ALEXCO RESOURCE CORP.

Brewery Creek Mine

2007 ANNUAL WATER LICENSE REPORT

Submitted to the Yukon Territory Water Board

Water Use License QZ96-007

2007 ANNUAL QUARTZ MINING LICENSE REPORT

Submitted to Yukon Government Energy Mines and Resources

Yukon Quartz Mining License A99-001

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February 2008

Executive Summary

The Brewery Creek Mine, owned and operated by Alexco Resource Corp., is located in central Yukon approximately 55 kilometres east of Dawson City. The mine operates under Class 'A' Water Use License QZ96-007, originally issued as QZ94-003 in August 1995 and under Yukon Quartz Mining License A99-001 issued in 1999.

This report summarizes 2007 monitoring data and activities relevant to both the Water Use and Quartz Mining Licenses.

During 2007 no mining operations were conducted. The heap leach pad was detoxified in 2002 and drained down in 2003. Throughout 2007, all assays for Total cyanide remained below 2.0 mg/l.

During 2007, maintenance seeding and fertilization was completed on approximately 28.5 hectares.

The large scale lysimeter constructed in the Blue WRSA was monitored for chemistry and infiltration during 2007.

From May – June 2007, 24,240 m^3 of treated process solution was directly released into the Laura Creek watershed. No land application of solution occurred in 2007. Approximately 9,624 m^3 of fresh water from the surface of the heap and surrounding catchment was released as it was captured in the preg pond.

Whenever flow and climatic conditions permitted, all monitoring required under QZ96-007 was carried out.

There was no surface discharge of accumulated waters from any of the 6 pits (Pacific, Blue, Moosehead, Kokanee, South Golden and Lucky). All water in the pits either evaporates or infiltrates into the ground.

Both the stream sediment and benthic monitoring was conducted by Laberge Environmental Services in conjunction with third quarter surface water sampling.

A revegetation assessment was completed by Laberge Environmental Services in August 2007.

SRK Consulting completed an independent analysis of the reclamation activities and remaining liabilities in August 2007 and there report is attached and similar to 2006 the report serves as the annual geotechnical inspection and reclamation status report.

No recordable spills occurred in 2007.

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1 INTRODUCTION

Brewery Creek Mine, owned and operated by Alexco Resource Corp., is located in central Yukon approximately 55 kilometers east of Dawson City. The mine is a conventional open pit heap leach operation that operated continuously from 1996 – 2001. The mine was permanently shut down in 2002. With the exception of some remaining site facilities, the mine has been fully reclaimed.

The mine operates under Class 'A' Water Use License QZ96-007, originally issued as QZ94-003 in August 1995 and under Quartz Mining License A99-001 issued in June 1999.

This report summarizes 2007 monitoring data and activities relevant to the Water Use and Quartz Mining Licenses.

2 2007 OVERVIEW OF ACTIVITIES

The following tasks and activities were completed in 2007:

January 2007

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Weekly site visits for security and wildlife protection were conducted on a weekly basis during the month.
- No other site activity was completed.

February 2007

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Weekly site visits for security and wildlife protection were conducted on a weekly basis during the month.
- No other site activity was completed.

March 2007

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.

- March sampling included quarterly monitoring.
- Weekly site visits for security and wildlife protection were conducted on a weekly basis during the month.
- Removed exploration core shack building offsite.

April 2007

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Twice weekly site visits began in preparation for spring freshet.
- No other site activity was completed.

May 2007

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Fresh water that was collected in the preg pond as the result of surface runoff during the spring freshet was released by siphoning from the pond.
- Discharge of heap effluent collected in the overflow pond was released during the month.
- Began erosion control, maintenance seeding and fertilizing across several areas of the property (began 3rd week of May)
- Final cleanup of old valve houses (sold to locals) and organization of core racks.
- Began discharging compliant water on May 22nd.

June 2007

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Release of compliance process solution continued during the month and was subsequently shutdown on June 21st due to reaching the maximum allowable volume of 25,000 m^3.
- Continued and finished erosion repair and seeding and fertilizing.

