MPMC00136

Mount Polley Mining Corporation

IMPERIAL METALS CORPORATION

2010 Environmental and Reclamation Report

Submitted to:

Ministry of Energy and Mines

And

Ministry of Environment

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1.0 INTRODUCTION

1.0 Company Profile

Imperial Metals Corporation is the sole owner/operator of the Mount Polley Mine, an open pit copper-gold mine, located approximately 60 km northeast of Williams Lake, B.C. (Figure 1). Access to the mine site from 150 Mile House is north along Likely Road for 60 km to Morehead Lake and then south at the Bootjack Lake turn-off for another 12 km on the site access road to the property. The mine is positioned on a ridge dividing the Polley Lake / Hazeltine Creek drainage from the Bootjack Lake / Morehead Creek drainage, both of which are situated within the Quesnel River Watershed.

The Mount Polley open pit operation is on a phased development schedule, ultimately involving the creation of six and possibly seven pits. The current project infrastructure consists of the mill site, one open pit, three rock disposal sites and a Tailings Storage Facility (TSF), as well as the main access road, power line, tailings pipeline, drainage collection systems and sediment/ seepage control ponds. Initial construction activities in 1995 consisted primarily of clearing the mill site. Construction of the entire facility began in 1996 with the mill being commissioned in June 1997. The first full year of mining and milling at Mount Polley took place in 1998. The mine suspended operations in October 2001, then reopened in December 2004, with mill production commencing again in March of 2005. Current identified ore reserves indicate a projected mine life into the year 2015.

Approval of the Mount Polley Mine Reclamation and Closure Plan by the Ministry of Energy and Mines resulted in the issuance of Permit M-200 in July of 1997.

In May of 1997 the mine received a Ministry of Environment (MOE) (previously the Ministry of Water, Land and Air Protection) Effluent Permit (PE 11678) issued under the provisions of the provincial Waste Management Act. The permit authorized the discharge of concentrator tailings, mill site runoff, mine rock runoff, contaminated soil, open pit water, and septic tank effluent to a tailings impoundment. The most recent amendment to this permit (May 2005) allows for the discharge of effluent from the Main Embankment Seepage Collection Pond. There have been no discharges from this location since 2005.

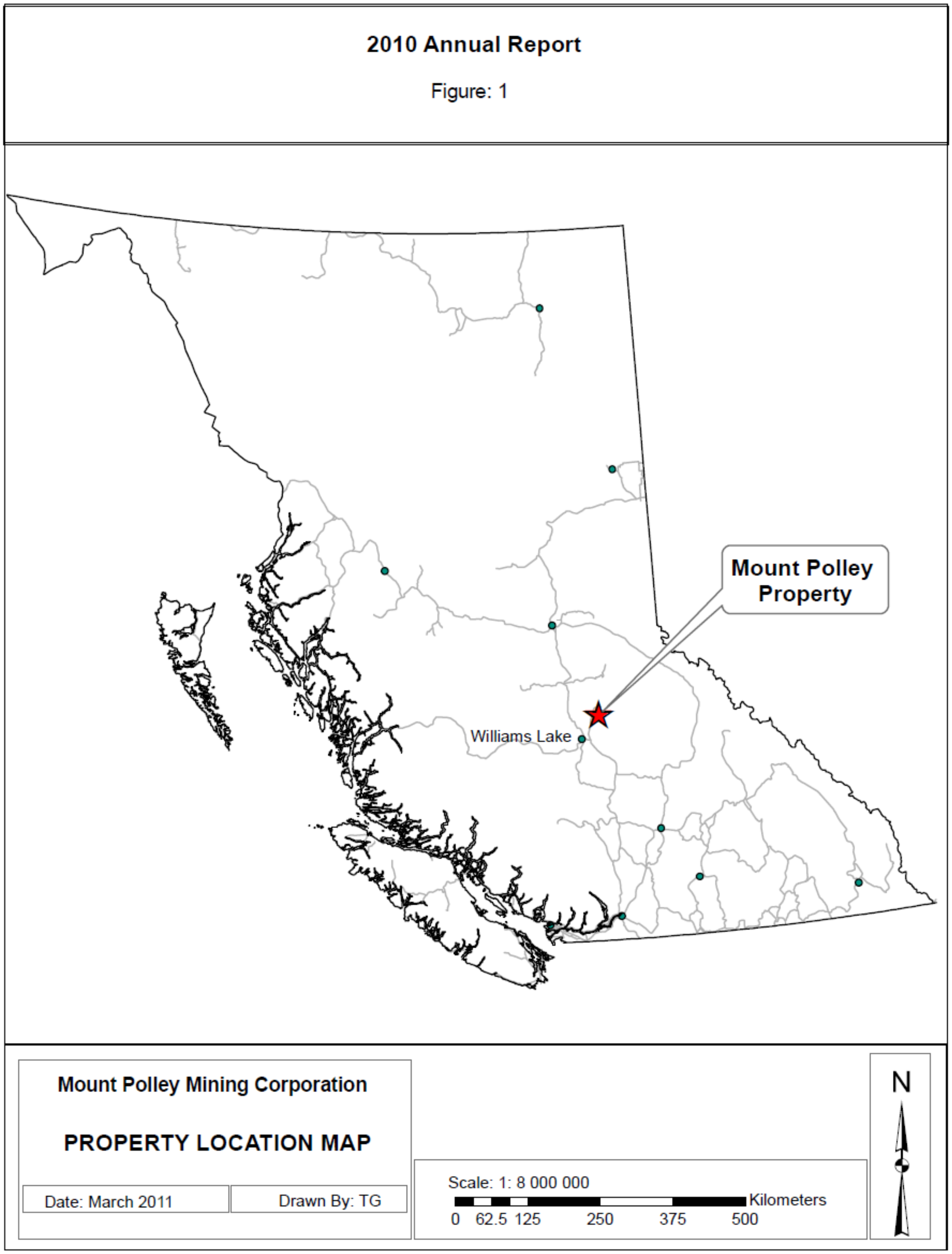

Figure 1: Location of Mount Polley Mining Corporation

In 2009, Mount Polley submitted an effluent discharge application to the MOE. This application is currently under review by MOE.

1.1 Purpose of Report

Mount Polley Mining Corporation is required to submit two reports annually. Beginning with the reporting year 2000, these two reports have been combined into one for submission to the Ministry of Energy, Mines and Petroleum Resources (now Ministry of Energy and Mines) and to the MOE. This reporting format of a combined report for both Ministries has been continued for the 2010-reporting year.

The Annual Reclamation Report for MNRO as required by permit M-200 requires a summary and description of the past years mining and reclamation program including;

- Area disturbed and disposal locations
- Reclamation of waste dumps, water courses, pits, and tailings impoundment
- ARD/ML prediction data, and prevention and control plans
- Drainage monitoring programs including flows and water quality
- Geological characterization, material characterization test work
- Reclamation costing.

The annual report for MOE, as required by PE-11678, includes a summary and description of all data collected as per requirements of the permit. The report generally depicts all historical data together with the current year's data in tabular and graphical formats and also provides supporting discussion of trends. The report provides the following:

- Summary of all water quality and climate data collected
- Information on the construction and performance of the tailings impoundment and dam
- Summary of disturbance and description of all reclamation activities
- Summary of biological and lake sampling program
- An evaluation of the impacts of the operation on the receiving environment.

1.2 Reclamation Objectives

In accordance with the BC Mines Act and the Health, Safety and Reclamation Code for Mines in British Columbia, the primary objective of the Reclamation Plan is to:

"return all mine-disturbed areas to an equivalent level of capability to that which existed prior to mining on an average property basis, unless the owner, agent or manager can provide evidence which demonstrates to the satisfaction of the chief inspector the impracticality of doing so".

In 1995 and 1996, a comprehensive environmental baseline-monitoring program, which expanded on previous studies (1989/1990), was designed and carried out in order to support mine planning, operations, and reclamation. The program included environmental baseline studies documenting the pre-development land use and conditions of the aquatic and terrestrial ecosystems. This provided the foundation upon which the operational and post–closure monitoring programs are based and reclamation activities are developed, such that the land may be returned to its original capability once mining has ceased. Environmental monitoring is ongoing, fulfilling both the requirements of the M–200 permit by the Ministry of Energy and Mines (MEM) and the effluent permit PE 11678 by the (MOE).

The reclamation plan specifies the primary end land uses for the Mount Polley project area are wildlife habitat and commercial forestry. Reclaimed areas will also be capable of supporting secondary end land uses such as hunting, guide-outfitting, trapping and outdoor recreation. Perpetuating, and, if possible, enhancing biodiversity are important considerations when planning for wildlife habitat as an end land use objective. The following objectives are implicit in achieving this primary goal:

- Long-term preservation of receiving water quality within and downstream of the receiving environment of the decommissioned operations;
- Long-term stability of engineered structures, including the rock disposal sites, Tailings Storage Facility and open pits, as well as all exposed erodible materials;
- Natural integration of disturbed lands into surrounding landscape and, to the greatest possible extent, restoration of the natural appearance of the area after mining ceases;
- Establishment of a self-sustaining vegetative cover, consistent with the end land

uses of wildlife habitat, commercial forestry, and outdoor recreation; and

- Removal and proper decommissioning of all secondary access roads, structures and equipment not required after the mine closes.

To achieve these objectives, reclamation planning must be flexible enough to allow for modifications to the mine plan, and to incorporate results from ongoing reclamation research programs into the plan.

1.3 Environmental Monitoring

Environmental monitoring at Mount Polley consists of the following components:

- Drainage chemistry of surface, seepage and groundwater
- Static Water levels in groundwater wells
- Stream flows and water levels
- Weather (temperature and precipitation)
- Evaporation rates
- Snowpack
- Biosolids shipments
- Mineral-enriched soil shipments

The main objective of the environmental monitoring program is to monitor and track changes to drainage chemistry from disturbed areas and waste material in surface water, seepage water and groundwater. Sampling procedures follow those that are described in the "British Columbia Field Sampling Manual for Continuous Monitoring plus the Collection of Air, Air Emission, Water, Wastewater, Soil, Sediment, and Biological Samples" 2003 edition and the Mount Polley "Quality Assurance/Quality Control Manual".

Throughout the year, on a regularly scheduled basis, surface water and ground water samples are collected at locations and time intervals consistent with specifications listed in Permit PE 11678. The samples are then sent to an independent laboratory, ALS Laboratory Group (ALS), for analysis and reporting. These surface and groundwater monitoring locations are shown in Figure 2. In addition, surface water flows and static ground water levels are also measured and recorded on a regular basis at locations specified in permit PE 11678. Static water levels are recorded in conjunction with water sampling of the groundwater monitoring wells.

Monitoring of Polley and Bootjack lakes consists of sampling water from the surface and 2 metres off the bottom at two locations in both lakes (P1, P2 and B1, B2 respectively). This sampling is conducted twice annually in the Spring and Fall. At the same time and once in late winter, when the ice is thickest, conductivity, pH, dissolved oxygen and temperature are measured from top to bottom to document the lake profiles.

The Mount Polley weather station continuously measures daily precipitation (rainfall during non freezing months only), and temperature. The weather data is downloaded on a monthly basis. Evaporation rates are measured on site with an evaporation pan (non-freezing months only) and are summarized at year-end along with the precipitation and temperature data. Winter snow pack measurements are taken at the end of each month. This data is used to update the water balance on a monthly basis.

At such time that the mine discharges under the current permit, or under a new discharge permit, a biological monitoring program initiated in accordance with the Metal Mining Effluent Regulations will be developed.

Mount Polley continues to recycle used materials including waste oil, scrap steel, batteries, plastic pails, and beverage containers. In 2010 Mount Polley donated the funds generated by its beverage container recycling program to the Big Brothers and Big Sisters of Williams Lake. As part of promoting our habitat stewardship initiatives, the mine discourages wildlife interaction through a garbage management program and bear awareness training. In 2010, there were no bear encounters or mortalities.

In 2010, Mount Polly accepted approximately 19 695 tonnes of mineral-enriched soil from two (2) sources. A total of 17 761 tonnes of material was imported from the Langley site; and, 1 934 tonnes and from HAZCO. These materials are processed through the mill and eventually end up in the tailings pond. Generally, these materials are similar to mine waste material found at Mount Polley. Monthly composite tailings samples were taken when processing the Langley soil and analytical results were below the lead level found in Table 1, Schedule 4 “Leachate Quality Standards" of the Hazardous Waste Regulation.

2.0 Surface and Groundwater Monitoring

2.1. Data Quality Assurance/Quality Control (QA/QC)

The purpose of a QA/QC program is to verify the reliability of monitoring data through the implementation of procedures for controlling and monitoring the measurement process. The QA/QC program provides information for the evaluation of the analytical procedures, and for the monitoring of issues pertaining to possible contamination both in the field and in the analytical laboratory. The QA/QC program is conducted at all stages of the sampling program: sample collection, transport, filtration, and analysis. Appendix A includes the National Quality Manual Summary provided by ALS.

2.1.1. Data Quality Objectives

The Laboratory Data Quality Objectives provided to Mount Polley by ALS are also included in Appendix A.

