liability cost estimate report follows earlier liability cost estimates of the closed site undertaken from 2003 to 2007 inclusive, all undertaken by SJCI.

The Brewery Creek mine is owned by Alexco Resource Corporation (Alexco), previously Viceroy Minerals Corporation. Mining operations at the site ceased in 2000 with gold recovery continuing until the end of 2001. Decommissioning and reclamation activities began in mid 2002. As of mid 2009, significant progress has been achieved since mine closure. However, a number of tasks remain for 2009 and beyond, with longer-term monitoring and maintenance of the site planned to last for an additional 10 year period to the end of 2021.

The updated closure cost estimate as of June 24, 2009 is $795,000 versus $1.390M in September 2007 (SJCI 2008).

SRK Consultants have been preparing liability cost estimates on behalf of Alexco for the Brewery Creek Mine over the same period of time. Their latest report (SRK 2009) provides an estimate of $654,000 as of September 2008 versus their previous 2007 estimate of $816,000 (SRK 2007a). However, SRK did not update their latest cost estimate after the June 2009 site visit.

The following table outlines the most current closure liability cost estimate for the site broken down into eight cost centers as previously utilized in evaluating the decommissioning and reclamation liabilities at the site. A ninth cost center provides for mitigative contingencies. The table is arranged with the most recent information in the middle with SJCI's previous report to the left, and the latest cost estimate by SRK on the right.

Summary of Remaining Costs

Cost Center	September 2007 SJCI Liability Cost Estimate	June 2009 SJCI Liability Cost Estimate	September 2008 SRK Liability Cost Estimate
Mine Area Reclamation	$243,095	$98,132	$60,840
Site Facilities Removal and Reclamation	$147,223	$113,728	$97,831
Leach Pad Detoxification	$0	$0	$0
Manpower – 2009	$74,250	$29,700	$0
General Services and Administration	$54,900	$12,200	$0
Process Water Treatment	$0	$0	$0
Leach Pad Reclamation	$45,952	$3,216	$15,110
Post-Closure Monitoring	$465,450	$362,600	$368,260
Sub-total	$1,030,870	$711,326	$542,041
Contingencies on above	$146,714	$83,465	$60,288
Mitigative Contingencies	$212,300	$91,750	$52,000
Total	**$1,389,884**	**$794,791**	**$654,329**

The three reports compared above include:

- SJC I September 2007 Liability Cost Estimate - the latest estimate based on a joint site inspection on July 25, 2007 and subsequent information, as presented in this report;
- SJCI June 2009 Liability Cost Estimate - the latest estimate based on a joint GY/Alexco inspection and follow-up meeting on June 24, 2009, as presented in this report; and
- SRK September 2008 Liability Cost Estimate – the latest estimate based on an inspection tour of the site by Daryl Hockley of SRK Consultants accompanied by Brad Thrall of Alexco Resources on October 1, 2008. The SRK report does not acknowledge the work undertaken by Alexco between October 2008 and June of 2009, specifically around the Heap Leach Pad and Process Ponds.

Overall, the SJCI estimate of site closure liability has dropped by $595,000 over the past one and a half years (i.e., June 2009 versus September 2007). The reduction is mainly due to the joint site inspection enabling agreement between the parties as to remaining work that needs to be undertaken. Secondary reasons for the cost reduction include the passing of another year of post-closure monitoring and maintenance, complete removal of the treatment ponds, significant removal of the process ponds, reduced General Services & Administration costs, removal of a provision for possible future use of the BTC and the final year of provision for a possible cover for the Blue Waste Rock Storage Area having passed.

However, work remains in:

- Completing the restoration of the area of the process ponds and area ditching,
- Repairing identified areas with erosion problems, and
- Continuing on-going site environmental monitoring to ensure closure criteria are met.

The majority of the agreed-to remedial works should be completed during the current summer season, leaving only long term monitoring to run through to the end of the QML and WUL license terms, supplemented by provision for possible work along several portions of slope in the area of the Lucky Haul Road.

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Tables

1. Introduction

Steve Januszewski of SteveJan Consultants Inc. (SJCI) has prepared this cost estimate based on acceptance of an SJCI Proposal dated August 30, 2005 to Ms. Heather Jirousek, Program Advisor-Water Resources, of the Environmental Programs Group, Department of Environment (DOE) of the Government of the Yukon (GY). This revised cost estimate considers remaining decommissioning and reclamation liabilities at the Brewery Creek mine site as of June 24, 2009.

Section 2 provides an overview of the Background and Methodology utilized in the preparation of this report. Section 3 begins with a summary of the remaining liabilities and compares them to those identified as of a year and a half earlier. It then lists remaining liability estimates for all mine areas. Section 4 presents the Conclusions and Recommendations.

2. Background & Methodology

2.1 Background

The Brewery Creek Mine is currently owned by Alexco Resource Corp (Alexco). The site was previously owned by Viceroy Minerals Corp (VMC).

SJCI has prepared several reports for GY on issues relating to the decommissioning of the Brewery Creek Mine site commencing in late 2003. This work has included annual site inspections and liability cost estimate updates.

The report provides a breakdown of remaining closure components based on the same headings as were used in the previous reports and the 2001 *Decommissioning and Reclamation Plan* by VMC, for ease of comparison.