July 2007

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Site visits continued 3-4 days per week by the local site manager.

August 2007

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- An inspection was completed by SRK Consulting and SteveJan Consultants Inc. for the purposes of determining the remaining closure liability as well as the SRK report serving as the annual geotechnical inspection.

September 2007

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Sediment sampling was completed as part of the quarterly sampling.

October 2006

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Site presence resumed back to weekly checks for security and wildlife protection.
- No other site activity was completed.

November 2007

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Weekly site visits for security and wildlife protection were conducted on a weekly basis during the month.
- No other site activity was completed.

December 2007

- Routine water quality monitoring was completed per the sites and conditions under Water License QZ96-007 and Quartz Mining License A99-001.
- Weekly site visits for security and wildlife protection were conducted on a weekly basis during the month.
- No other site activity was completed.

3 WATER USE

In 2007, no water was withdrawn from Laura Creek or BC-23.

4 MONITORING

4.1 Climate

Temperatures that are variable and extreme, with warm summers and prolonged extreme cold spells in winter characterize climate at the Brewery Creek Mine site. Typical of northern interior regions, most precipitation occurs as summer rain.

The 2007 climate monitoring data is summarized in Appendix A-1. 2007 climate data was collected manually during the period from January through December.

4.1.1 Temperature

June was the warmest month of the year with a recorded high of 29.9°C. February was the coldest month with a recorded minimum temperature of –42.0°C. 2007 monthly climate data is presented in Appendix A-2.

Brewery Creek data, collected since 1991, is summarized in Appendix A-3 (table and graph).

4.1.2 Precipitation

Total 2007 precipitation measured at the mine site was 295 mm (see Appendix A-1). 2007 was below the long-term average precipitation at Brewery Creek of 329 mm.

4.2 **Water Quality and Hydrology**

4.2.1 **Water Quality Monitoring**

Water quality sampling was performed as required by Schedule B of Water License QZ96-007. Appendix B-1 presents a monthly summary of compliance sampling, and Table 4.1 a tabulation of samples obtained.

Table 4.1 2007 Compliance Water Quality Sampling

	Surface Water	Ground water	In-Pit	Solution Discharge	Heap Effluent	Land Application Lysimeters
Number of Samples in 2007	80	33	20	1	12	0

Components and procedures of the Brewery Creek Mine (BCM) water quality sampling program are summarized below.

Water Quality Laboratories:

Norwest Labs

Burnaby, BC

The Norwest Labs Certificate of Accreditation is attached.

Sampling Equipment:

Bottles: Bottles are supplied by the principal laboratory, arrive on site in coolers, and are stored in coolers. A running inventory of approximately 50 (1L) CN, 50 (1L) standard analytical, and 50 (250 ml) metals sample bottles are maintained on open shelves in the administration building warehouse.

Gloves: Sampling gloves are often used when taking surface water samples. Either neoprene, or rubber panner's gloves are used.

Groundwater Bailers: Single Sample ™ disposable polyethylene bailers, 0.75" to 1.5" diameter are used.

Sampling Procedure:

Surface Water Sampling:

Both the outside of cyanide sampling bottle, and the sampling glove, are rinsed prior to opening the sample bottle. The bottle is opened; care is taken to not touch bottle rim or inside of cap. If stream depth permits, bottle is submerged with top facing upstream and allowed to fill. For shallower sites, the bottle is only partially submerged. Non-cyanide bottles and cap are rinsed twice with water from

the sampling site. Rinse water is discarded downstream. Cyanide bottles are not rinsed prior to filling. The bottle is filled and tightly capped. Prior to capping total metals sample, a nitric acid preservative (supplied by the principal analysis lab) is added to the bottle.

Groundwater Sampling, Using Bailers:

The sample bottle is opened, and care is taken to not touch bottle rim or inside of cap. The bailer is emptied through the top of the bailer, into the bottle. Non-cyanide bottles and cap are rinsed twice with water from the sampling site. Rinse water is discarded on the ground. Cyanide bottles are not rinsed prior to filling. The bottle is filled, and cap is placed tightly on bottle.