2.1.2. Replicates and Travel Blanks

The field quality assurance program at Mount Polley includes one semi-blind replicate for standard parameters, one semi-blind replicate for total metals, one semi-blind replicate for dissolved metals and a travel blank that is submitted with each month's sample shipment.

The semi-blind replicates are intended to evaluate the QA/QC surrounding the sampling methods. Replicates are prepared by collecting two full sample suites from one location, labeling one with the correct sampling location name (e.g. E4) and labeling the second sample suite with anonymous name (e.g. ED). When the results are reported back from the analytical laboratory all parameters from the replicate and the actual sample are screened to confirm likeness or potential of sampling error/contamination. The screening process also considers small-scale natural variations in water quality which may occur over the timescale of collection (~10 minutes). In particular, there is considerable potential for variations in water quality over short-time scales during periods of high sediment loads.

Travel blanks, supplied by the analytical laboratory, are exposed to the same conditions and treatments as the water samples collected, and are intended to monitor contamination that may occur in the field.

2.2. Field Methodology

2.2.1. Sample Collection

All water sampling was done in accordance with the procedures described in the "British Columbia Field Sampling Manual: 2003 – For Continuous Monitoring and the Collection of Air, Air-Emission, Water, Wastewater, Soil, Sediment, and Biological Samples" and the Mount Polley "Quality Assurance/Quality Control Manual".

2.2.2. Field Meters

Field Meters are used to measure; dissolved oxygen, conductivity, pH and flow.

The conductivity and pH meter used for field analysis of surface water and groundwater is a WTW pH/Conductivity 340i meter. Prior to taking measurements, the meter is calibrated using buffer pH of 4.00 and 10.00.

The portable flow monitoring device used by Mount Polley is a Swoffer Model 3000. This unit is maintained by the environmental staff and is sent to the manufacturer for periodic calibrations.

The dissolved oxygen meter used for bi-annual lake profiling is rented from Hoskin Scientific in Vancouver.

2.3. Surface Water Monitoring

Surface water sampling and analysis is conducted in accordance with sub-section 3.1 of the Mount Polley Effluent Permit PE 11678. Field pH, temperature and conductivity were measured concurrent with surface water sampling using a WTW Multimeter and recorded in a field book. The sampling program included monthly sampling at six sites (E1, E4, E5, W4, W8 and W8z), quarterly sampling at six more sites (W1, W3a, W5, W7, W12, W13, and E8,bi-annual sampling at one site (W11) and intensive (once a week for 5 weeks) sampling at three sites (W4, W8 and W8z) during spring freshet and autumn low flows. Table 2.1 outlines the number of sampling events at each site in 2010. Samples were submitted to ALS Laboratory Group for analysis of: physical parameters (turbidity, total suspended solids, total dissolved solids, and hardness); anions and nutrients (alkalinity, sulfate, total nitrogen, nitrate plus nitrite, ammonia and ortho-phosphorus); total metals; and dissolved metals. All surface water tables and figures are presented in Appendix B.

Table 2.1 Sampling events in 2010 at surface water quality sites

Site	Sample Events
E1	12
E4	12
E5	12
E8	4
W1	4
W3a	4
W4	21
W5	4
W8	20
W8z	16
W11	4
W12	4
W13	0

2.3.1. Field Replicates

Semi-blind field replicate were compared for the purpose of evaluating the precision of the methods used (i.e. combined precision of field methods, lab methods and the environmental variability between the side-by-side samples) An relative percent difference (RPD) of ±20% was used to identify significant differences between the replicate and sample, where the RPD (as %) can be defined as:

RPD (%) = (Value 1 – Value 2)/mean X 100

There were 11 field replicate samples taken in 2010 (table 2.2). For total metal analyses RPDs of >20% were occasionally observed for several total metals including Al, As, Cd, Cr, Cu, Fe, Mn, Ag, Pb, and Ba. (Table A.1, Appendix A). Some degree of environmental variability can be expected in replicate samples for parameters influenced by TSS.

There were no RPD results >20% observed for dissolved metals.

2.3.1. Travel Blanks

Travel blanks were submitted with every monthly set of samples for total metals and general parameter analyses in 2010. Results of these analyses are reported in table 2.3. In September the concentration of TSS (mg/L) was above the detection limits of 3mg/L. In July, August, and October the concentrations of ammonia (mg/L) were above the detection limits. All total metals for travel blanks were below detection limits.

Table 2.2 Semi blind replicate samples taken in 2010

Date	**Location**	**Name**
13-Jan-10	E1	EA
10-Feb-10	E8	EH
03-Mar-10	E1	EA
07-Apr-10	W8	WH
15-Apr-10	W8	WH
01-May-10	W5	WE
03-Jun-10	W8	WH
08-Jul-10	W4	WD
01-Sep-10	W7	WG
07-Oct-10	E1	EA
01-Dec-10	W7	WG

Table 2.3 Results of analysis of travel blanks by ALS Environmental in 2010

Date	ALS File No.	TSS	Turbidity	Chloride	Ammonia Nitrogen	Nitrate	Nitrite
January	L854713	<3.0	<0.10	<0.50	<0.005	<0.005	<0.001
February	L861642	<3.0	<0.10	<0.50	<0.005	<0.005	<0.001
March	L866644	<3.0	<0.10	<0.50	<0.005	<0.005	<0.001
April	L875867	<3.0	<0.10	<0.50	<0.005	<0.005	<0.001
May	L883324	<3.0	<0.10	<0.50	<0.005	<0.005	<0.001
June	L893759	<3.0	<0.10	<0.50	<0.005	<0.005	<0.001
July	L906616	<3.0	<0.10	<0.50	**0.0052**	<0.005	<0.001
August	L917168	<3.0	<0.10	<0.50	**0.0089**	<0.005	<0.001
September	L927345	<3.0	**0.2100**	<0.50	<0.005	<0.005	<0.001
October	L941117	<3.0	<0.10	<0.50	**0.2800**	<0.005	<0.001
November	L951205	<3.0	<0.10	<0.50	<0.005	<0.005	<0.001
December	L959891	<3.0	<0.10	<0.50	<0.005	<0.005	<0.001

2.3.2. Site E1 – Tailings Supernatant

Water quality at this site was sampled 12 times in 2010 and table B.1 summarizes these sampling results. Some parameters have been graphically represented using data collected between 1997 and 2010. This data is presented as figures B.1-1 and B.1-2.

An increase in sulphate levels was observed in starting in September 2009. This increase continued in 2010 with an average sulphate level of 785 mg/L. Increased sulphate levels at E1 are likely a result of mining the South East Pit, transfer of water from the Cariboo Pit to the Tailings Storage Facility (approx. 1,200,000 m3), and diversion of seepage and run-off water through a newly constructed ditch along the east edge of the mine site. Nitrogen levels (as nitrate plus nitrite) fluctuate throughout the year with a maximum of 8.33 mg/L recorded in December and the annual minimum of 4.12 mg/L recorded during freshet in April. Total Nitrogen levels follow a similar trend with the maximum annual concentration of 10.1 recorded in September and the annual minimum of 4.52 mg/L recorded in February. Nitrate + nitrite and Nitrogen have shown an increasing trend since 2007.

Due to the continuous deposition of tailings into the pond, total suspended solids (TSS) are slightly elevated at this site. In 2010 the average TSS value recorded was 7.99 mg/L, ranging from 1.5 to 22 mg/L (May 2010).

There were no noted changes in total and dissolved copper, iron, and aluminum in 2010.

Increased selenium and molybdenum levels have been observed at E1 since 2004. In 2010 the mean value for total selenium recorded 0.0272 mg/L and the maximum was 0.033 mg/L. The mean value for total molybdenum was 0.24 mg/L and the maximum was 0.282 mg/L.

At the request of Ministry of Environment a *coli form* & *E.coli* sample was taken at E1 in February and November. The February test results were both below the method detection limit (MDL) and the November results reported coli form bacteria count of 32 (MPN/100mL) and less than MDL *E.coli*.

2.3.3. Site E4 – Main Embankment Seepage Pond

Water quality at this site was sampled 12 times in 2010. Table B.2. summarize the 2010 water quality sampling results at site E4. Figures B.2-1 and B.2-2 present graphs of selected parameter levels between 2001 and 2010. Toxicity analysis was conducted in February, June, August, and November by Nautilus Environmental. Analytical reports for the 96-hour LC50 toxicity (rainbow trout) tests can be found in Appendix B of this report; all toxicity results were non-lethal (i.e. no mortality observed in any test results).

This is the only site from which the mine is permitted a discharge; however, since the mine recommenced operation in 2005, there has been no discharge from this site. Although there have been no discharges the following discussion provides a comparison of the permitted discharge levels of certain parameters and the values obtained in samples taken in 2010.

The discharge limit for total suspended solids (TSS) is 25 mg/L and all TSS results for E4 in 2010 were below this level.

The discharge limit for nitrate (N) is 3 mg/L for this site. With the exception of the November and December results, all other samples taken in 2010 were below this discharge limit. The maximum level reported was 3.91 mg/L in November.

The permitted discharge limit for ortho-phosphorus (as phosphorus) is 0.05 mg/L and there were no exceedences of this level in 2010.

The discharge limit for dissolved sulphate is 200 mg/L for this site. All sample results in 2010 were above this limit. The mean concentration for sulphate in 2010 was 410 mg/L.

The total copper discharge limit for this site is 0.020 mg/L and all results for 2010 were below this level. The annual mean concentration of total copper at E4 was 0.0049 mg/L.

The total iron discharge limit for this site is 1.0 mg/L and there were no exceedences of this limit in 2010. The annual mean concentration of total iron at E4 was 0.18 mg/L.

Beginning in 2007 total selenium has fluctuated strongly at this site ranging from a low of 0.0024 mg/L to a maximum of 0.015 mg/L. This trend continued in 2010. The discharge limit for total selenium at this site is 0.01 mg/L. One sample taken in 2010 exceeded this discharge limit (0.015 mg/L).

Although there is no discharge limit for total molybdenum designated for this site it should be noted that a general increasing trend has been observed over the past six years. The maximum result in 2010 was 0.18 mg/L and the average level for 2010 was 0.12 mg/L.

Analysis for total and dissolved mercury at E4 returned results less than MDL.

2.3.4. Site E5 – Main Embankment Drain Composite

This site was sampled 12 times in 2010 and B.3 summarizes the 2010 water quality sampling results. Figures B.3-1 and B.3-2 present graphs of selected parameter levels from the year 2000 to 2010.

Observed dissolved sulphate levels are showing an increasing trend since 2006. The maximum level recorded in 2010 was 451 mg/L.

TSS levels were mostly below MDL with the exception of one sample taken in July. This high TSS result (56.7 mg/L) may have influenced the results for other total metals including copper, selenium and iron as these also returned high results for July.

There were no changes noted in nitrogen levels (as nitrate plus nitrite). Total and dissolved copper, iron, and selenium levels remained generally the same with the exception of the one spike in recorded in July. Molybdenum steadily increased from 2001 (0.002 mg/L) to 2005 (0.159 mg/L). Since 2005 levels have remained between 0.1 mg/L and 0.17 mg/L. The average total molybdenum level for 2010 was 0.145 mg/L.

2.3.5. Site W1 – Morehead Creek

This site was sampled 4 times in 2010 and table B.4 summarizes the 2010 water quality sampling results at site W1. Figures B.4-1 and B.4-2 present graphs of selected parameter levels from 1997 to 2010.

Dissolved sulphate levels have always fluctuated at this site in 2010 the results ranged between 3.6 and 14.4 mg/L. The mean dissolved sulphate for this site is 3.9 mg/L.

Levels of nitrogen (as nitrate plus nitrite) ranged from below MDL to 0.04 mg/L. Both analytes fluctuated within the range of historical variability for this site.

There were no noted changes of total and dissolved copper, iron, and molybdenum results in 2010. Total and dissolved selenium levels did not exceed the MDL.

2.3.6. Site W3a – Mine Drainage Creek at Mouth

When the baseline-monitoring program began in 1995, sample site W3 was established to monitor surface drainage directly downstream of the mine site. The creek was given the name 'Mine Drainage Creek'. The site was monitored during the baseline periods of 1995 and 1996, and from 1997 through to April 2000 as part of the operational monitoring program. When the mine began operations in 1997, the water from the mine site that normally fed into this creek was intercepted and collected, in order to minimize the water from the operations entering the Bootjack Lake system. As a result, the original sample site (W3) became unsuitable due to a significant decrease in flow volumes over most of the year. Samples could only be collected during spring runoff and occasionally during fall turnover. Commencing in May 2000, the sampling location was moved further downstream on this same creek to its mouth at Bootjack Lake. This site is named 'Mine Drainage Creek at Mouth' and has the name W3a. Flow volumes at W3a were sufficient for year round monitoring. Since May 2000 this has been the new sampling location.

This site was sampled 4 times in 2010 and table B.5 summarizes the 2010 water quality sampling. Figures B.5-1 and B.5-2 present graphs of selected parameter levels from 1997 to April 2000 for site W3 and from May 2000 to 2010 for site W3a.