It considers reclamation efforts undertaken by Alexco from the 4th quarter of 2007 through to the end of the 2nd quarter of 2009. It is based on a June 2009 joint site inspection and follow-up meeting which reviewed all the outstanding items and was considered a success as the vast majority of items have been addressed. Only a couple of items require an uncertain amount of additional work (which requires further investigation and typically involves both parties working together) that have had to be addressed in general terms in this report. The bulk of the previously outstanding items have now been agreed to. As a result it is expected that the parties should agree with the cost estimate provided in this report and the adjustment of closure security held for the site to this value.

This report is based on information available to the author at the time of its preparation. It has been produced for the Government of Yukon by SteveJan Consultants Inc. SJCI accepts no liability for its use by any other party.

2.2 Methodology

The report provides a liability cost estimate update as of June 24, 2009 based significantly on a June 24, 2009 site inspection undertaken by the author, accompanied by representatives of the Yukon Government (Mr. Kevin McDonnell and Mr. Glenn Ford of Yukon-Water Resources and Mr. Bob Holmes and Mr. Pete Descoteaux of Yukon- Energy, Mines and Natural Resources) and

representatives of Alexco (Mr. Brad Thrall, Mr. Dan Cornett and Daryl Hockley of SRK Consultants). The tour was hosted by a construction supervisor on behalf of Alexco Resources.

Regular annual site visits were conducted by the two parties in September and October of 2008. A final report on closure cost estimate was prepared by SRK (2009). A final report by SJCI was not issued. In early 2009, it was decided to pursue a joint site inspection with the goal of agreeing on the remaining tasks at that time, and thus enabling a single cost estimate that should be satisfactory to both parties. The report endeavors to fulfill that goal.

The previous report by SJCI estimated liability as of September 30, 2007. This provides for a one and a half year period since the last two reports (by SJCI & SRK), unlike the usual annual updates that had been undertaken previously.

In this report, the decommissioning and reclamation plan is broken down to nine sub-sections with individual tasks below them. The first eight include the various aspects of the site and components for consideration. The ninth area incorporates additional Mitigative Contingencies, and is discussed later in this section.

The nine areas include:

1. Mine Area Reclamation
2. Site Facilities Removal and Reclamation
3. Leach Pad Detoxification (considered complete)
4. Manpower-2009
5. General Services and Administration
6. Process Water Treatment
7. Leach Pad Reclamation
8. Post Closure Monitoring and Maintenance
9. Mitigative Contingencies

Considerations in preparing the updated liability cost estimate included:

- Current status of the site based on a visual inspection and follow-up meeting by the two parties on June 24, 2009;
- Previous liability cost estimate reports on the site by SJCI and SRK. The general format of the cost tables and information in the first 2003 SRK report (2003) was utilized again, as they were generally accepted by GY in previous reviews of closure liability by SJCI. Percent completion of individual items was adjusted, as required based on progress reclaiming the site over the past year;
- The report makes use of contractors' costs rather than in-house Alexco costs. A number of unit costs and tasks costs were adjusted in the previous two liability cost estimate reports with 5% increases to acknowledge the effect of inflation on such work. No further adjustment was made in this latest report;
- The report does not provide additional costs that would fall to GY should Alexco become insolvent and the government take on the task of managing the site and continuing the reclamation and decommissioning work. A considerable sum of additional monies would be required, although this is outside the normal scope of evaluating closure liability costs for a mine;
- A discounted value for the remaining (future years) tasks required to complete the decommissioning and reclamation program is not provided;
- Detailed cost tables in Section 3 include only those components with work remaining to be done. Completed tasks are not shown;

- No credit is given for re-sale or salvage values of equipment and structures from the site, as is the norm in most mine closure liability cost estimates. Additionally, the bulk of structures and equipment removal has already been completed and thus the residual value of any assets remaining on the site is limited;
- The report incorporates a contingency for uncertainties in the costs to undertake and complete the tasks specified in this report;
- The report also includes a Mitigative Contingency estimate for additional remedial actions that may be required as they are considered "possible", based on discussions with GY EMR and Water Resources staff and considering their role as the lead regulatory agencies overseeing the minesite. The proposed actions were also discussed and agreed-to at the June 24, 2009 site visit and meeting; and
- Other changes from previous cost estimates are described in specific subsections of this report in Section 3.

3. Decommissioning and Reclamation Liabilities

The summarized results of this report are provided in Table 1, below. The Table also includes a comparison to the SJCI and SRK reports assessing the site as of a year earlier in September 2007.

Table 1
Summary of Remaining Costs

Cost Center	September 2007 SJCI Liability Cost Estimate [1]	June 2009 SJCI Liability Cost Estimate	September 2008 SRK Liability Cost Estimate [2]
Mine Area Reclamation	$243,095	$98,132	$60,840
Site Facilities Removal and Reclamation	$147,223	$113,728	$97,831
Leach Pad Detoxification	$0	$0	$0
Manpower – 2009	$74,250	$29,700	$0
General Services and Administration	$54,900	$12,200	$0
Process Water Treatment	$0	$0	$0
Leach Pad Reclamation	$45,952	$3,216	$15,110
Post-Closure Monitoring	$465,450	$362,600	$368,260
Sub-total	$1,030,870	$711,326	$542,041
Contingencies on above	$146,714	$83,465	$60,288
Mitigative Contingencies	$212,300	$91,750	$52,000
Total	**$1,389,884**	**$794,791**	**$654,329**

Notes:
1. SJCI, 2008
2. SRK, 2009

The remainder of this section outlines the cost estimates in the various areas of the mine decommissioning and reclamation plan as of June 2009.

An estimation of the contingency factors for each of the cost centers is provided, as shown in the table below. All of the costs contain uncertainties due to the level of detail in this report. The contingency factor used was generally between 10 and 25% depending on the uncertainty of the cost estimates in the opinion of the author. No contingency was added for the Mitigative Contingency items.