Dissolved metals samples are filtered in the field using a disposable filter apparatus. The filter apparatus is attached to a sterile collection bottle. Once filtered, a nitric acid preservative is added to the filtrate, and the cap is placed tightly on the bottle.

Occasionally the principal analysis lab performs the filtering and preserving of dissolved metals samples.

Dissolved metals samples are either filtered in the field using a disposable filter apparatus or filtered at the onsite mine environmental laboratory. The filter apparatus is attached to a sterile collection bottle. Once filtered, a nitric acid preservative is added to the filtrate, and the cap is placed tightly on the bottle.

Sample Labeling:

Sample bottles are labeled with the sample location, site name, date sampled, company name and parameters to be analyzed for.

Sample Storage:

Samples are stored in coolers until shipping. For the quarterly sampling events, which take multiple days, these coolers are kept indoors to prevent samples from freezing during the winter months and on ice to prevent temperature increases in the summer months.

Sample Shipping:

Surface and groundwater compliance samples are shipped either the day of, or the day following sampling. Samples are placed in coolers with one or more refrigeration packs, and shipped via courier, or with the samplers when they return to Whitehorse, and airfreight to Vancouver. The coolers are delivered to the principal laboratory.

NORWEST CERTIFICATE

4.2.2 **Surface Water Quality Results**

Locations and descriptions of surface water quality stations are given in Appendix B. 2007 surface water quality results are tabulated by station. Certain key parameters including total suspended solids (TSS), nitrogen species (ammonia), and selected metals are graphically compared to historical data. A major forest fire came through the Brewery Creek Mine in 2004 and most notably burned extremely hot through the Laura Creek watershed. The sampling results for total suspended solids (TSS) are evidence of the influence of the forest fires on water quality in the Laura Creek stations in 2005. TSS at stations BC-1, 2 and 3 are all elevated over historic levels. TSS at BC-1 during 2007 show an overall reduction from 2005 and 2006 but remain elevated from previous years, before the fire occurred. This indicates that natural recovery is occurring from the fire damaged areas but release of sediments is still occurring from this natural event. TSS at station BC-2 was significantly higher in 2007 than historic levels and BC-3 was similar to BC-1 where the TSS was elevated but lower than the previous 2 years. Station BC-04 was elevated over the last 2 years but was lower than historic levels.

Ammonia levels at stations BC-1, 2 and 3 continued a downtrend from 2005 levels. Most all stations showed an increase in ammonia in 2005 from previous years, including background stations such as BC-6. This increase is attributed to the 2005 forest fire, similar to the increases in TSS. The same trend is appearing at stations BC-4 and 5 which are in the Lee Creek drainage. This suggests that the short term impact from the forest fire has been naturally remediated and conditions are returning to previous levels before the fire.

Arsenic and zinc concentrations at stations BC-1, 2 and 3 are similar to levels experienced in the past several years. No significant trends either up or down appear in any of the stations for the parameters arsenic and zinc. Occasional spikes occur at various stations but these are not associated with any trends.

Copper and lead levels at most stations are within historic levels and there is evidence that past spikes have diminished. Station BC-31 showed a large spike in lead in the Q4 sample but it does not appear to be related to any other stations or trends.

Selenium levels at stations BC-1, 2 and 3 show consistent trends from previous years. There were higher spikes of selenium at BC-2 in 2007 but they are lower than other historic selenium spikes at this station. Selenium at station BC-39 continues to be below the site specific criteria established (3.8 ug/l) for that station. The average selenium concentration at BC-39 during the year was 1.9 ug/l. The highest selenium value reported at station BC-39 in 2007 was 3.8 ug/l in, sampled in June 2007.