There were no noted changes in sulphate, ortho-phosphorus, or nitrate levels at W3a in 2010.

Analysis of total copper reported a mean value of 0.0173 mg/L. This is a marked decrease from the baseline mean of 0.0348 mg/L. Total and dissolved selenium levels did not exceed the MDL.

2.3.7. Site W4 – North Dump Creek

This site was sampled twenty one times in 2010, once per month and for five consecutive weeks in Spring and Fall. Table B.6 summarizes the 2010 water quality sampling results. Figures B.6-1 and B.6-2 present graphs of selected parameter levels from 1997 to 2010.

Mount Polley observed an increase in levels of nitrate, sulphate and selenium at this monitoring location and has taken significant steps to remediate the situation. A coffer dam and pipeline to collect runoff was constructed in September of 2009 to divert flow to either the Wight Pit or the long ditch which flows to the tailings pond.

In June of 2010 there was a breach of the pipe (valve turned off) and the sulphate, nitrate, copper, and aluminum results reflect this issue. This issue was corrected immediately and subsequent sulphate values were much lower.

As early as March of 2010 the sulphate levels began to decrease from previously higher values. The mean sulphate levels in 2010 were 93.4 mg/L which is below the BC Water Quality Guideline of 100 mg/L. During spring runoff and during the non frozen period the Sulphate concentrations were typically around 30mg/L.

Nitrogen (as nitrate plus nitrite) levels also displayed an increasing trend since 2006. (See Figure 1.6-1). This trend ended by March of 2010 with levels returning to those recorded in 2004.

Copper, Molybdenum, and iron also showed a decreasing trend after the installation of the pipe system.

Total selenium levels which had also been increasing, returned to below MDL in March 2010. The maximum result for 2010, with the exception of the June 2010 sample, was 0.0018 mg/L.

2.3.8. Site W5 – Bootjack Creek Above Hazeltine Creek

This site was sampled 4 times in 2010 and table B.7 summarizes the 2010 water quality sampling result. Figures B.7-1 and B.7-2 present graphs of selected parameters from 1997 to 2010.

A slight increase in dissolved sulphate values has been observed since 2009 with values ranging from between 8.9 mg/L and 74.4 mg/L.

Nitrogen (as nitrate plus nitrite) levels are showing an increasing trend since 2009. The results in 2010 ranged from a high of 0.942 mg/L to a low of 0.73mg/L.

There were no noted changes in total and dissolved aluminum and copper levels in 2010. Total and dissolved iron levels decreased somewhat in 2010 and molybdenum increased slightly.

2.3.9. Site W7 – Upper Hazeltine Creek

This site was monitored 10 times in 2010. PE-11678 only requires quarterly sampling at W7 however Mount Polley required further information in preparation for the eventual discharge of water to this creek. Table B.8 summarizes the 2010 water quality sampling results for site. Figures B.8-1 and B.8-2 present graphs of selected parameters from 1997 to 2010.

Dissolved sulphate is showing a slight increasing trend at this site typically ranged between 2mg/L and 17.5 mg/L throughout the monitoring period of 1997 to 2007. In 2009 and 2010 values increased slightly, ranging from 18.5 to 32.9 mg/L. These results are well below the BC Water Quality Guideline of 100 mg/L.

Nitrogen (as nitrate plus nitrite) has historically fluctuated significantly from below the MDL of 0.005 mg/L to 0.25 mg/L. A peak value of 3.85 mg/L was recorded in 2010. This result was confirmed by a second sample. The levels returned to previous low levels within two weeks.

Total suspended solids (TSS) have historically been less than, or fluctuated around the MDL of 3 mg/L, with peaks of approximately 19 mg/L in 1998 and March 2002. In 2010, TSS levels remained below the MDL.

There were no noted changes in copper, iron, or aluminum values in 2010. Total and dissolved molybdenum levels are showing a light increasing trend, however they remain far below the guidelines.

Total and dissolved selenium levels did not exceed the MDL.

2.3.10. Site W8 – Northeast Edney Creek Tributary

This site was sampled twenty times in 2010, once per month (with the exception of January when no flow was observed) and for five consecutive weeks in Spring and Fall. Table B.9 summarizes the 2010 water quality sampling results for this site. Figures B.9-1 and B.9-2 present graphs of selected parameters from 1997 to 2010. This site is downstream of the main embankment seepage pond (E4) - the permitted discharge point; however there was no discharge from E4 in 2010.

There were no noted changes in water quality at this site in 2010. All selenium levels were below MDL.

2.3.11. Site W8z – Southwest Edney Creek Tributary

This site was sampled 16 times in 2010, once per month (except January and December when no flow was observed) and for five consecutive weeks in the Spring and Fall. Table B.10 summarizes the 2010 water quality sampling results for this site. Figures B.10-1 and B.10-2 present graphs of selected parameters from 1997 to 2010. It should be noted that this is a control site, as it is not downstream of any Mount Polley mine component.

There were no significant changes in water quality observed at this location.

2.3.12. Site W11 – Lower Edney Creek U/S of Quesnel Lake

This site was sampled 4 times in 2010 and table B.11 summarizes the 2010 water quality sampling results. Figures B.11-1 and B.11-2 present graphs of selected parameters from

1997 to 2010. It should be noted that this site is a far-field site, selected for comparisons to the sites downstream from the mine disturbance.

Since the summer of 2000 dissolved sulphate levels have shown a slight increasing trend which continued in 2010 with a maximum result of 21.8 mg/L.

Historically, nitrogen (as Nitrate plus nitrite) values have typically remained around the mean baseline of 0.039 mg/L, with a peak of 0.144 mg/L in 1999. In 2008, a significant increase to 0.366 mg/L was noted towards the end of the year (November) and in 2009 levels decreased to a mean of 0.065 mg/L. In 2010 a peak nitrogen level of 0.585 mg/L was observed on August 23rd. It should be noted that at this higher than normal nitrogen level corresponds with the upstream sample take the same day at site W7.

There were no other significant changes to water quality observed at this site in 2010.

2.3.13. Site W12 – 6K Creek At Road

This site was sampled 4 times in 2010 and table B.12 summarizes the 2010 water quality sampling result. Figures B.12-1 and B.12-2 present graphs of selected parameters from 1999 to 2010.

An increase in sulphate values was observed at this location in 2009 from a previous maximum reading of 21.7 mg/L (October 2003) to a maximum of 31.4 in November 2009. The maximum sulphate level was 19.6 mg/L in February 2010.

There were no other significant changes in water quality observed at this monitoring location in 2010.

2.3.14. Site W13 – 9.5K Creek On Bootjack Forest Service Road

There were no samples taken from this site in 2010 as there were no flows observed. Figures B.13-1 and B.13-2 present graphs of selected parameters from 2000 to 2009.

2.3.15. Site E8 – Cariboo pit supernatant

There were 4 samples taken from this location in 2010 and table B.14 summarizes the 2010 water quality sampling results. Figures B.14-1 and B.14-2 present graphs of selected parameters from June 2009 to November 2010.

The only observed increases at E8 are in total and dissolved molybdenum and dissolved sulphate. Nitrate, Iron and selenium levels appear to have decreased. No other changes were observed at this location in 2010.

2.4. Groundwater Monitoring

Groundwater sampling and analysis was conducted in accordance with sub-section 3.1 of Effluent Permit PE 11678. The calibration, sampling, filtering, preservation and shipping procedures used for the monitoring program are outlined in the "Quality Assurance/ Quality Control Manual 2003". Field pH, temperature and conductivity were measured at the time of sampling using a WTW Multimeter.

In 1995, groundwater-monitoring wells (series 95) were installed in the vicinity of the open pits and mill site. Two of these wells (95R-4, 95R-5) continue to be monitored. In 1996, in order to monitor aquifers in both surficial deposits and bedrock, the B.C. Ministry of Water, Land and Air Protection requested the establishment of additional monitoring wells downslope of the pit, rock disposal site and Tailings Storage Facility (TSF). In conjunction with these 'downslope' wells, background wells were established upslope of any potential impacts by mining activities. Nine groundwater-monitoring locations were established in 1996. Six of these sites are multi-level, consisting of "A" (deep) wells and "B" (shallow) wells, while the remaining three sites monitor a single depth. A commitment to install three additional multi-level monitoring locations along the southeast embankment of the Tailings Storage Facility was made in 1996. These wells were subsequently installed in 2000. The locations of all monitoring wells are shown in Figure 2.

Objectives of the groundwater-monitoring program include the following (Knight Piésold Ltd., 1996):

- To determine the direction and volume of groundwater flow from the mine site and other disturbed areas to receiving waters
- To identify the locations of all surficial and deep groundwater aquifers underlying the mine site and their points of discharge to surface water
- To establish background groundwater quality in aquifers prior to mine development; and

- To calculate seepage and groundwater contamination dilution ratios in surface receiving waters in order to minimize impacts.

Prior to drawing water from each well, phreatic (static) water levels are recorded during each purging and sampling event (Section 2.6.8). Samples are drawn and then submitted to ALS Laboratory Group for water chemistry analysis, including: physical parameters (turbidity, total suspended solids, total dissolved solids, and hardness); anions and nutrients [alkalinity, sulfate, nitrate, nitrite, and ammonia (N)]; and dissolved metals.

In response to the MOE's comments on the 2008 Annual Environmental and Reclamation report, groundwater quality graphs within this include selenium data. As well we have included well depth information in each section.

In the hopes of reducing the number of days require for purging and sampling groundwater wells at MPMC, a study was undertaken in 2010 to determine if the same water quality was observed after only two purges (normally three are required). The results showed that there was a greater than 10 percent difference in most cases. Therefore the groundwater purge program will continue as before.

Site	Sample Events	Site	Sample Events
GW95 R4	1	GW96 7	1
GW95 R5	2	GW96 8a	2
GW96 1a	2	GW96 8b	2
GW96 1b	2	GW00 1a	2
GW96 2a	2	GW00 1b	2
GW96 2b	2	GW002a	2
GW96 3a	3	GW002b	1
GW96 3b	2	GW003a	1
GW96 4a	2	GW003b	2
GW96 4b	2	GW05 01	1
GW96 5a	2		

Table 2.3 Groundwater sampling events in 2010

All groundwater results tables and graphs from 2010 are presented in appendix C of this report.

2.4.1. 95R-4 (Springer Pit Well)

95R-4 is located to the west of the Springer Pit on the Bootjack Forest Service Road at the 10 km marker. This well was drilled to a depth of 123.4 metres and is sampled once annually. All analysis results for metals and physical parameters are presented in table D.1. Figures D.1-1 to D.1-2 present graphs of selected parameters from 1997 to 2010.

Total Alkalinity (as $CaCO_3$) saw an increase in 2009 and in 2010. The analysis result for 2010 was 254 mg/L.

While dissolved copper and dissolved iron showed a marked increase in 2009, these numbers decreased to previous low levels in 2010. The analysis result in 2010 for these metals was 0.00135 mg/L and 0.044 mg/L respectively.

Dissolved sulphate, dissolved aluminum, also saw increases in 2010,Sulphate was 62.4 mg/L compared to 45.8 mg/L measured in 2009, The analysis result for dissolved aluminum was 0.742 mg/L compared to 0.337mg/L measured in 2009. The most notable increase was dissolved arsenic were levels previously fluctuating between 0.002 and 0.004 mg/L increased to 0.025 mg/L.

As there was only one sample taken of well 95R-4 in 2010 it is difficult to determine if the analytical results are accurate. It is possible that the sample may have been contaminated during the sampling process or possibly an anomaly occurred in the analytical process.

In 1997 a second well was installed beside 95R-4. This new well, R97-03 was drilled as part of an exploration program for fresh water. This well is shallower than 95R-4 at 91.4 meters deep. In April 2010, before establishing well R97-03 as a freshwater source for the mill, MPMC analyzed the water quality, then reanalyzed in May after connecting to the mill system. This well was again analyzed in February 2011 in order to observe any changes that may have occurred. As these two wells, 95R-4 and R97-03 are adjacent to each other and separated by an elevation change of only 30 meters it is reasonable to compare the analytical results. Well 95R-4 is not accessible in the winter months so for the purpose of exploring and discussing any changes that may have occurred since June, 2010 we include the data from R97-03 on figure C.1

In figure C.1 the dissolved aluminum levels at R97-03 were significantly lower (below detection limit on two occasions) than at 95R-4 suggesting that the sample at 95R-4 may have been contaminated. Also, arsenic levels at R97-03 were at similar levels to the historical levels at 95R-4 and well below the level recorded in June of 2010. This also suggests possible contamination of the 95R-4 sample. Sulphate levels at R97-03 were higher than those at 95R-4, suggesting some possible mining influences, however these levels dropped significantly in the new year.

With the exception of one sample in 2009 all dissolved selenium results at this well have been below MDL.