Table 2
Contingencies included in Liability Cost Estimate by Cost Center

Cost Center	June 2009 Cost Estimate	Contingency Factors (%)	Contingency Factors ($)	Total Area Cost Estimate
Mine Area Reclamation	$98,132	20%	$19,626	$117,758
Site Facilities Removal & Reclamation	$113,728	20%	$22,746	$136,473
Leach Pad Detoxification	$0	N/A	$0	$0
Manpower – 2009	$29,700	10%	$2,970	$32,670
General Services & Administration (GS&A)	$12,200	10%	$1,220	$13,420
Process Water Treatment	$0	N/A	$0	$0
Leach Pad Reclamation	$3,216	20%	$643	$3,859
Post-Closure Monitoring	$362,600	10%	$36,260	$398,860
Mitigative Contingencies	$91,750	0%	$0	$91,750
Total	**$711,326**		**$83,465**	**$794,791**

A number of individual tasks may or may not have been completed as per the decommissioning and reclamation plan, based on information collected by the author during the June 2009 site visit. For this update the status of the following items was not clear to the author and are provided below, for discussion purposes. The status of each item accepted for this report, is also provided.

Table 3
Liability Cost Items of Uncertain Status

Description	Status Accepted for this Report	Report Sec. Reference	Comments
Operating Permit for Land Treatment Farms	In Conformance	3.2	The author is aware of the site having stored hydrocarbon contaminated soils in 2 lined areas. However, the areas do not appear to be licensed LTFs.
Conformance of Re-Shaped Treatment to Drawings as Provided in Application for Work	In Conformance	3.2	Although all deconstruction work was not completed during the June 2009 site visit, it was not apparent whether the final ponds will be built as shown in the drawing with natural looking scalloping of the perimeter slopes (Fig. 2) provided in Alexco in their May 28, 2008 letter report to GY EMR.

3.1 Mine Area Reclamation

No reclamation work was undertaken in the mine areas based on the Brewery Creek 2008 Annual Report. There was no erosion control work or maintenance seeding and fertilizing undertaken.

The June 2009 site investigation confirmed that a number of areas of the mine area may require future maintenance repairs along with seeding and/or fertilizing. Instead of identifying individual areas it was agreed to assign a figure of $50,000 as provision for on-going remedial work, which is to remain in place in its entirety until the issuance of a final Certificate of Closure.

A cost for mobilization and demobilization of several pieces of equipment will be required to complete the remaining work in this area. The equipment will consist of a bulldozer, backhoe,

and small seeding/fertilizing equipment (likely an ATV with rear-mounted seed applicator). The equipment selected should be as small as possible so as to minimize disturbances to previously revegetated areas (including the main haul road and any sloped areas) while traveling across the site to gain access to the outlying areas requiring remedial work.

Remaining cost items under the Mine Area Reclamation area include:

- Mob & Demob of several pieces of equipment and operators for remaining work (assumed to be available locally);
- Ultimate removal of remaining ½ of warehouse/maintenance shop building & associated materials stored behind the building;
- Erosion repairs in the area of the Blue Open Pit (channel outlet resloping and rockfill armoring) and Waste Rock Storage Area (dump toe collection ditch rockfill armoring), North Golden dump slope adjacent to main haul road (rockfill armoring of erosion gully);
- Provision for on-going repairs, seeding and fertilizing of mine areas is included in the Mitigative Contingencies section (see Table 13);
- Ultimate scarification, re-contouring and seeding of the perimeter roads including the mine access road. For the main access road this will likely consist of reclaiming half the road width and leaving the center portion for ongoing use for ATV access for monitoring and subsequent land uses, as well as removing culverts and restoring creek crossings; and
- A Soil Survey Report by Access Consulting was provided in the 2007 Annual Water License Report (App. H). It concluded that follow-up sampling should be undertaken in 3 years to confirm hydrocarbon levels in the soil. Follow-up sampling of other previously sampled areas identified in the report should also be undertaken.

The provision for miscellaneous maintenance seeding and fertilizing of mine areas will help establish long term stability and self-sustaining vegetation in the mine areas, consistent with Schedule C-Terrestrial Reclamation Standards for the Brewery Creek Mine in *Quartz License A99-001*. The current site does not meet the Standards, a number of which have been provided below:

- *Waste rock and re-spread overburden material contains sufficient fine-grained material to sustain vegetative growth;*
- *Vegetation established – if vegetation is not acceptable, measures will be taken to re-seed or apply further growth media where necessary;*
- *Vegetation must be self-sustaining three years after the last planting or fertilization*

Table 4 lists the individual components and an estimate of remaining work and costs by mine area.