4.2.3 **Groundwater Quality Results**

Locations and descriptions of groundwater quality stations are given in Appendix B. Water quality sampling from the groundwater stations is required on a quarterly basis as per the Water License. There are 7 groundwater piezometers and 1 deep groundwater well (BC-23) located downgradient of the leach pad. All of the stations are sampled on a quarterly basis but some of these stations continue to be dry and no sample is obtained. This is recorded in the sampling results in Appendix B. Station BC-20 contains frozen water on year round basis. This station historically collected water but it became permanently frozen a few years ago. Attempts are made each quarter to collect a sample and the condition is continuously noted. Antimony, arsenic and cadmium levels at BC-19 showed no increasing trends in 2006. Copper levels at BC-19 appear to have decreased in 2007 from the previous increasing trend exhibited in 2005 and 2006. Nickel showed an increase at BC-19 compared to previous years but lower than historic highs. Other parameters of note including mercury, silver, lead, iron, zinc and selenium continue to show no trends in BC-19.

Antimony, arsenic and cadmium levels at BC-21 showed no increasing trends in 2007 and are comparable to previous years. Copper levels at BC-21 exhibited a decrease in the previous trend of increasing values seen in 2005 and 2006. Other parameters of note including mercury, nickel, silver, lead, iron, zinc and selenium continue to show no trends of increasing levels in BC-21.

Arsenic at station BC-27 (Golden) showed increased levels similar to 2005 and 2006. The previous trend of increasing Other parameters at BC-27 such as antimony, cadmium, copper, silver, lead and selenium exhibit the same or a decreasing trend from previous years.

4.2.4 **In-Pit Monitoring Stations Water Quality Results**

There was no mining activity in 2007 and mined out pits were used effectively as sediment control basins. Snow melt and precipitation run-off was directed to the closest inactive pit. Samples from all pits were taken from surface standing water within each pit.

In-pit samples were taken from the west end of Pacific Pit (BC-51), Blue (BC-12), Moosehead Pit (BC-15), Kokanee Phase 3 (BC-10), South Golden Pit (BC-17), and Lucky (BC-18).

Samples collected from the Kokanee Phase 3 and Golden pits (BC-10 and BC-17 respectively), show no abnormal values. Pacific Pit (BC-51) showed a lower pH and ranged from 3.1 – 3.6 during the sampling periods, this is similar to levels in 2006. High aluminum levels were associated with the lower pH during the same sampling periods. These lower pH levels for the Pacific Pit are consistent with previous years. PH values in the Blue Pit (BC-12) ranged from 4.3 – 6.0 throughout the 12

month sampling period. Increased levels of aluminum and iron were observed. These pH values are consistent with historic levels in the Blue Pit. Neither the Pacific or Blue Pits discharges to surface and all water infiltrates through the pit bottom. Previous years sampling in Moosehead showed higher levels of selenium. This trend appears to have reversed and selenium levels in Moosehead during 2007 continued to be below 0.05 mg/l. As is the case for all other pits, the water is contained in the pit and either exfiltrates or evaporates. The Lucky Pit (station BC-18) has generally been dry during the scheduled quarterly sampling events and this continued in 2007 where no water was found during any of the sampling events. Overall, the results of the pit water sampling indicates no trends or changes from previous years.

4.2.5 **Monitoring Conformance**

Throughout the year certain monitoring stations or frequencies were not sampled due to various reasons. The following summarizes stations, frequencies or parameters that were not achieved in 2007:

BC-1: Flow measurements were not recorded during the winter months due to very low or no water and significant ice and glacial cover.

BC-2: Flow measurements were not recorded during the winter months due to very low or no water and significant ice and glacial cover.

BC-3: Flow measurements were not recorded during the winter months due to very low or no water and significant ice and glacial cover.

BC-4: Flow measurements were not recorded during the winter months due to significant ice and glacial cover.

BC-5: Flow measurements were not recorded during the winter months due to significant ice and glacial cover.

BC-6: Flow measurements were not recorded during the winter months due to significant ice cover. Flow measurements were not recorded in the open water season because of safety concerns with personnel entering this large fast moving water body during open water season.

BC-9: This in pit station is Fosters Pit and has not had any water for several years and this continued in 2007 and no samples were collected.