2.4.2. 95R-5 (Lower Southeast Rock Disposal Site Well)

95R-5 is located along Polley Lake Forest Service Road, northwest of the east rock disposal site and immediately east of the northeast zone soil stockpile location. This well was drilled to a depth of 79.2 metres and is now being monitored twice annually in order to follow changes and trends more closely. All analysis results for metals and physical parameters are presented in table D.2. Figures D.2-1 to D.2-2 present graphs of selected parameters from 1998 to 2010. In reviewing the water quality data from this well it should be noted that the phreatic level has significantly dropped (figure 4.4). This drop is likely an outcome of reduced flow resulting from the installation of the Long Ditch in 2008. A few key parameters are discussed in the following paragraph.

From 2006 to 2009 nitrogen levels (as nitrate plus nitrite) increased from below the minimum detection limit of 0.005 mg/L to a maximum of 3.31 mg/L. These levels decreased in 2010 to a minimum of 0.0255 mg/L.

Total Alkalinity (reported as $CaCO_3$) values have increased at a steady rate since 1998 from a low of 90.4 to a high of 212 mg/L in 2010. Dissolved sulphate levels have been steadily increasing since August 2004. This trend continued in 2010 with analysis reporting a dissolved sulphate value of 531 mg/L. Dissolved aluminum has generally fluctuated between below detection and 0.008 mg/L. Dissolved aluminum levels in 2010 were below MDL.

Since June 2004, dissolved copper levels have been rising steadily, reaching their highest levels to date in October of this year (0.00208 mg/L). Historically, dissolved iron levels have fluctuated significantly between a low of 0.027 mg/L and a high of 0.639 mg/L. Since 2005, levels have steadily dropped leveling out below MDL since 2008. Other dissolved metal concentrations including, arsenic and molybdenum, remained relatively stable throughout the monitoring period of 1995 thru 2010.

All dissolved selenium results at this well have been below MDL.

While the increases of sulphate, nitrate, and copper are likely mine related it should be noted that the area above this well will be reclaimed (re-sloped, covered, and vegetated) in the near future which should have a positive effect on water quality.

2.4.3. GW96-1a (Tailings Storage Facility North Well – Deep)

GW96-1a is located down slope of the seepage collection pond of the Perimeter Embankment. The total depth of this well is 59.0 metres. There were two sampling events at this well in 2010; in May and in October. All analysis results for metals and physical parameters are presented in table D.3. Figures D.3-1 and D.3-2 present graphs of selected parameters from 1997 to 2010.

Analysis for total alkalinity (reported as $CaCO_3$) at GW96-1a returned results of 236 and 255 mg/L in 2010. There were no noted changes in dissolved sulphate values at this well in 2010. Between 1997 and 2006, Dissolved aluminum levels fluctuated between 0.006 and 0.1 mg/L. Between 2007 and 2009 levels peaked at 0.404 mg/L (October 2007) and decreased again in September 2009 and continued to decrease in 2010 to a minimum of 0.0146 mg/L. While dissolved copper levels have fluctuated considerably since 2001, this year the results were much lower (below MDL in October 2010). Arsenic levels fluctuate at this location and have remained slightly elevated ranging between a minimum of 0.0048 mg/L to a maximum of 0.0119 mg/L.

All selenium results at this well have been below MDL.

2.4.4. GW96-1b (TSF North Well – Shallow)

GW96-1b is located down slope of the seepage collection pond of the Perimeter Embankment. The total depth of this well is 38.72 metres. There were two sampling events at this well in 2010; in May and in October. All analysis results for metals and physical parameters are presented in table D.4. Figures D.4-1 and D.4-2 present graphs of selected parameters from 1997 to 2010.

Total alkalinity has remained relatively consistent with a mean of 163 mg/L and a maximum of 286 mg/L in August 2006. Generally, dissolved sulphate concentrations have been steady ranging around 30 mg/L; however, in August of 2006 sulphate concentrations rose to around 65 mg/L. Other dissolved metal concentrations rose in 2006 and then dropped right back down in 2007 remaining similar through to 2010. Arsenic levels have remained fairly stable at this location.

All dissolved selenium results at this well have been below MDL.

2.4.5. GW96-2a (Tailings Storage Facility East Well – Deep)

Groundwater monitoring well GW96-2a is located approximately 900 m southeast of the GW96-1 monitoring wells and was commissioned to monitor potential groundwater effects from the Tailings Storage Facility on Hazeltine Creek. The total depth of this well is 54.88 metres. There were two sampling events at this well in 2010; in May and in October. All analysis results for metals and physical parameters are presented in table D.5. Figures D.5-1 and D.5-2 present graphs of selected parameters from 1997 to 2010.

There were no significant changes in water quality at this well in 2010. Total alkalinity levels have remained consistent in this well ranging from 185 to 248 mg/L CaCO3. Dissolved sulphate levels remained stable at approximately 25 mg/L. Dissolved aluminum showed a slight increase from the mean in 2010 with maximum levels at 0.0268 mg/L. Dissolved arsenic has always been slightly elevated at this site with a maximum level of 0.015 mg/L observed in December 1998. The levels have declined some returning a minimum result of 0.0058 mg/L in 2010.

Most dissolved other metal concentrations remained relatively constant throughout the monitoring period from 1997 through 2010. The exceptions were dissolved aluminum and dissolved iron, which peaked briefly in 2007.

All dissolved selenium results at this well have been below MDL.

2.4.6. GW96-2b (Tailings Storage Facility East Well – Shallow)

GW96-2b is located approximately 900m Southeast from the GW96-1 monitoring wells and was commissioned to monitor potential groundwater effects from the Tailings Storage Facility on Hazeltine Creek. The total depth of this well is 35.67 metres. There were two sampling events at this well in 2010; in May and in October. All analysis results for metals and physical parameters are presented in table D.6. Figures D.6-1 and D.6-2 present graphs of selected parameters from 1997 to 2010.

Total alkalinity in this well has remained consistent with a mean value of 249 mg/L CaCO3. Since November 2002, sulphate levels have been steadily rising and fluctuating. This trend continued this year with a maximum level of 56.9 mg/L. Dissolved molybdenum levels are fluctuating in this well but remain well below any water quality guidelines. All other dissolved metal concentrations remained constant in 2010.

All dissolved selenium results at this well have been below MDL.

2.4.7. GW96-3a (TSF Southeast Well – Deep)

GW96-3a is located down slope of the seepage collection pond of the Main Embankment. The total depth of this well is 52.59 metres. There were three sampling events at this well in 2010; in June, August and in November. All analysis results for metals and physical parameters are presented in table D.7. Figures D.7-1 and D.7-2 present graphs of selected parameters from 1997 to 2010.

Over the monitoring period of 1997 to 2010 field pH has fluctuated significantly between 6.6 and 12.5. This parameter has been graphed with dissolved aluminum, in order to show the relationship between the levels of dissolved aluminum and pH in any given sample. The variability of the field pH does not appear at other monitoring wells, indicating it is a function of this well. Dissolved aluminum levels show strong fluctuations as well ranging from below MDL to a maximum level of 2.13 mg/L in November 2001. The mean dissolved aluminum levels in 2010 was 0.57 mg/L.

Throughout the monitoring period total alkalinity, dissolved sulphate, molybdenum, copper, and arsenic have all fluctuated greatly; this trend continued in 2010. Dissolved arsenic levels have been relatively high at this site throughout the monitoring period returning a maximum result of 0.12 mg/L in 2008 and an average level of 0.03 mg/L. Dissolved iron saw some fluctuations from 1997 to 2005; however levels appear to have balanced out in 2007 to 2009. Dissolved sulphate has fluctuated significantly over the monitoring period of 1997 to 2010, ranging from 25 mg/L to 322 mg/L.

As many of the results in the June sampling event were significantly different than previous results this well was re-sampled in August. All results had returned to previously recorded.

It should be noted that this well has a very slow recharge rate, and in some cases, it is not possible to purge the well more than once in order to collect a sample in a timely manner.

As a result, the results from this well should be viewed with caution and should be evaluated in connection with data from other wells in the vicinity of the TSF.

2.4.8. GW96-3b (TSF Southeast Well – Shallow)

GW96-3b is located down slope of the seepage collection pond of the Main Embankment. The total depth of this well is 19.97 metres. There were two sampling events at this well in 2010; in May and in October. All analysis results for metals and physical parameters are presented in table D.8. Figures D.8-1 and D.8-2 present graphs of selected parameters from samples taken between 1997 and 2010.

Total alkalinity, dissolved sulphate, and dissolved aluminum levels have remained consistent since monitoring began in 1997. With the exception of one sample in 2002, dissolved arsenic has always been elevated at this well, returning levels as high as 0.0219 mg/L in 2007. 2010 saw a slight increase in dissolved iron levels from 0.135 to a max of 0.157 mg/L. All other dissolved metal concentrations remained relatively constant throughout the monitoring period of 1997 thru 2010.

All dissolved selenium results at this well have been below MDL.

2.4.9. GW96-4a (TSF Southwest Well – Deep)

GW96-4a is located down slope of the south and main embankments. The total depth of this well is 24.7 metres. There were two sampling events at this well in 2010; in May and in October. All analysis results for metals and physical parameters are presented in table D.9. Figures D.9-1 and D.9-2 present graphs of selected parameters from 1997 to 2010.

Total Alkalinity, dissolved sulphate and molybdenum have remained stable since 1999.

With only one exception (late 2002), dissolved copper has remained below 0.0024 mg/L. Dissolved aluminum levels were below the MDL in October 2010.

All dissolved selenium results at this well have been below MDL.

2.4.10. GW96-4b (TSF Southwest Well – Shallow)

GW96-4b is located down slope of the south and main embankments. The total depth of this well is 7.16 metres. There were two sampling events at this well in 2010; in May and in

October. All analysis results for metals and physical parameters are presented in table D.10. Figures D.10-1 and D.10-2 present graphs of selected parameters from 1997 to 2010.

Total alkalinity levels have been increasing slightly since 1999 (mean of 203 mg/L) with a mean value of 255 mg/L CaCO3 reported in 2010. With the exception of a brief spike to 8mg/L, dissolved sulphate levels have remained at or below the mean baseline of 2.5 mg/L for the entire monitoring period.

Between 2002 and 2008 dissolved copper levels fluctuated at this location; however since 2008 levels have return to baseline levels or below. The October 2010 results were below detection limit. No other changes in water quality were identified at this well.

All dissolved selenium results at this well have been below MDL.

2.4.11. GW96-5a (Tailings Storage Facility Control Well – Deep)

GW96-5a is located at the north end and upstream of the TSF and is monitored as a control site. The total depth of this well is 19.82 metres. There were two sampling events at this well in 2010; in May and in October. All analysis results for metals and physical parameters are presented in table D.11. Figures D.11-1 and D.11-2 present graphs of selected parameters from 1997 to 2010.

Total alkalinity has fluctuated from 226 and 368 mg/L CaCO3 with an average of 319 throughout the monitoring period. With the exception of one spike reported in 2001, dissolved sulphate has remained consistent at or below 27 mg/L.

Dissolved copper levels have fluctuated between a minimum of 0.00007 mg/L (MDL) and a maximum of 0.00926 mg/L. The mean for 2010 was 0.0023mg/L well below to the baseline mean of 0.004 mg/L.

Analysis of this well reported a spike in dissolved aluminum, iron, and copper in September 2009. All of these parameters have returned to previous levels in 2010 suggesting a sampling anomaly may have occurred in 2009.

All dissolved selenium results at this well have been below MDL.

2.4.12. GW96-5b (TSF Control Well – Shallow)

GW96-5b is located at the north end and upstream of the Tailings Storage Facility and is monitored as a control site. The total depth of this well is 6.71 metres. 2007 construction of a ditch upslope of the well intercepted flow into this shallow well. Since construction of the ditch, the well has not produced enough water to provide another sample.

2.4.13. GW96-6 (Southeast Rock Disposal Site Well)

GW96-6 was covered by construction of the rock disposal dump in 2006.

2.4.14. GW96-7 (Southeast Sediment Pond Well)

GW96-7 is located down slope of the Mill Site, half way down the tailings access road (near the booster pump station). The total depth of this well is 14.12 metres. This well was sampled in May of 2010. All analysis results for metals and physical parameters are presented in table D.14. Figures D.14-1 to D.14-2 present graphs of selected parameters from 1997 to 2010.

Dissolved sulphate concentrations have remained constant with levels only fluctuating slightly between 18 and 31 mg/L. Dissolved iron tends to fluctuated at this well ranging between a minimum of 0.015 mg/L to a maximum of 0.221 mg/L. In 2010 dissolved iron analysis result was 0.13 mg/L. All other dissolved metal concentrations remained relatively flat throughout the monitoring period of 1997 thru 2010.

All dissolved selenium results at this well have been below MDL.

2.4.15. GW96-8a (Bootjack Forest Service Rd. @ 11 K Well – Deep)

GW96-8a is located on Bootjack Forest Service Road at 10.75 km. The total depth of this well is 39.33 metres. There were two sampling events at this well in 2010; in May and in October. All analysis results for metals and physical parameters are presented in table D.15. Figures D.15-1 to D.15-2 present graphs of selected parameters from 1997 to 2010. There were no significant changes noted at this well in 2010.