Table 4
Mine Area Reclamation – Remaining Activities

Area and Individual Components (% Remaining as of Sep 03 [1])	**SRK Estimated Remaining Subtotals Sept 2003**	**Estimated % Remaining June 2009 (status Sep07, if different)**	**Estimated Remaining Cost as of June, 2009**
Mobilization / Demobilization (Contractor Equipment) Mob/Demob for remaining work			$5,000 $5,000
Canadian Open Pit Erosion repairs (5%) 2009 seeding & fertilizing(25%)	$5,153	 0% (was 5%) 0$ (was 25%)	$0 $0 $0
Blue Open Pit Erosion repairs (5%) 2009 seeding & fertilizing (25%)	$2,753	 5% (was 10%) 0% (was 50%)	$2,000 $2,000 $0
Blue WRSA Erosion repairs (5%), 2009 seeding & fertilizing (25%)	$20,386	 10% 0% (was 50%)	$2,000 $2,000 $0
Kokanee Open Pit Erosion repairs (15%), 2009 seeding & fertilizing (40%)	$16,437	 0% (was 15%) 0% (was 50%)	$0 $0 $
North Golden Open Pit Erosion repairs (15%) 2009 seeding & fertilizing (40%)	$30,286	 5% (was 10%) 0% (was 50%)	$1,000 $1,000 $
South Golden Pit Erosion repairs (5%) 2009 seeding & fertilizing (25%)	$782	 0% (was 5%) 0% (was 50%)	$0 $0 $0
Lucky Open Pit Erosion repairs (15%) 2009 seeding & fertilizing (25%) Covered in Mitigative Contingencies: -Backfill sinkholes, stabilize slope in pit -Stabilize slump areas alongside main haul road	$29,217	 0% (was 10%) 0% (was 50%)	$0 $0 $0 $0 $0
Upper Fosters Erosion repairs (5%) 2009 seeding & fertilizing (25%)	$2,062	 0% (was 5%) 0% (was 50%)	$0 $0 $0
Lower Fosters Erosion repairs (5%); 2009 seeding & fertilizing (25%)	$4,193	 0% (was 5%) 0% (was 25%)	$0 $0 $0
Pacific Open Pit & Silt Borrow Area Erosion repairs (5%); 2009 seeding & fertilizing (25%)	$11,986	 0% (was 5%) 0% (was 50%)	$0 $0 $0
Moosehead Open Pit Erosion repairs (5%); 2009 seeding & fertilizing (25%)	$36,743	 0% (was 5%) 0% (was 15%)	$0 $0 $0

Table 4
Mine Area Reclamation – Remaining Activities (continued)

Area and Individual Components (% Remaining as of Sep 03 [1])	**SRK Estimated Remaining Subtotals Sept 2003**	**Estimated % Remaining June 2009 (status Sep07, if different)**	**Estimated Remaining Cost as of June, 2009**
Perimeter Roads (11 km total: main access road (7km) & other site roads)	$60,840		$78, 132
Scarify & Re-contour (100%)		100%	$63,882
Broadcast seed / fertilize16.5 ha (100%)		100%	$8,250
Restoring creek crossings along main access road		100%	$6,000
Follow-up to Studies:			$10,000
Revegetation Assessment-do another annual survey as per Laberge (2009);	$10,000	0% (was100%)	$0
Site erosion/stability reveg inventory as recommended in Laberge (2009);		0% (was 100%)	$0
Metal Uptake Study - implement recommendations, & re-survey		50% (was100%)	$10,000
Total	**$538,894**		**$98,132**

Notes
1 based on SRK 2003, Tables 5 & 6 and SJCI 2004c

3.2 Site Facilities Removal and Reclamation

Some of the remaining items include:

- Half of the main warehouse and shop building that continues to be used, as required;
- Some piping still remains consisting of 100% of the land application piping;
- The general site area requires some minor re-grading/scarifying and revegetation;
- A small quantity of materials remains behind the main warehouse/shop building. This includes an assortment of process residues, carbon, slag, flux and some smaller equipment;
- In August 2007, a contaminated soil survey of the site was conducted by Access Consulting (Access 2008). Concerning elevated hydrocarbon levels in the two areas where the contaminated soils are stored, it recommended re-sampling the areas in another 3 years;
- The same report also surveyed metal levels in the soils from the same two sites. It does not mention why the other 10 sites identified in the report were not sampled. In their previous report from two years earlier, several metals were found to be present at elevated levels at sites that had no historical/baseline sampling results. Follow-up is required;
- The sewage septic system for the remaining office/warehouse/ shop area is still available for use and will require decommissioning;
- The final cleanup of the materials in the Camp Area boneyard is effectively completed with the exception of the loaded core shacks, and a cache of fuel drums likely for the local helicopter firm which flies through the area;
- In the fall of 2008, the treatment ponds adjacent to the heap were removed and the area was recontoured. Below, the majority of the work required in reclaiming two of the three process ponds was completed as of June 2009. The Pregnant and Overflow Ponds had their liners removed and the perimeters were recontoured. The middle BTC Pond (ex-Barren Pond) remains as a mitigative contingency component. As of the time of the site visit, work remained in completing the recontouring of the two pond perimeters and establishing

armored overflow weirs and drainage channels into existing ditches that direct runoff from the area toward Carolyn Creek. There is also work remaining in completing the rockfilled drainage notch from the heap berm to the Preg Pond and the perimeter ditching around the process ponds. Sludge collected from cleaning of the Preg Pond has been collected in large tote bags and was being stored on site prior to removal to an American refinery for recovery of contained gold values. All of the treatment and process pond areas will require seeding and fertilizing. The area will then have been prepared for the long term as per the Decommissioning and Reclamation Plan (VMC 2003).

A breakdown of the components in this section is provided in Table 5.