BC-11: This station is an intermittent seep at the toe of the Blue WRSA and there was no visible flow during the scheduled quarterly monitoring periods. No samples were collected here during the 2007 monitoring period as no water was ever found.

BC-13: This station is the Moosehead West Waste Dump and no longer exists and there is no visible flow to monitor.

BC-14: This station is the Moosehead East Waste Dump and no longer exists and there is no visible flow to monitor.

BC-16: This station is an intermittent surface flow below the Pacific Pit. No samples were collected here during the 2007 monitoring period as no water was ever found.

BC-18: This station is water in the Lucky Pit. It is generally dry and no sample can be obtained. During the 2007 monitoring year this location was dry during each of the four quarterly sampling periods.

BC-20: This station is a piezometer below the leach pad and similar to previous years no water is found in this piezometer.

BC-23: This station is a deep well below the process area. The pump installed in BC-23 stopped functioning in 2004. An attempt was made to remove the pump and discharge pipe using the company's crane. During this exercise, the discharge pipe broke approximately 20 feet below the casing elevation. Further attempts to remove the pipe and pump have not been successful. Consequently there are no samples reported for BC-23.

BC-24: This station is a piezometer below the leach pad and similar to previous years no water is found in this piezometer.

BC-25: This station is a piezometer below the leach pad and similar to previous years no water is found in this piezometer.

BC-26: This station is a piezometer below the leach pad and similar to previous years no water is found in this piezometer.

4.2.6 **Hydrology**

Stream flow measurements for Laura Creek, Carolyn Creek, Lucky Creek, Lee Creek, and Pacific Creek stations were measured in 2007. All data are presented in Appendix C-1. Flowrates at the pumphouse station are included in Appendix C. The monthly flows for each of the monitoring stations are presented in Appendix B in the top column of the water quality analysis summary for each station. Tabular forms of flow are presented for BC-3 on a daily basis. This is daily data is used in conjunction with overflow pond dewatering rates. Heap solution discharge rates are regulated by measured flows at the pumphouse station.

4.3 Benthic Monitoring

As specified in Part F, Clause 45, of Water License QZ96-007 benthic monitoring is required on a bi-annual basis. Benthic monitoring was completed by Laberge Environmental Services in August 2007 along with the third quarterly sampling event. Results are included in Appendix E.

4.4 Sediment Monitoring

Annual stream sediment sampling was conducted in August 2007 along with the third quarterly sampling event and the bi-annual benthic monitoring. Sediment samples were collected from within the active channel of the streams, using an aluminum scoop. The samples were dried and screened using stainless steel sieves at ASTM mesh number 10, 20, 40, 60, 100, 140 and 270. Fraction weights were recorded. A minus 100-mesh sub-sample was analyzed for 33-element ultratrace ICP at Norwest Labs, Surrey British Columbia. Loss-on-ignition (LOI) was determined by heating the sample to 600°C. Results are tabulated in Appendix D.

Some obvious and notable decreasing trends are exhibited across a number of stations. Many parameters show levels have decreased back to pre mining conditions and baseline conditions. Arsenic, antimony and mercury are some of the best indicators and examples of decreasing metals in sediments over the past 8 years since mining ceased and the last 5 years since the major reclamation and stabilization work was completed.

4.5 Revegetation Monitoring

A revegetation monitoring and assessment report was completed by Laberge Environmental Services in July 2007. The assessment included permanent monitoring plots and other revegetated areas across the property. The Laberge report is included in Appendix F. Conclusions and recommendations are included in the report.

4.6 Leak Detection and Recovery Systems

Monitoring of (LDRS) systems was discontinued in 2005, consistent with long-term closure plans and the fact the heap has been fully decommissioned and drained. The leak detection piping and collection system remains intact however.

4.7 Air Quality

No air quality monitoring for mercury emissions was conducted in 2007 due to the dismantling of the ADR facility in 2004 and the cessation of refining. No further air quality monitoring is anticipated.