2.4.16. GW96-8b (Bootjack FSR @ 11 K Well – Shallow)

GW96-8b is located on Bootjack Forest Service Road at 10.75 km. The total depth of this well is 15.4 metres. There were two sampling events at this well in 2010; in May and in October. All analysis results for metals and physical parameters are presented in table D.16. Figures D.16-1 to D.16-2 present graphs of selected parameters from 1997 to 2010. There were no significant changes noted at this well in 2010.

2.4.17. GW96-9 (TSF Southeast Pressure Well)

GW96-9 was located south of the Main Embankment. This well was deactivated in the spring of 2006.

2.4.18. GW00-1a (TSF Northwest Well – Deep)

GW00-1a is located downstream of the South Embankment at the TSF. The total depth of this well is 21.03 metres. There were two sampling events at this well in 2010; in May and in October. All analysis results for metals and physical parameters are presented in table D.18. Figures D.18-1 and D.18-2 present graphs of selected parameters from 2000 to 2010.

Total alkalinity (CaCO3) has remained consistent throughout the monitoring period reporting a mean value of 126.5 mg/L. Dissolved sulphate results have been high at this well since it was established in 2000. The initial sulphate levels at this well (330 mg/L) were almost twice those observed in the TSF previous to 2000 (mean <100 mg/L). The average dissolved sulphate level in 2010 was 258.5 mg/L. Dissolved iron levels have fluctuated between below detection to 0.094 mg/L and have remained below detection level since 2009. While dissolved aluminum levels increased in 2008 (0.18 mg/L), they have since decreased and remain at baseline levels. Dissolved copper results show some fluctuation through the monitoring period however the trend has been a decrease in levels with results in 2010 below MDL. Dissolved arsenic is showing a decreasing trend form the maximum level of 0.133 mg/L in 2001 to a low of 0.022 mg/L in October 2010. No other significant changes were noted at this well.

All dissolved selenium results at this well have been below MDL.

2.4.19. GW00-1b (TSF Northwest Well – Shallow)

GW00-1b is located downstream of the South Embankment at the TSF. The total depth of this well is 10.58 metres. There were two sampling events at this well in 2010; in May and in October. All analysis results for metals and physical parameters are presented in table D.19. Figures D.19-1 and D.19-2 present graphs of selected parameters from 2000 to 2010.

Total alkalinity in this well has remained consistent throughout the monitoring period. In 2008, this well recorded sharp increases in dissolved sulphate, aluminum, copper, and iron. Since 2009 all of these parameters have decreased to previous levels with the exception of dissolved sulphate, which continued to climb. It is possible that the spike observed in 2008 was a sampling error. Sulphate levels recorded in 2010 were 250 and 273 mg/L slightly lower than in 2009. Dissolved molybdenum and selenium returned higher than previous analysis results in 2010. Average dissolved molybdenum results were 0.0174 mg/L and average dissolved selenium was 0.0076 mg/L.

2.4.20. GW00-2a (Tailings Storage Facility West Well – Deep)

GW00-2a is located downstream of the South Embankment at the TSF. The total depth of this well is 21.55 metres. There were two sampling events at this well in 2010; in May and in October. All analysis results for metals and physical parameters are presented in table D.20. Figures D.20-1 and D.20-2 present graphs of selected parameters from 2000 to 2010.

Total alkalinity in this well has remained consistent throughout the monitoring period. Dissolved aluminum, molybdenum, sulphate, and copper results appear to be consistent from previous years. Dissolved arsenic has always been slightly elevated at this well ranging between 0.0023 and 0.009 mg/L. All dissolved selenium results at this well have been below MDL.

2.4.21. GW00-2b (Tailings Storage Facility West Well – Shallow)

GW00-2b is located downstream of the South Embankment at the TSF. The total depth of this well is 10.64 metres. There were two sampling events attempted at this well in 2010; in May and in October. This well did not recharge enough after the second purge in October to sample. All analysis results for metals and physical parameters are presented in Table D.21. Figures D.21-1 and D.21-2 present graphs of selected parameters from 2000 to 2010.

In 2009 and in 2010 Mount Polley staff were only able to sample this well in the Spring. There was insufficient water available for collecting a sample in the Fall.

Total alkalinity and dissolved sulphate levels have remained constant in this well. All dissolved metal concentrations remained relatively stable throughout the monitoring period of 2000 thru 2010. All dissolved selenium results at this well have been below MDL.

2.4.22. GW00-3a (TSF Southwest Well – Deep)

GW00-3a is located downstream of the South Embankment at the TSF. The total depth of this well is 24.29 metres. There were two sampling events attempted at this well in 2010; in May and in October. This well did not recharge enough after the second purge in October to sample. All analysis results for metals and physical parameters are presented in table D.22. Figures D.22-1 and D.22-2 present graphs of selected parameters from 2000 to 2010.

No significant changes were noted in alkalinity at this well in 2010. Dissolved sulphate results returned to previously low levels indicating the spike in 2009 may have been an error. Dissolved aluminum, copper, iron, molybdenum, and selenium remained consistent in 2010. All dissolved selenium results at this well have been below MDL.

2.4.23. GW00-3b (TSF Southwest Well – Shallow)

GW00-3b is located downstream of the South Embankment at the TSF. The total depth of this well is 13.66 metres. There were two sampling events at this well in 2010; in May and in October. All analysis results for metals and physical parameters are presented in table D.23. Figures D.23-1 and D.23-2 present graphs of selected parameters from 2000 to 2010.

Total alkalinity and dissolved sulphate levels have remained relatively constant in this well. Dissolved aluminum and iron levels reported spikes in the fall of 2007 and 2009, returning to normal levels in 2010. Dissolved cooper levels increased significantly in September 2009 to 0.011 mg/L and decreased in 2010 to baseline levels. All dissolved selenium results at this well have been below MDL.

2.4.24. GW05-01 (Wight Pit/Polley Lake Interface Well)

GW05-01 is located between the Wight Pit and Polley Lake. It was established in 2005 to capture groundwater as it moved from Polley Lake towards the Wight Pit. The captured groundwater was continuously pumped and returned to Polley Lake. This well was sampled in May 2010 and in June of 2010 the pumping was terminated making it impossible to sample. Table D.24 summarizes the results of water quality data for this well between 2005 and 2010. Figures D.24-1 and D.24-2 present graphs of selected parameters during the monitoring period.

Total alkalinity in this well has remained consistent throughout the monitoring period. Dissolved sulphate levels historically ranging between 39.1 mg/L and 111 mg/L, increased to a high of 162 mg/L in 2008, decreasing to 102 mg/L in 2010. Dissolved aluminum showed a significant spike in 2008; however it appears to have settled back to previously low levels (0.001 mg/L). Dissolved copper levels appear to be fluctuating more since 2008. In 2010 this well reported dissolved copper as 0.0015 mg/L. Dissolved iron, molybdenum and arsenic remained consistent in 2010. All dissolved selenium results at this well have been below MDL.

3.0 Biological Monitoring and Lake Sampling Program

3.1. Biological Monitoring

Section 3.2 of PE 11678 requires that, prior to discharge of any effluent from the mine; Mount Polley must develop a biological monitoring program in accordance with the Metal Mining effluent Regulations. In preparation for this Mount Polley implemented a pre-discharge aquatic environmental study. In late August 2007, "Minnow Environmental Inc" conducted a study including biophysical conditions, water quality, sediment quality, benthic invertebrate communities, fish communities and sentinel fish populations, at four upper creek areas, two lower creek areas, and at the mouth of Hazeltine Creek at Quesnel Lake

MPMC has conducted a biological monitoring studies for both the valuation of potential mine related impacts and to establish baseline conditions for potential effluent discharge. In 2009 and 2010, Mount Polley focused its monitoring specifically on selenium analysis of water, sediment, periphyton, benthic invertebrates and fish (fish muscle and ovary tissue). Water quality has been routinely monitored by the Mount Polley Mine since prior to the initiation of mine operations in 1997 (i.e., since 1995). Minnow Environmental summarized the data collected in 2009 and 2010 (Found in Appendix D) and came up with recommendations for future monitoring, interpretation and reporting. They included:

- Continue to monitor water quality in accordance with the existing water quality monitoring program and evaluate potential changes over time on at least an annual basis.

- Review the current method detection limit for selenium in water samples (0.001 mg/L) with the analytical laboratory to determine if it can be reduced. Detection limits as low as 0.0001 mg/L were achieved in the past and 0.001 mg/L provides poor resolution of actual selenium concentrations in receiving environments, including Polley Lake and Hazeltine Creek.

- Initiate annual monitoring of periphyton in Upper and Lower Hazeltine Creek in mid-August. Periphyton is relatively easy to collect and has been recommended as a key exposure assessment endpoint (e.g., Young et al. 2010; Hodson et al. 2010) because it reflects concentrations being incorporated into the food web. Compare concentrations of selenium in periphyton to those of previous years on an annual basis.

- If upward trends or step-changes in water or periphyton selenium concentrations are identified, repeat the collection of rainbow trout and longnose sucker ovaries (in the spring) to determine selenium concentrations relative to previous observations and effect thresholds.

3.2. **Lake Sampling**

Mount Polley has preformed water quality sampling in both Polley and Bootjack Lakes twice annually since 2006, collecting both physical and chemistry data. These data were compiled and reviewed by Minnow Environmental Inc in 2009 and presented in the 2009 annual report as an appendix. The 2010 Lake Sampling Program at Mount Polley included:

- dissolved oxygen, temperature, and conductivity profile sampling in late winter (under ice) and at spring and fall overturn
- water chemistry sampling at lake surface and 2.0 meters above lake bottom during spring and fall overturn
- Secchi disk measurements two times per month between spring and fall overturn.

3.2.1. Data Quality Assurance/Quality Control (QA/QC)

Section 2.1 of this report outlines the complete data quality insurance program and sampling methodology followed by Mount Polley for the Lake Sampling Program.

3.2.2. Analysis of In-situ Data

Profiles of conductivity, dissolved oxygen and temperature are measured at all stations on Polley and Bootjack Lakes three times per year (late winter under ice, spring overturn, and fall overturn). These data are plotted then assessed by Mount Polley and by Minnow Environmental. As well, each station is measured for clarity using a standard secchi disk two times per month between spring and fall overturn. Lake profile samples are taken using an YSI 600QS Multi-meter with a 30 meter cable, rented form Hoskin Scientific in Burnaby, BC. Appendix E includes all tables and graphs of in-situ data and water chemistry data for Polley Lake and Bootjack

Lake.

3.2.2.1. Polley Lake

Station P1 is located near the Northwest end of the lake while station P2 is near the Southeast end (figure 2). Due to shallow ice in March of 2010 Station P1 was not sampled in late winter.

During the late winter under ice sampling stations P1 & P2 reported similar results for dissolved oxygen, temperature and conductivity as previous years (Figures E.1-1 and E.1-4). Profile results recorded during spring overturn show an increasing trend for conductivity at P2 but not at P1 (Figures E.1-2 and E.1-5). Dissolved oxygen and temperature at both stations remain consistent to previous years during spring and fall overturns. At both stations during fall overturn, profiles show a decrease in conductivity while other parameters remain consistent (Figures E.1-3 and E.1-6).

Secchi depth was recorded 12 times in 2010. The water clarity is generally lowest in spring and higher in the summer months. There were no changes noted in clarity in 2010 (Figure E.2).

3.2.2.2. Bootjack Lake

Station B1 is located at the Northwest end of the lake and station B2 is located at the Southeast end (figure 2). Due to shallow ice and access limitations station B2 was not sampled in late winter.

During the late winter under ice sampling at station B1, conductivity, dissolved oxygen, and temperature results were similar to previous years (Figure E.3-1). During spring overturn there were no noted changes in the in-situ parameters at both stations (Figures E.3-2 and E.3-5). There was a noted decrease in conductivity at B1 & B2 during fall overturn while dissolved oxygen and temperature remained similar to previous years (Figures E.3-3 and E.3-6).

Secchi depth was recorded was recorded 12 times in 2010 at both stations. There were no noted changes from previous years (Figure E.2).

3.2.3. Lake Water Chemistry

3.2.3.1. Polley Lake

Appendix E (Tables E.4-1 to E.4-4 and Figures E.4-1 to E.4-8) of this report contains water chemistry data tables and graphs for Polley lake from 2001 to 2010.

In general there have been few increases in analytes from the baseline results. Sulphate, ammonia, phosphorus, and selenium have shown increases. Copper levels have remained consistent although even baseline results were above the BC Water Quality Guidelines. A full analysis of these results is available in the Mount Polley Annual Environmental Report 2009.

3.2.3.2. Bootjack Lake

Appendix E (Tables E.5-1 to E.5-4 and Figures E.5-1 to E.5-8) contains water chemistry data tables from 2001 and graphs for Bootjack Lake from 2006 to 2010.

In general there have been no significant changes in water chemistry in Bootjack Lake. A full analysis of results can be found in the Mount Polley Annual Environmental Report 2009.