Table 5
Site Facilities Removal and Reclamation – Remaining Activities

Area and Individual Components % Remaining (as of Sep 03 by SRK 2003, Table 7)	**SRK Estimated Remaining Subtotals Sept 2003**	**Estimated % Remaining June09 (status Sept07, if different)**	**Estimated Remaining Cost as of June, 2009**
Warehouse/Maintenance Shop Building (100%)	$102,867	50%	$58,070
Exploration Office & Core Logging Facility (100%)	$9,372	0% (was 100%)	$0
ADR Plant Building (100%), S&F done in '06	$121,348	0% (was 1%)	$0
Assay Lab Building (100%)	$41,545	0%	$0
Limo Silo (100%)	$18,430	0%	$0
ADR Plant Fresh Water Tank (100%)	$9,066	0%	$0
Laura Creek Pumphouse (100%)	$14, 874	0%	$0
Surface Piping (100%)	$26,280	0%	$0
Removal of Land App. Piping	$4,800	100%	$5,513
General Site Re-grading / GM Placement/Runoff & Erosion Control -site re-grading (100%) -Haul & place soil cover (100%) -Revegetation (100%) Culvert crossings-remove & re-slope (100%) Runoff ditches (100%)	$59,626	 10% (was 15%) 0% (was 15%) 5% (was 25%) 0% (was 15%) 0% (was 15%)	$955 $455 $0 $500 $0 $0
Removing Remaining Hydrocarbon Products from Boneyard	$7,000	0% (was 10%)	$0
Shipment of Remaining Drummed Materials in Boneyard & BTC Area	$10,500	20%	$2,000
Shipment of 70 tote bags with loaded sludge from heap preg pond	0	100%	$35,000
Land Treatment Farming of Hydrocarbon Contaminated Soils-Main Equipment Area - yet to be done, on-going maintenance to both (100%)	$7,120	10% (was 50%)	$1,000
Close-out 3 Sewage Septic Systems-1 remains	$3,250	33%	$1,191
Cleanup Site Boneyard (100%)	$3,000	0%	$0
Close out Site Landfill (100%)	$12,426	0%	$0
Site Contamination Survey (not included in SRK 2003) – follow-up to one done in 2010	$15,000	0%	$5,000
Process & Effluent Treatment System Ponds Rehabilitation (not included in SRK 2003)	$50,000	20%	$15,000
Total	**$696,829** [1]		**$113,728**

Notes:
1 Individual numbers do not add up to total at bottom as several items that were no longer applicable in June 2009 are not provided as line items in this table, for simplicity. Refer to SJCI report 2004a and 2004b for full details

3.3 Leach Pad Detoxification

No elements were considered remaining as of June 2009, as has been the condition since the 2005 update report.

3.4 2009 Manpower

The author understands the site will have only periodic site presence in the latter half of 2009 with 1 to 2 people being on site during the summer season of May to September. Based on this, an estimate for the remainder of 2009 is provided in Table 6, below.

It is estimated that:

- A Site Manager will likely spend an estimated 1 day per month (or 5% of full-time) over the course of the year for a variety of tasks that has not been charged out to specific tasks;
- A Reclamation Supervisor would be overseeing the day-to-day work on site through the active summer season when the bulk of remaining mine area work should be completed;
- An Environmental Sampler/Caretaker will be required during the entire summer as well as to undertake off-season site security sweeps, water quality sampling, surveying, administering some final removal of assets any scrap or waste materials from the site, etc.; and
- A skilled tradesman who can also work as an equipment operator will be required to undertake the required work around the heap process ponds, mine area erosion repairs, removal of process residues & materials stored behind shop building and other work involving heavy equipment as well as various tradesman tasks around the site.

Manpower charges for 2010 should drop further if proposed work for 2009 is undertaken.

Table 6
2009 Manpower Projection

Staff Member (based on SRK 2003, Table 9)	**Salary $/Annum**	**Time Requirement**	**2009 (Jul-Dec) Cost**
Site Manager (B. Thrall)	$120,000	1 day/mo (5% of full-time year-round)	3,000
Process Manager/Engineer	$100,000	-	
Reclamation Supervisor	$80,000	5% of full-time for 4 summer months	4,000
Environmental Sampler/Site Caretaker	$48,000	Half-time for 4mo in summer & 1 mo. total for other 7 mos.	4,500
Equipment Operator	$60,000	50% of full-time for 3 summer months	10,500
Subtotal			22,000
Salary Burden at 35%			7,700
Total			**$29,700**

3.5 General Services and Administration - 2009

Site services have been significantly wound down. There will be minimal coverage required in 2009 except for several months of summer reclamation work. No camp operations have been included in this cost estimate report as all staff will be based out of Dawson City.

The General Services and Administration cost center includes estimates of costs for the remainder of 2009 as provided in Table 7. They include carrying costs for the site and until recently expenses associated with tasks not shown in the individual work areas such as the operation of the BTC (shown in Tables 9 & 10).

It is anticipated that 2009 will be the last year that this cost center will be required.

Table 7
2009 (July-Dec) General Services & Administration

Category (based on SRK 2006, Table 10)	**Area Total**	**Monthly Costs ($)**											
		Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
Misc. operating supplies	0												
Insurance	1,000	0	0	0	0	0	0	167	167	167	167	167	167
Freight	600	0	0	0	0	0	0	0	200	200	200	0	0
Propane	0	0	0	0	0	0	0	0	0	0	0	0	0
Water supply	0	0	0	0	0	0	0	0	0	0	0	0	0
Access road maintenance	2,000	0	0	0	0	0	0	1000	0	1000	0	0	0
General site grounds	0	0	0	0	0	0	0	0	0	0	0	0	0
Waste disposal	0	0	0	0	0	0	0	0	0	0	0	0	0
Light vehicle costs	0	0	0	0	0	0	0	0	0	0	0	0	0
Travel and lodging	2,400	0	0	0	0	0	0	400	400	400	400	400	400
Sat. phone, 2way radios	1,000	0	0	0	0	0	0	200	200	200	200	100	100
Office equipment lease/rent	500	0	0	0	0	0	0	100	100	100	100	50	50
Building maintenance	1,000	0	0	0	0	0	0	500	0	500	0	0	0
Safety supplies	200	0	0	0	0	0	0	100	100	0	0	0	0
Office supplies	200	0	0	0	0	0	0	100	100	0	0	0	0
Crew rotations & transportation	800	0	0	0	0	0	0	200	200	200	200	0	0
Staff housing (in-town)	0	0	0	0	0	0	0	0	0	0	0	0	0
Camp operations	0	0	0	0	0	0	0	0	00	0	0	0	0
Legal	1,500	0	0	0	0	0	0	250	250	250	250	250	250
Electrical Power	1,000	0	0	0	0	0	0	250	250	250	250	0	0
Total	**$12,200**												