4.8 **Effects on Wildlife**

4.8.1 **Process-Related Mortalities**

No wildlife process – related mortalities occurred during 2007. The fence constructed in June 2006 to prevent wildlife from entering the process ponds remains functional. The fence will remain in place until the liners have been removed from the ponds.

4.9 **Reclamation Activities Report**

An inspection of the reclamation activities and remaining liabilities was completed by SRK Consulting (company engineer) and SteveJan Consultants (government engineer) during August 2007. This report is attached as Appendix H. The SRK report serves as the annual geotechnical report as well as a status of the reclamation progress to date.

No major earthwork activity took place in 2007 and the majority of site activity consisted of monitoring, erosion control and seeding and fertilizing at select areas across the property.

The only major reclamation activities remaining at the site include dismantling the existing warehouse and removal of the lined process ponds. Removal and final reclamation of the lined process ponds and breaching the leach pad dike cannot be completed until approval is given by regulatory authorities. Alexco has discussed the need to complete this reclamation with the regulatory agencies but to date no authorization has been granted. The warehouse building will remain in place until the ponds have been removed and the site enters a quarterly monitoring schedule and the need for more frequent site presence is no longer required.

A summary of the revegetation maintenance work completed is shown in Table 4.2

Table 4.2 2007 Reclamation Summary

Area	hectares	Description of Work
Old camp yard, exploration core shack	1.5	scarified, seeded, fertilized
Old Equipment Road above heap	1	erosion control, seeded, fertilized
West face of leach pad	1	erosion control, seeded
Moosehead haul road	3	seeded, fertilized
Blue WRSA	5	erosion control, seeded, fertilized
Blue WRSA access road to pit	.5	seeded, fertilized
Road from Kokanee pit to Golden pit	2.5	seeded, fertilized
North Golden WRSA	7.5	seeded, fertilized
Lucky WRSA	1.5	seeded, fertilized
Lucky Haul Road to Bohemian pit	5	seeded, fertilized
Total	81	

The status of the reclamation can be found in discussion in both the SRK liability report and the Laberge revegetation assessment report.

5 REAGENT AND WASTE MANAGEMENT

5.1 Spill Occurrence and Response

No reportable spills occurred in 2007.

5.2 Reagent Storage and Handling

The following table summarizes the remaining quantities of reagents and chemicals stored on site during 2007.

Table 5.1 Storage of Major Reagents During 2007

Product	Quantity Used 2006/Stored at end of Year	Storage Location	Storage Method
Hydrochloric Acid	6 drums stored	Adjacent to Preg Pond	238 kilo drums (45 imp. gal.)
Hydrogen Peroxide	6 drums stored	Adjacent to Preg Pond	45 imp. Gal. drums
BTC Nutrients	10,000 liter stored	Adjacent to Preg Pond	25,000 liter storage tank

6 WATER MANAGEMENT

6.1 Direct Release

A total volume of 24,240 m^3 of compliant process solution and 9,624 m^3 of fresh water heap surface runoff was directly released in 2007. No solution was land applied in 2007. Water quality analysis and sampling was conducted and solution released was compliant with the water license criteria and conditions. Bioassays were completed on the heap surface water runoff (preg pond water) and the discharge waster (BC-28). These bioassays passed and the solution was demonstrated to be non toxic. Results of the bioassays are included in Appendix J. All samples from BC-28a (heap effluent) were below 2.0 ppm total cyanide in 2007. The first sample from the heap below 2.0 ppm total cyanide was in February 2002. All samples subsequently taken have returned a total cyanide value below 2.0 ppm. This constitutes 70 consecutive months where the total cyanide from the heap has been less than 2.0 ppm. Because the lined facilities and ponds have not been removed and reclaimed, fresh water from the surface of the heap during spring freshet is directed and contained in the preg pond and is not directly released. Removal of the liner and final reclamation of the ponds cannot be completed without authorization under the company's Quartz Mining License (A99-001). The company's water license condition for process solution release is an annual limit of 25,000 m^3. The 25,000 m^3 limit was not intended to limit the amount of fresh surface water runoff released from the heap since this is an uncontrollable quantity and directly related to annual precipitation. Since the fresh water is contained separately from the leach pad underdrain, the release of the fresh water is not counted against the 25,000 m^3 limit and is recorded separately. This condition will be rectified once the ponds are removed and the surface drainage re-established. A summary of the volumes by month is shown in Table 6.1. The volume of land application released solution is included.