4.0 Climatology and Hydrology

4.1. Mount Polley Weather

Mount Polley's Effluent Permit (PE 11678) requires the collection of detailed meteorology data. The main objective of this data collection program is to provide site-specific precipitation and evaporation data for use in water balance prediction (included as appendix F of this report. To meet the permit requirements, Mount Polly operates an automated weather station, which records temperature (at 3 meter elevation) and precipitation at half hour intervals. Evaporation is measured using a standard Class A evaporation pan. Total monthly precipitation and minimum, maximum, and average monthly temperatures are included in table 4.1.

4.1.1. Temperatures

Figure 4.1 present Mount Polley's monthly average temperature data from 2006 to 2010. Monthly minimum, maximum, and average temperatures as well as daily average temperature are shown. The lowest monthly mean temperature was – 4.71 degrees Celsius recorded in November. The maximum monthly mean temperature of 16.04 occurred in July.

Table 4.1 Monthly precipitation and temperature data from Mount Polley weather station

Month	Monthly Precipitation (mm as rain)	Average Temperature	Maximum Temperature	Minimum Temperature
January	0.80	-2.18	5.81	-18.76
February	1.00	-1.92	6.22	-6.82
March	20.60	1.75	11.38	-10.01
April	26.80	4.57	22.09	-5.81
May	48.40	7.63	20.57	-2.9
June	83.61	11.53	22.86	2.46
July	20.60	16.04	28.31	3.74
August	47.20	14.71	27.91	4.15
September	69.20	5.08	14.37	3.31
October	23.40	5.87	22.09	-2.44
November	27.4	-4.71	13.7	-25.19
December	0.60	-4.24	4.99	-17.36

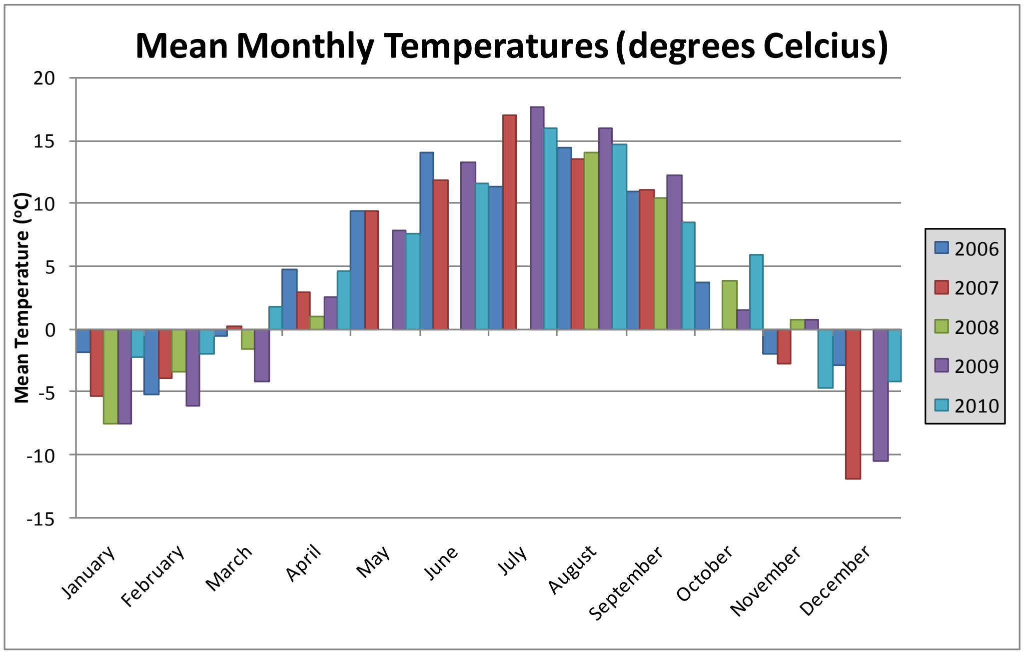

Figure 4.1 Mean monthly temperatures from 2006 to 2010 at Mount Polley

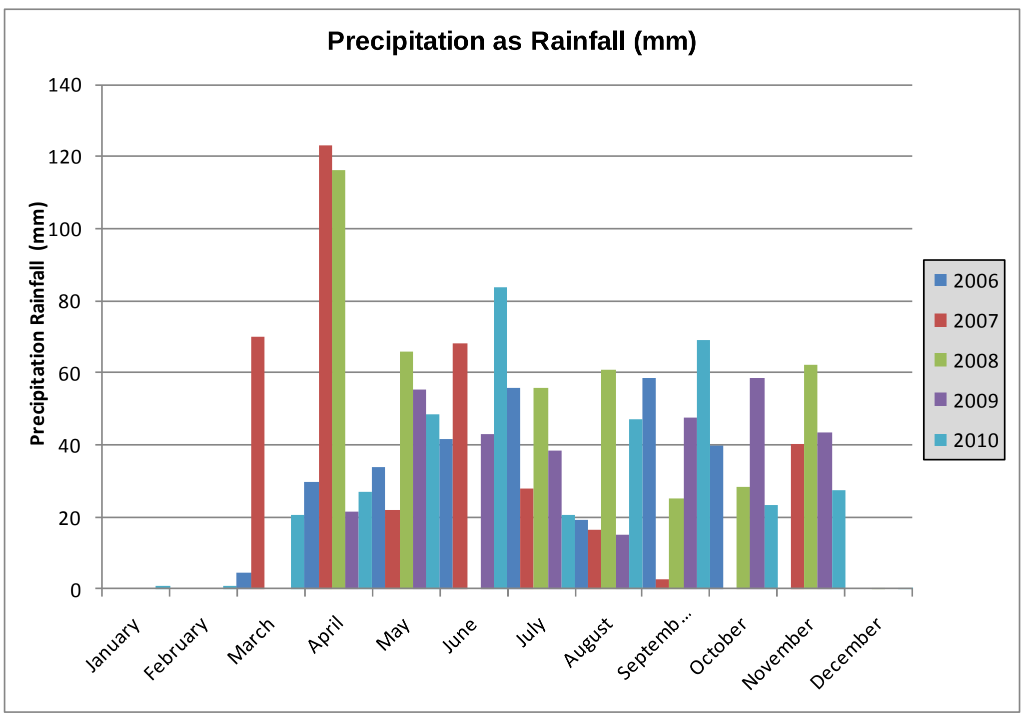

Figure 4.2 Total monthly precipitation from 2006 to 2010 at Mount Polley

4.1.2. Precipitation

2010 was a dry year; recording only 468 mm of precipitation, 370 as rain and the equivalent of 89 mm as snow. MPMC received the most precipitation in June at 83.61 mm. The driest non-freezing month was July with only 20.6 mm of rain recorded. Rainfall data for 2010 and cumulative data from 2006 through 2010 are presented as bar graphs in Figure 4.2.

4.1.3. Evaporation

Evaporation data for May to October (non-freezing period) is presented below. Total evaporation for 2010 amounted to 420.29 mm. July experienced the greatest amount of evaporation at 110 mm. Figure 4.3 below represents the comparison of precipitation amounts to evaporation for each month in 2010.

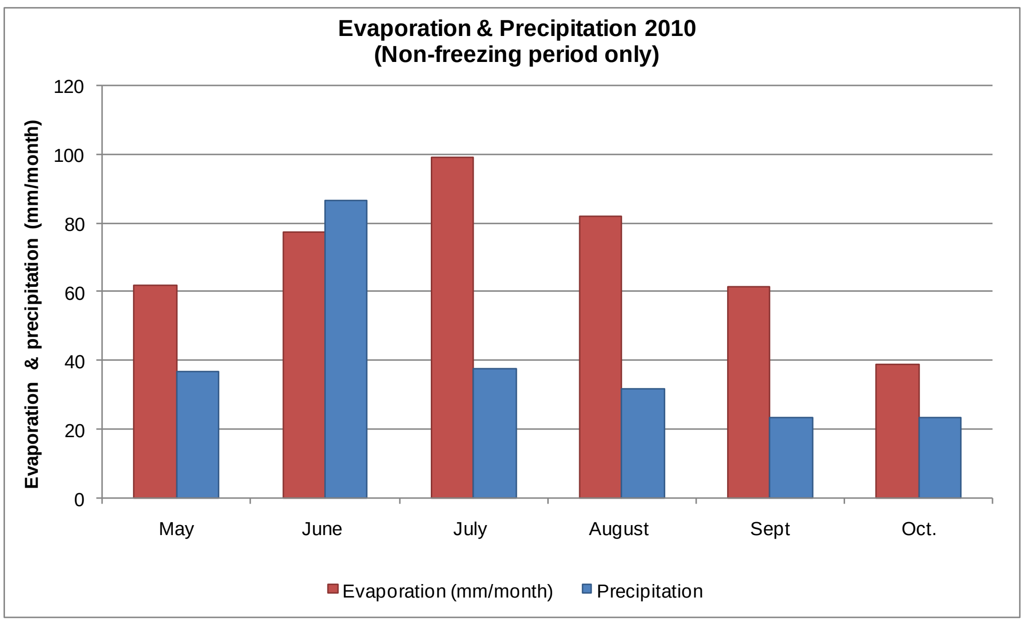

Figure 4.3: Total monthly precipitation and evaporation in 2010

4.1.4. Water Balance

Appendix F contains the updated water balance spreadsheet for the 2010 period. A review of the water balance is included in the Annual Tailings Inspection report, presented in Appendix G. An annual water balance spreadsheet for the Mount Polley Mine site was first developed in 2005 in order to facilitate water planning and predict water surplus or deficit volumes after the resumption of the operations in 2005. Each year, the spreadsheet is updated by adding new development areas (including Springer Pit, Wight Pit and the Northeast rock disposal site), updating precipitation estimates, and modifying other aspects of the water balance to match the new mine plan. On December 31st, 2010 the inventory of water stored in the Tailings Storage Facility was 0.850 M m3.

4.2. **Surface Flow Monitoring**

As discussed in section 4.1.2 precipitation levels were lower than normal in 2010 resulting in low flows in the creeks. With regards to hydrological monitoring, MPMC recognizes that more flow data is required from this site and plans to conduct a small study in the Spring of 2011 on what improvements might be made to existing sites to allow for more accurate gauging.

In 2010 hydrological monitoring included calibration of staff gauges and recording of staff gauge measurements (during non-freezing months) at six surface water monitoring sites (W1a, W4, W5, W7, W8 and W12) situated in the vicinity of the Mount Polley mine site (see Figure 2 for site locations). It also included continuous monitoring of water levels at W7, W8, and Edney Creek near its confluence with Hazeltine Creek (Ditch Road bridge crossing) using pressure transducers. The transducer at W7 was destroyed in July 2010 due to vandalism. This transducer will be replaced in May 2011.

Discharge curves were previously generated for all these sites however these curves were not providing accurate information. Mount Polley plans a review of all permitted flow monitoring locations in 2011.

4.2.1. Site W1a – Upper Morehead Creek

Only 1 staff gauge reading was recorded in 2010 as the creek flow direction has changed slightly and the gauge is not situated in running water. One flow measurement was taken on

June 21st recording a flow rate of 0.0204 m^3/s. No further measurements were possible due to flows to low to record. A bench mark survey was conducted at W1A on June 27, 2010 was determined that the staff gauge had moved again 1.2 and 1.3 cm since the previous survey in 2009.

4.2.2. Site W3a – Mine Drainage Creek at Mouth

From 1995 through 1999 water volumes were monitored on this creek at site W3, which is located just downstream from the mine site. Starting in 2001, water volumes were monitored from a new location on this creek, labeled W3a. This location is at the end of the creek, immediately before it empties into Bootjack Lake. Flow data is no longer collected at this location due to its remote location and access limitations.

4.2.3. Site W4 – North Dump Creek

In 2008 a new staff gauge was installed and calibrated at this site, but to date there is not enough flow data to develop a discharge curve. The staff gauge was damaged in 2009 again and was replaced in 2010 and a new benchmark location was established. There were 16 staff gauge readings recoded at this site in 2010. There were no manual gauging done at this station due to low flows and equipment limitations.

4.2.4. Site W5 – Bootjack Creek above Hazeltine Creek

Water volumes were recorded to be very low in 2007, as the staff gauge location had become buried in organic debris. The staff gauge at this site was reestablished and calibrated in 2008 and in 2009. There were 4 staff gauge readings recorded in 2010 however there is not enough flow data to create a discharge curve for this site. A benchmark survey was conducted at this site in July 2010 and there were no changes recorded.

4.2.5. Site W7 – Upper Hazeltine Creek

Consulting firm Knight Piesold was retained to review the 2010 hydrometric data from Hazeltine Creek. This data and the findings are presented in Appendix H. A new staff gauge was installed and benchmark survey completed in April 2010 by Knight Piesold.

In this review Knight Piesold made several recommendations which Mount Polley has already incorporated, including regular recalibration of equipment and continuing to catalogue all site visit data including flow measurements and data downloads.

4.2.6. Site W8 – Northeast Edney Creek Tributary

A benchmark survey was completed on the staff gauge at W8 on June 8th. The staff gauge appears to be in the correct position; however one benchmark seems to have moved. There were 19 staff gauge readings recorded at this site in 2010 and one manual gauging. While there is a pressure transducer recording real time activity at this site there is not enough data to develop a proper curve.