3.6 Process and Effluent Water Treatment

Land application was the primary method of heap effluent treatment, which was also utilized in recent years including a short period in the summer of 2004. In late 2004, it was decided no future land application would be anticipated with a new biological "BTC" System in place, based on discussions between VMC and GY.

In 2004, the biological treatment cell (BTC) system was installed in the heap process water treatment ponds. The first pond would act as a surge pond for incoming waters from the heap. The second pond would be reconfigured to operate as a BTC and the third pond would be used as a settling pond for final polishing prior to effluent discharge to the environment. The system is reported to have seen minimal operation to date. Due to reduced influent loadings into the system and the limited time in operation, the effectiveness of the removal has not been confirmed.

However, due to the continuing low loadings feeding the BTC, a provision for the commissioning and de-bugging of the system has been removed in this cost estimate.

Most recently, the system has been reconfigured to enable heap surface runoff water to drain into the first (Preg) pond. Any accumulated water will discharge the pond to the north via a spillway and channel. Water being drained from the heap underdrain system will feed the middle (BTC) pond and from there will either infiltrate into the ground or overflow into the third (Overflow) pond. Surface water discharge from this pond will exit to the south via a spillway and channel.

The costs for the process water treatment system have now been zeroed although the previous breakdown is provided in Table 8.

Table 8
Process Water Treatment *

Area and Individual Components % Remaining (based on SRK 2003, Table 12)	**SRK Estimated Remaining Subtotals Sept 2003**	**Estimated % Remaining June09 (status Sept07, if different)**	**Estimated Remaining Cost as of June, 2009**
Water treatment / land application	$58,000	N/A	$0
BTC Construction	$235,000	0%	$0
BTC commissioning / de-bugging (not included in SRK 2004)	$0	0%	$0
System to separate heap seepage from runoff flows (included in Leach Pad Reclamation)	-	0%	$0
Total	**$293,000**		**$0**

* based on SJCI 2004c, Appendix A

The treatment ponds have been removed and the area recontoured. The process ponds have been significantly reconfigured for the long term. Some work remains around the process ponds. The entire area of both sets of ponds will require seeding and fertilizing in 2009. The cost provision for this work covered in Section 3.2 - Site Facilities Removal and Reclamation.

Table 9
General Services & Administration During Period with BTC in Operation

Category (based on SRK 2003, Table 11)	**Area Total**	**Monthly Costs ($)**											
		Jan	**Feb**	**Mar**	**Apr**	**May**	**Jun**	**Jul**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**
General Service& Admin													
Misc. operating supplies / freight													
Road to BTC Mntce													
Labour (incl Salary Burden)													
Operator/Technician/Sampler													
Contract Trades Person 0													
Total	**$0**												

Operating costs for heap effluent (process water) treatment through the BTC system are presented in Table 10, which no longer apply and have therefore been set to zero.

Table 10
Process Water Treatment – Annual Operating Costs

Category (based on SRK 2003 Table 12)	**Area Total**	**Monthly Costs**					
		Apr	**May**	**Jun**	**Jul**	**Aug**	**Sept**
Outside assays							
Piping & fittings							
Reagents / Chemicals							
Misc. maintenance supplies							
Misc. operating supplies							
Fuels / Lubes							
Pumping							
Total	**$0**						

For the past several years, utilization of the BTC for heap effluent treatment was considered a mitigative contingency measure, and thus costing from the above tables was provided in Section 3.9, Mitigative Contingencies. As of June 2009, this cost has been zeroed.

3.7 Heap Leach Pad Reclamation

A minimal amount of work remains to complete the reclamation of the heap leach pad. Required tasks are outlined in Table 11, below.

The area of future heap leach cell Nos. 8-10 has been considered to have been amended with a layer of growth media, although this was not inspected during the last two site visits. In 2004, Alexco has stated the area requires revegetation due to poor success when it was done several years ago, as was reported in a previous liability cost estimate report (SJCI 2004a).

Several erosion gullies have also formed along the toe of the slope on the bench that surrounds the perimeter of the heap, along the southwest and southeast sides of the facility. The gullies do not appear to be worsening and the entire area is slowly being filled in with natural vegetation. No further attention is considered necessary.

There is also a depression atop the heap, which collects surface water and looks like a shallow pond from the air. The depression was assessed as part of the previous August 2006 site inspection. It was determined to be satisfactory to leave as-is as it is likely not an issue for the long term physical and chemical stability of the heap. Previously, a provision has been included for this work as one of the Mitigative Contingencies. The specific location was not visited in the last three site inspections by the author.