Table 6.1 Solution Release 2007

Month	Process Solution Direct Release (m^3)	Fresh Water Direct Release (m^3)	Land App Release (m^3)	**TOTAL (m^3)**
January				
February				
March				
April				
May	6,060	9,624		15,684
June	18,180			18,180
July				
August				
September				
October				
November				
December				
Totals 2007	**24,240**			**33,864**
Totals To 2002 - 2007	**158,937**	**79,131**	**151,796**	**389,864**
Remaining Permitted	**na**	**na**	**248,204**	

6.2 **Selenium Criteria**

Water quality results for BC-39 are indicated in Appendix B. All sampling periods at BC-39 returned a selenium concentration at or below the water license criteria for site specific levels. The site specific selenium criteria for compliance at station BC-39 is 3.8 ug/l. The highest selenium measured at station BC-39 during the year was 3.8 ug/l and the lowest was 0.4 ug/l.

6.3 **Heap Cover Infiltration**

The water balance model used in all previous Brewery Creek assessments has been modified and updated to determine the estimated infiltration of precipitation through the heap cover. The model uses actual snowpack and precipitation data, pond volumes and release volumes to determine the amount of solution that infiltrates through the cover. The model results are included in Table 7.2. The model differentiates and separates surface runoff from water that infiltrates through the cover. It is anticipated that this model will be modified and calibrated as time goes on and more actual field performance of the cover is realized. The model uses the basic water balance assumption of:

Starting Pond Volume + Water In – Water Out = Ending Pond Volume

The starting and ending pond volumes can be measured at the end of each reporting period. For the basis of the model, a monthly period is used.

Water IN is measured by actual precipitation measurements. The amount of precipitation falling over the leach pad is separated from the amount falling over the ponds.

Water OUT is directly measurable from land application and direct discharge flowmeters. The model balances the Water IN and OUT and calculates the “missing” amount of water that has left the system. This amount is assumed to be the volume that has been lost through evapotranspiration and uptake by vegetation.

The estimated infiltration through the heap for 2007 is estimated at 24.1%. Details of the monthly inputs and calculations are found in Table 6.2. This calculated infiltration rate is consistent with the estimated heap infiltration over the previous 3 years average and compares well with the 30.0% infiltration rate estimated by the soil cover design modeling. Based on the water quality measured at BC-28a and the demonstrated infiltration rates through the cover, the remediation measures implemented on the heap are demonstrated to be effective.

Table 6.2 Heap Infiltration Water Balance

Table 6.2 Heap Infiltration Water Balance

6.4 **Blue WRSA Lysimeter**

A large scale lysimeter was constructed in 2003 to measure and collect precipitation as it passed through the 0.5 meter soil cover. Water quality samples are collected and analyzed. These results are included in Appendix B. The water quality from the large scale lysimeter is consistent with predictions made by SRK Consulting and there is no evidence of metal leaching or transport from the Blue WRSA material within the lysimeter.

The lysimeter also provides a mechanism to measure the overall level of precipitation infiltrating through the soil cover. A tank installed at the base of the Blue WRSA captures and measures the volume of solution that has passed through the cover. Precipitation levels throughout the year are measured and the percent infiltration can be calculated. The cumulative infiltration rate through the Blue WRSA cover continues to be on the order of 6-7% which is significantly less than the predicted rates from the modeling. Figures 6.1 and 6.2 present graphically the infiltration rates through the Blue WRSA cover.

Based on the water quality from the lysimeter and the infiltration rate through the cover, the remediation measures implemented in the Blue WRSA are demonstrated to be effective.

Figure 6.1 Blue WRSA Lysimeter Performance

Figure 6.2 Blue WRSA Lysimeter Performance