4.2.7. Site W12 – 6K Creek At Road

A benchmark survey was conducted at this site in July 2010 and there were no observed changes noted from 2009. There were four staff gauge readings taken and one manual flow recorded of 0.006085 m^3/S.

4.2.8. Site W11 - Edney creek

A staff gauge benchmark survey was conducted at this site in June 2010. There was no significant movement recorded. There were 6 staff gauge readings recorded and one manual flow recorded of 0.03791 m^3/S.

4.3. **Groundwater Static Levels**

Figure 4.4 presents graphs of static water levels (SWL) for wells 95R-4 and 95R-5, for the period 1996 to 2010.

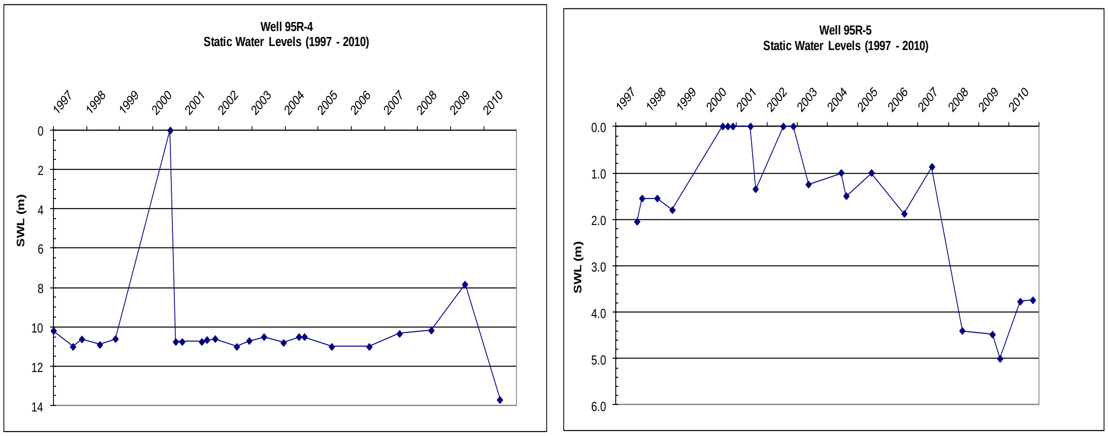

Figure 4.4. Static water levels at wells 95R-4 and 95R-5, from 1996 to 2010.

SWL's in 95R-4 have mostly been around 11 metres however in June of 2010 the level had dropped to 13.7 meters. SWLs in well 95R-5 were shifting between 0 meters and 2 meters, with no specific trend until 2008 when levels dropped to 4.5 meters. Levels have now remained between 5 and 3.5 for 3 years.

Figure 4.5 presents the graphs of the static water levels at GW96-1a, GW96-1b, GW96-2a and GW96-2b

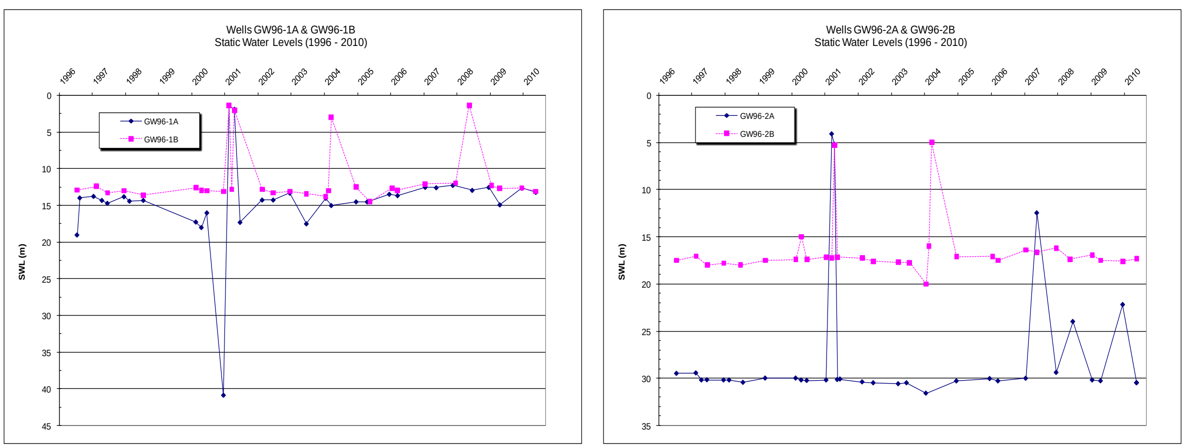

Figure 4.5 Static Water Levels at GW96-1a, GW96-1b, GW96-2a, and GW96-2b

SWLs in well GW96-1a have predominantly fluctuated between 15 meters and 20 meters, but have dropped to as low as 40 meters (Spring 2001) and risen to as high as 2.5 meters in the summer of 2001. By comparison, levels in well GW96-1b have been very consistent at 13 meters, with only 3 occasions where the level rose to near 0 meters (June of 2001, 2004 and 2008). 2010 saw consistent SWL in these wells.

In well GW96-2a, SWLs were typically observed at approximately 30 meters until 2007 when seasonal fluctuations began to be recorded. This trend continued in 2010. Over the years, SWLs in well GW96-2b have been very consistent at 15 meters, with brief rises to nearly 5 meters in 2001, 2003 and 2004. In 2010, the SWL in well GW96-2b remained consistent with previous levels.

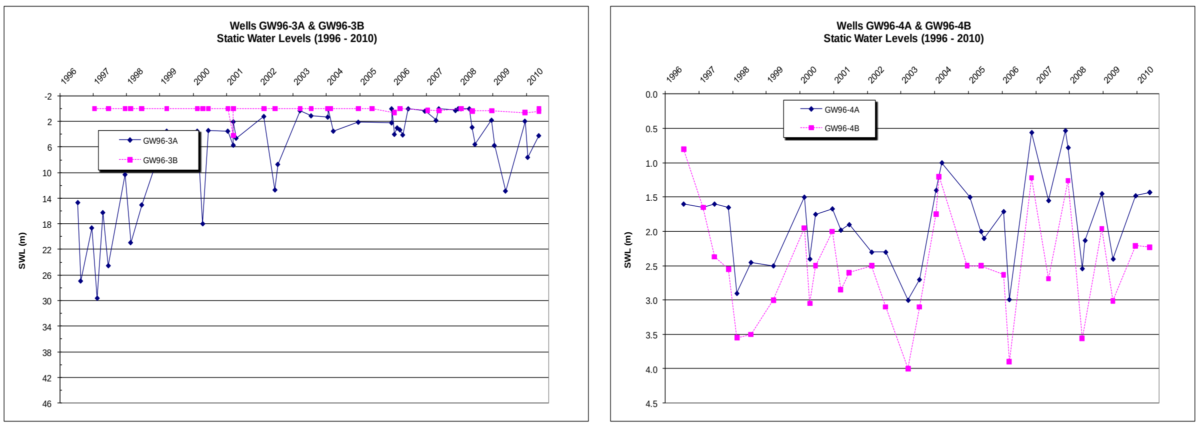

Figure 4.6 Static Water Levels at GW96-3a, GW96-3b, GW96-4a, and GW96-4b

In well GW96-3a, the SWLs have fluctuated greatly, with a range of 42 meters to nearly 0 meters. In 2010 SWL's in this well remained consistent with previous levels. SWLs in well GW96-3b continue to be very consistent remaining at or near 0 meters.

Static water levels in well GW96-4a have ranged between zero and four. Levels in 2010 continue to remain in this range. Static water levels in well GW96-4b have mirrored those of its twin well GW96-4a, fluctuating with a similar pattern at slightly greater depths. This trend has continued in 2010.

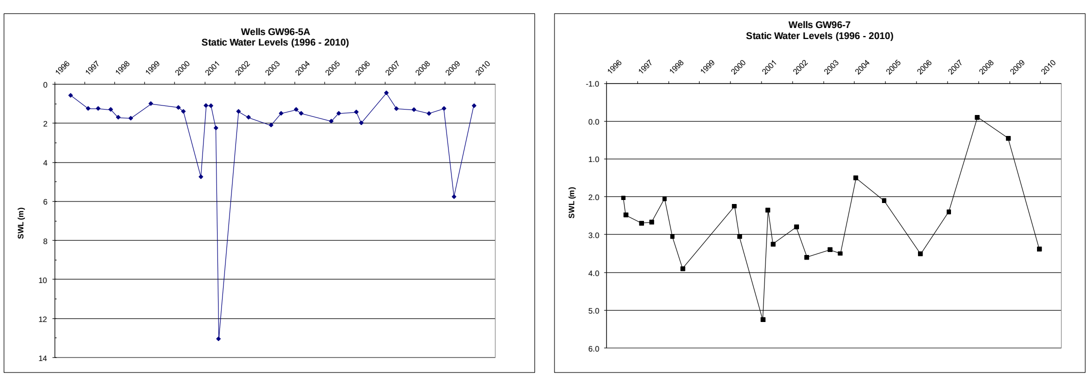

Figure 4.7 Static Water Levels at GW96-5a and GW96-7

Figure 4.7 presents the static water levels for wells GW96-5a/, GW96-7, GW96-8a/8b and for the period 1996 to 2008.

GW96-5a static water levels have predominantly fluctuated between 5 meters and 0 meters, dropping as low as 13 meters in the winter of 2001 and to 5.77 in 2009.

Well GW96-7 static water levels have consistently measured between two and four metres. In 2001 it briefly dropped to 5.25 metres. 2008 levels rose to above ground level (10 cm above ground in PVC housing pipe) and dropped back to 0.45 metres in 2009.

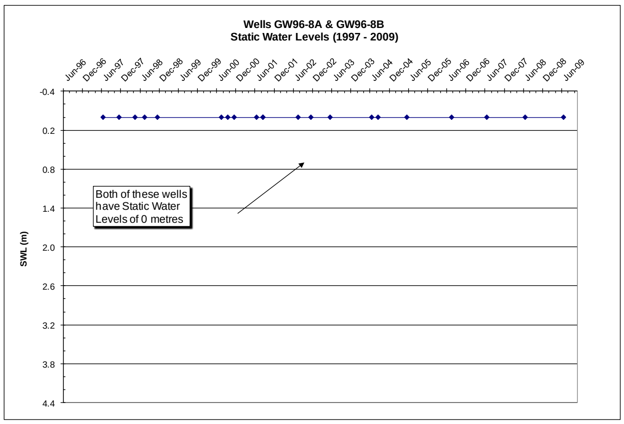

Figure 4.8 Static Water Levels at GW96-8a and GW96-8b

Static water levels in wells GW96-8a and GW96-8b have always been at ground level (0 meters), and this trend continued in 2010.

Figure 4.9 presents graphs of static water levels for wells GW00-1a/1b and GW00-2a/2b for the period 2000 to 2010.

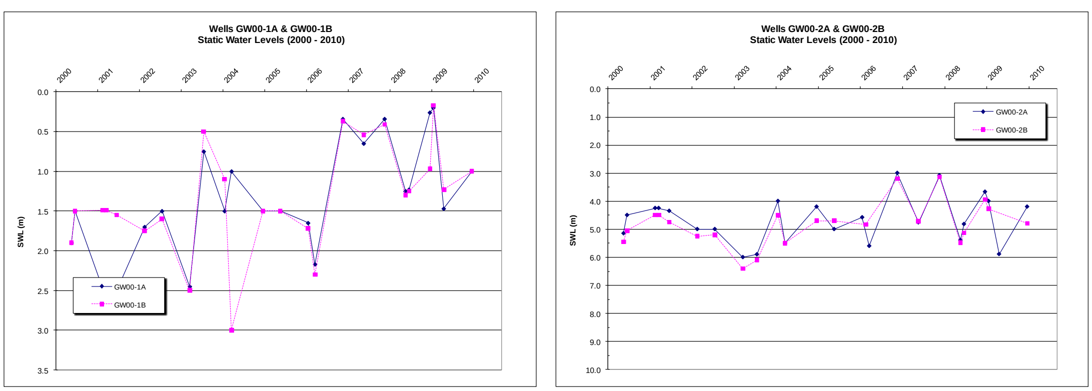

Figure 4.9 Static Water Levels at GW00-1a, GW00-1b, GW00-2a, and GW00-2b

SWL in GW00-1a have always fluctuated both seasonally and annually. This trend appears to have continued in 2010. In well GW00-1b, SWL's have historically mirrored those in GW00-1a, fluctuating between 0.5 and 3 metres. This trend continued into 2010.

Static water levels in wells GW00-2a and 2b have remained relatively flat over the entire monitoring period, with small fluctuations exhibited between 3 and 6 meters. This trend continued in 2010.

Figure 4.10 presents graphs of static water levels for wells GW00-3a and GW00-3b for the period 2000 to 2010.