Table 11
Heap Leach Pad Reclamation – Remaining Items *

Area and Individual Components -% Remaining (based on SRK 2003, Table 8)	**SRK Estimated Remaining Subtotals Sept 2003**	**Estimated % Remaining Jun09 (status Sept07, if different)**	**Estimated Remaining Cost as of June, 2009**
Leach Pad Re-sloping and Drainage Ditches			
B'hoe work to put in ditches (100%)	$6,336	25% (was 100%)	$1,838
Breach leach pad dike mat'l (100%)	$12,610	0% (was 100%)	$0
Riprap/gravel in dike breach (100%)	$2,500	25% (was 100%)	$1,378
Leach Pad Revegetation (Cells 1-7)			
Broadcast seed and fertilizer (25%)	$6,056	0%	$0
Previously Planned Cells 8-10			
Dozer to re-contour surface (100%)	$17,927	0%	$0
Spread GM with dozer (100%)	$36,447	0%	$0
Broadcast seed & fertilizer (100%)	$6,912	0% (was 25%)	$0
2009 Reclamation Repairs			
Erosion repairs with dozer (10%)	$26,738	0% (was 5%)	$0
Broadcast seed & fertilizer (25%)	$4,958	0% (was 10%)	$0
Total	**$120,484**		**$3,216**

* based on SRK 2003 and SJCI 2004

3.8 Post Closure Monitoring and Maintenance

A post-closure monitoring and maintenance program to the end of the year 2021 is included based on the current Water Use License. This resolves previous confusion concerning whether the program extended to 2019 or 2021. During the June 2009 site visit, it was agreed the program would extend to the end of 2021. The additional 2 years would be undertaken as per the immediately preceding programs (i.e., as per the program dictated in Schedule B-3 for "2015 to expiry" of the WUL monitoring schedule).

Costing in this report includes site manpower, sample preparation, sample shipping, analyses and support, as well as geotechnical and reclamation inspections. Details have been provided in previous reports.

Table 12
Post-Closure Monitoring and Maintenance

Area and Individual Components - % Remaining (based on SRK 2003, Table 13)	**SRK Nov03/ SJCI *Estimated Remaining Subtotals Sept 2003**	**Estimated % Remaining 09Jun (status Sept07, if different)**	**Estimated Remaining Cost as of June, 2009**
Environmental Monitoring (09Q3&4)	$49,500		$24,750
Environmental Monitoring (2005-2021)	$440,500	76% (was 86%)	$230,000
Helicopter for off-site WQ sampling			$26,350
Inspections-geo-chem & reclm (2005-2021, 13 remaining)	$75,000	76% (was 75%)	$40,000
Reporting-monthly, semi-annual, annual	N/A		$24,500
Additional cost for env. monitoring as per Whitley costing (2005-2021)	$30,000	50% (was 75%)	$15,000
Final site closure maps (new items as of June 2009)	N/A	100%	$2,000
Heap Geochem/Physical Stability & Monitoring (2005-2008)-not considered to be required	$7,000	0% (was 70%)	$0
Laura Creek AMP monitoring requirements – completed in '08Q4	$10,000	0% (was 20%)	$0
TOTAL	**$632,000**		**$362,600**

* SJCI 2004b

3.9 Mitigative Contingencies

Mitigative Contingencies are required for items that are considered possible and may require mitigation, but are not included in the current plan. Four of the five areas of concern from the previous report still remain.

1. **Lucky Roadside Stabilization** – Three portions of the slope adjacent to the main haul road leading to the Lucky Pit area are continuing to show instability. The one furthest to the east (Area 3) was unloaded in 2004 and 2005 but continues to show weakness with slumping of surface material down the slope. A second area further west along the slope is approximately 100m long, and up to 2 m wide and is showing multiple failures along the slope. A third area, furthest to the west known as Area 1 continues to be the most obvious area as it consists of a fairly long ~100m horizontal length with a vertical face of ~5m. It has been noted on previous site inspections as it is quite visible from the main haul road further west and across the next stream crossing. Previous remedial plans consisting of continued monitoring and a financial provision to remediate the Area 1 slip area. After the June 2009 joint site inspection it has been agreed that the area will be regularly monitored and measured using survey stakes to delineate the ends of the slip area supplemented with digital photography from pre-established photo hubs. The status of the areas will continue to be reviewed during annual site inspections.

   At the June site inspection, the group agreed that it is unlikely that the slumped material or any unraveled loose from the areas mentioned above areas will travel to the bottom of the slopes which is some distance away and which has a small stream originating there. It was also agreed that there is likely no easy solution for either of the two larger areas, as

chances are that the unraveling will continue unless more significant work is undertaken and the impacts of having the gradual unraveling continue are not likely significant. The work to be considered would likely involve some unloading and minor re-contouring followed by re-seeding and fertilizing. However, this will involve the disturbance of a couple of larger areas of now well established vegetation. Most likely the areas will continue to slump and erode but then self-armor and vegetation will slowly become established. Continued monitoring is required for a period of several more years.

Financial provision consists of summing total estimated costs for remediating the three areas (estimated to cost $72,500) and multiplying by a risk factor that acknowledges the risk of needing to undertake remedial work as possible or unlikely. Therefore the risk factor will start at 50% and decrease at a rate of 10% per year, with the provision being dropped after 5 years or until remedial works are undertaken.

The provision will therefore consist of:

Year	Provision Value
2009	$36,250
2010	$29,000
2011	$21,750
2012	$14,500
2013	$7,250
2014	$0

2. **Reclamation of Lucky Sinkhole** - An area of material subsidence continues to be apparent in the area of the open pit highwall in the form of vertical sinkholes. Two holes were noticed in the 2004 inspection, and these were found to be backfilled in the 2005 inspection. However, the latest two annual inspections have found a single hole (dimensions ~1.5m dia x 1.5m depth) in place again in a similar location. The hole appears to be of a similar size to what was observed in recent annual inspections. A provision of $500 has been included to continue to monitor this area, look for where the material may be emerging (unlikely) and to backfill the hole. The issue is not considered to be of a serious nature as it is likely due to a zone of voids in the backfilled area directly below that is receiving finer materials from above.

3. **Mine Area Maintenance Repairs, Seeding and Fertilizing** – An overall provision for on-going surface reclamation work was agreed to during the June 2009 site inspection and follow-up meeting. In previous years, the estimated work in each of the individual mine areas was used to determine a required provision. With less overall requirement, it was considered wiser to retain a single sum for all on-going work of this nature. It would include dozer work, seeding and fertilizing and supervision. A sum of $50,000 was agreed to be a reasonable number. The provision will be retained until a Certificate of Closure is issued.

4. **BC-23 Need Assessment & Water Quality Sampling Site** – The water well is located down-slope of the process ponds and has been considered for use as a sampling point to measure groundwater for possible influence from the BTC &/or Overflow Ponds entering the ground since their liners have been removed late in 2008. The BC-23 hole collapsed several years ago and no samples have been collected from it since, although it is a required sample as stated in the Water License. The June 2009 site inspection generated a work plan consisting of Alexco undertaking a heap leak assessment as well as sampling

BTC Pond surface water as per the schedule for BC-28. GY-Water Resources and Alexco are to review the assessment and BC-28 water quality and determine whether re-establishing a sample site at BC-23 or an alternate is required. Until this issue has been resolved a provision for $5,000 will be included as an additional mitigative contingency.

Table 13
Mitigative Contingencies *

Area and Individual Components	SRK Estimated Remaining Subtotals Sept 2003	Estimated % Remaining June09 (status Sept07, if different)	Estimated Remaining Cost as of June, 2009
Lucky Road Stabilization: Area 1 Area 2 Area 3	$36,000 (SRK 2006)	100%	$36,250 $27,250 $5,875 $3,125
Lucky Pit Sinkholes		10% (was 100%)	$500
Mine Areas Maintenance Repairs, Seeding & Fertilizing	N/A	N/A	$50,000
BC-23 Need Assessment & WQ Sampling Site	N/A	N/A	$5,000
Total			**$91,750**

4. Conclusions and Recommendations

4.1 Conclusions

A review of the remaining tasks has found that the revised closure liability cost estimate for the Brewery Creek mine site as of June 24, 2009 is $795,000.

This number compares to:
‘07Sep $1,390,000,
‘06Sep $1,775,000;
‘05Sep $2,018,000; and
‘04Sep $2,779,000

The reduction reflects the work undertaken at the site by Alexco (and previous owner VMC) since mine closure and the on-going monitoring programs. The latest number is also based on a June 2009 joint site inspection where remaining tasks to be undertaken were agreed to between the Company (represented by Alexco, Access Consultants & SRK Consultants) and the Yukon Government (represented by Department of Energy, Mines and Resources, Water Resources and SteveJan Consultants Inc.) The majority of identified work can be completed in the 2009 summer season. On-going maintenance work and environmental monitoring is scheduled to extend to the end of 2021.

The largest cost center is the cost for on-going post closure monitoring at $399,000, as it accounts for just over half of the entire current liability cost estimate of $795,000.

The liability estimate includes several Mitigative Contingency items totaling $91,750 It includes provisions for $50,000 for possible maintenance repairs and miscellaneous seeding and fertilizing

throughout the mine area, $36,250 for possible remedial measures of roadway slopes in the area of the Lucky Haul Road and $5,000 for determination of a sampling point to measure possible impacts of final process effluents which are now likely reporting to groundwater and not to a surface watercourse from the final treatment pond. A $500 provision has also been included for backfilling and continuing to monitor a sinkhole atop the Lucky Pit.

4.2 Recommendations

It is recommended that Alexco:

- Work with the Yukon Government to complete the tasks assigned from the June 2009 site visit.

- With an ultimate goal of achieving self-sustaining natural invasion over recontoured and stable slopes in all areas, work to undertake the specified work in the summer of 2009 with any additional maintenance work over the duration of the Licenses.

- Complete remedial measures and on-going monitoring recommendations presented in Access's Soil Survey report (2008) and the Revegetation Assessment by Laberge (2009).

- Include detailed monitoring information and interpretation of results in annual reports submitted by the company. A request in previous updates of this report asking for the annual report to include nutrient addition and performance monitoring records for the hydrocarbon contaminated soil land treatment farm has not been fulfilled. All monitoring data should also be assessed for performance and trends and these should be reported in the annual report.

It is further recommended that the Government of the Yukon:

- Work with Alexco to complete the joint tasks assigned it from the June 2009 site visit;

- Monitor the Company's progress in completing identified work tasks during the summer work season. Significant progress should be possible to complete most of the remaining tasks. This includes completion of work around the heap process ponds, several areas requiring erosion control work including re-grading and stabilizing several mine areas and re-seeding identified portions and re-fertilizing where required, completion of site cleanup, etc.

- Continue to review site reports and environmental monitoring information provided by Alexco for compliance to stated plans, licences and permits.

- Consider revising the security held for the Brewery Creek project based on the results of this report. It currently stands at $1,100,000.

SteveJan Consultants Inc.

ORIGINAL SIGNED BY

Steve Januszewski, P. Eng.
Principal

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