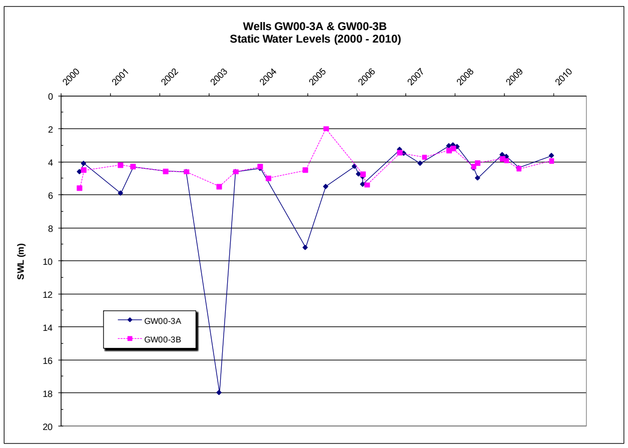

Figure 4.10 Static Water Levels at GW00-3a and GW00-3b

The static water levels in well GW00-3a have fluctuated slightly, with the majority of the samples between 4 meters and 6 meters, but with several samples in 2002 and 2007 as low as 19 meters. Well GW00-3b, the static water level has been very consistent remaining within the range of 4 to 6 meters. SWL's in both wells continued to follow this trend in 2010.

5.0 RECLAMATION PLANNING AND ACTIVITIES

The objective of the reclamation research program is to develop the methods, materials and protocol for achieving end land use objectives defined in the Mount Polley Reclamation Plan. The primary end land use objectives are wildlife habitat and commercial forestry. Secondary objectives include cattle grazing, hunting, guide-outfitting, trapping and outdoor recreation.

5.1. Research

5.1.1. Tree Growth Plots

A research report written by R. Meister, *Forestmeister Services,* was included in the 2008 Annual Environmental and Reclamation Report submitted by Mount Polley. There was no research summary reported in 2010.

5.1.2. Seed Plots

In conjunction with the planting of native seed on the NEZ dump, 27 seed trial plots were established. There were 9 seeds in the seed mixture therefore one plot per seed type on all three treatment types. These plots will be monitored in the summer of 2011.

5.1.3. Biosolids Program

In 1999, the MOE issued Mount Polley Mining Corporation a permit to import biosolids from the Greater Vancouver Regional District for the purposes of mine site reclamation (Permit PE15968). After initial receipt and stockpiling of the biosolids shipments in 2000, the program was suspended. Biosolids shipments recommenced in 2007 (see 2007 Annual Report for summary of 2007 analysis and shipment data).

The following is a summary of the biosolids deliveries for 2010;

Biosolids Source: Annacis Island Wastewater Treatment Plant Class A cake and Lulu Island Wastewater Treatment Plant Class B cake

Period of deliveries: April 1 to June 24th 2010 and from July 2 to November 16th 2010.

Total tonnage: 16 135.94 wet tonnes Class A Biosolids + 41.85 wet tonnes Class B Biosolids.

Delivered to: Main stockpiling area (Site 1A)

Biosolids quality confirmation: all biosolids delivered to Mount Polley in 2010 met the requirements of Permit PE 15968 as well as the Organic Matter Recycling Regulation criteria for Class A or Class B biosolids. Analytical results are presented in table 5.1.

FRESH SHEET - AVERAGE METRO VANCOUVER'S BIOSOLIDS COMPOSITION

	BC Organic Matter Recycling Regulation		Annacis I. WWTP (Routine QC Station)				Lulu I. WWTP (Secondary) Routine QC Station			
			Numbers of	Dewatered Biosolids (Class A)			Numbers of	Dewatered Biosolids (Class B)		
	Class A Biosolids	Class B Biosolids	Samples Collected	Period: Mean	15-Mar-10 Min	- 30-Nov-10 Max	Samples Collected	Period: Mean	15-Mar-10 Min	- 30-Nov-10 Max
Physical Parameters										
Total Solids (%)			40	27.0	24.7	28.7	40	23.4	22.1	24.7
Volatile Solids (%)			8	71.6	69.6	73.3	8	75.1	71.6	76.3
Electrical Conductivity (ds/m)			8	6.05	5.50	6.40	8	6.88	6.10	7.70
pH			8	7.9	7.8	8.0	8	7.6	7.5	7.7
Macronutrients (mg/kg dw)										
Total Kjeldahl Nitrogen (TKN)			8	48,238	43,600	51,500	8	64,350	58,000	68,600
Ammonia distillation			8	9,263	8,790	10,000	8	8,485	7,260	9,240
Nitrate-N			8	<5	<5	<5	8	<5	<5	<5
Nitrite-N			8	<5	<5	<5	8	<5	<5	<5
Phosphorus (Total)			8	24,863	20,700	27,400	8	20,625	19,000	21,700
Potassium (Total)			8	2,024	1,520	2,660	8	1,568	1,180	1,780
Calcium (Total)			39	24,077	20,700	27,500	39	19,882	17,900	22,000
Magnesium (Total)			39	5,503	4,510	6,330	39	3,736	3,130	4,940
Total Trace Elements (mg/kg)										
Aluminum			39	11,085	9,800	13,000	39	8,343	7,150	11,300
Arsenic	75	75	39	3.8	2.0	6.0	39	4.3	3.0	5.0
Cadmium	20	20	39	2.5	2.0	3.6	39	5.1	3.1	7.4
Chromium		1,060	39	48	39	58	39	43	34	60
Cobalt	150	150	39	4.2	3.1	6.4	39	5.0	3.5	8.5
Copper		2,200	39	773	659	898	39	1,009	762	1,370
Iron			39	25,885	17,700	39,800	39	25,374	22,300	30,800
Lead	500	500	39	87	52	138	39	42.3	36.0	51.8
Manganese			39	339	269	492	39	593	428	990
Mercury	5	15	39	1.9	1.4	2.6	39	1.9	1.5	2.8
Molybdenum	20	20	39	10.1	8.1	11.6	39	10.2	8.3	12.0
Nickel	180	180	39	22	18	26	39	32	25	48
Selenium	14	14	38	6.8	5.8	7.8	38	5.5	4.7	6.3
Silver			39	7.0	5.4	9.5	39	7.6	5.6	10.2
Zinc	1,850	1,850	39	1255	1070	1600	39	1060	976	1180
Bacteriology (MPN/g)										
Fecal Coliform - discrete	<1,000		111	81	7	*4,600*				
Fecal Coliform - last 7 sample geomean		<2,000,000					39	466,807	217,859	1,112,843

Note: Fecal Coliform limits for Class A Biosolids were exceeded once during June 2010. This was a discrete event and the Biosolids were still well within Class B limits, in accordance with permit requirements. Class A Biosolids, during the elevated Fecal Coliform event were not delivered to the Mount Polley site.

Table 5.1 Analytical results for biosolids.

5.1.4. Genomics Scientific Research

As planned, the construction of the 100GPM Anaerobic Biological Reactor ("ABR") was completed in December 2009. The objective of an ABR is to remove metals and sulphate down to reduced concentrations. The system was active with an estimated 100 GPM until August 11th 2010 when the system was shut down for just over one month to acclimate the biomass. From September 20th to the end of October approximately 10 GPM was allowed to report to the ABR, then through most of November 100 GPM was once again reporting to the ABR.

In order to monitor any changes in the water quality after passing through the ABR samples are taken at the inflow and out flow of the ABR. There are three determined sample points at the ABR including ABR-IN taken at the toe drain which represents the source, ABR-OUT, taken at the inlet of the outlet culvert (end of the pond) and the ABR-Interface taken at several points within the pond. The first sample was taken from ABR-OUT on April 8, 2010 and at ABR-IN on April 15th.

ABR-Interface samples are taken at various locations within the body of water in the ABR. On three separate occasions throughout the year samples were taken from the “interface” within the ABR. This is a very general location mid pond in the area that the piping is situated. The sample is taken approximately 1 metre below surface using a “Van Dorn” sampler.

In 2010 4 samples were taken at ABR-IN and 9 samples were taken from ABR-OUT. These samples were sent to an independent laboratory (ALS Laboratory Group (ALS)) for analysis.

In 2011, heat will be applied to the inflow water to warm the bacteria; at the end of 2011 a performance summary will be completed.

5.2. **Reclamation Facilities and staff**

During operations, the Mount Polley reclamation research program and annual reclamation initiatives are under the direction of the Environmental Superintendent, who reports to the General Manager. The environmental technologist, survey crew, and the engineering department also contribute to reclamation activities undertaken at Mount Polley. Some programs also draw on the advice of reclamation specialists, including government and industry staff, professional agrologists, registered professional foresters, professional geologists and professional biologists. Some of this work includes: soils inventory, soil classification and mapping, waste characterization, and fish and fish habitat assessments.

In-house reclamation activities conducted by Mount Polley include:

- Drafting and surveying

- Site preparation, and land contouring
- Installation of diversion ditches, drainage works, sediment control and settling ponds
- Placement of stockpiled materials on reclamation sites
- Seeding of domestic grass-legume cover crops
- Monitoring/Reporting.

Mount Polley has much of the heavy equipment necessary to carry out a majority of the reclamation activities, such as bulldozers, backhoes and haulage trucks. We will also rent additional equipment, such as hydro seeders, harrows, plows and diskers as they are needed.

Since operations restarted in December of 2004 minimal reclamation has taken place due to increasing and continuing development.

5.3. Reclamation Activities - 2010

The tables in Appendix I included in this report provide a summary of; all disturbed areas, reclaimed areas, the five projections of disturbance and reclamation, and the soil stockpile inventories.

5.4. Reclamation Cost update

A detailed reclamation cost update for the end of 2009 has been completed. The summary tables and detailed categories of disturbance can be found in Appendix J: Bond Costing.

5.4.1. Stability of Works

5.4.1.1. Rock Disposal Sites

Examinations of rock disposal sites are made in accordance with section 6.10.1 of the “Health, Safety and Reclamation Code for Mines in British Columbia”. A variance was granted by MEM on February 9, 2001. Mount Polley operates in accordance with the terms and reference of this variance. Monitoring occurs at the East Rock Disposal Site, the North Rock Disposal Site, Northeast Zone Rock Disposal Site and the Cariboo Pit Rock Disposal Site

5.4.1.2. Tailings Storage Facility and Associated Works

The Tailings Storage Facility and associated works was inspected in October of 2010 by Knight Piésold Consulting (KP). KP's findings are documented in a report found in Appendix G entitled, Tailings Storage Facility Report on 2010 Annual Inspection (Ref. No VA101-1/27-1).

5.4.2. Re-vegetation Treatments and Fertilizer Applications

The total area that has been seeded/planted throughout the mine site in 2010 was 74.65 hectares (see Appendix I, table 6.2). Seeding was done on the NEZ dump, the new access road, around the ABR, and an abandoned borrow.

Figure 5.1: Three treatment Units on NEZ dump

On the NEZ dump there were a total of 3 treatment units established for reclamation in 2010 (figure 5.1). These included Site 2a with a placement of topsoil and till mixture. There were no biosolids applied to this site. At site 2b there is a mixture of topsoil, till and biosolids (150t). Site 2b was separated into two sites 2b[1] and 2b[2].

The NEZ dump reclamation seed mix was chosen through consultation with Moss Giasson, P Ag and Premier Pacific Seed Ltd. The species composition is based on the requirement that only commercially available native seed be used. In addition to native species being specified, species expected to do well in the ICHmk3 biogeoclimatic zone (Mount Polley, 2009) were selected (table 5.2).

Table 5.2 Mount Polley Native Seed Mix

Seed	%
Mountain Brome	20
Native Red Fescue	10
Rocky Mountain Fescue	15
Wheatgrass, Bluebunch	25
Blue Wildrye	25
Junegrass	3
Ticklegrass	1
Lupinus polyphyllus	1

For the area around the new access road, the NEZ soil stockpile, and the borrow pit, standard forestry roadside seed mixture was used with the intention of providing soil stabilizing cover.

5.4.3. Rock Disposal Site Reclamation

A preliminary reclamation project occurred on the Northeast Zone dump in 2010.

Approximately 4.5 ha of this dump were re-sloped and reclaimed using different treatments (see section 5.3.2).

No reclamation was conducted on the East, North, or Cariboo Pit rock disposal sites during 2010.

5.4.4. Watercourse Reclamation

The disturbed area along the Long ditch (installed in 2008) was seeded in 2009 to provide erosion and sediment control. There were no changes to the watercourses at the Mount Polley mine site made in 2010. All diversion ditches and pipelines continue to operate as designed.

5.4.5. Pit Reclamation

In 2010, no reclamation was conducted on the Cariboo, Bell or Wight pits. The Cariboo pit has been used as a PAG dump and a catchment for Tailings Supernatant. Mining of the Bell pit was completed in 2008 and is being used as a rock dump. An amendment to Permit PE-11678 was received allowing the transfer of Tailings Supernatant to the Cariboo/Bell

Pit. From a reclamation standpoint, the transfer of supernatant provides for rapid filling of pits and submergence of pit walls that may otherwise have contributed to metal leaching.

The Wight pit was completed in early mid 2009.

5.4.6. Tailings Storage Facility Reclamation

No reclamation was conducted at the Tailings Storage Facility in 2010.

5.4.7. Road Reclamation

No road reclamation was conducted during 2010, However, the ditches and disturbed areas along the "New Access road" were seeded with a standard forestry roadside seed mixture in late fall.

5.4.8. Securing of Mine Openings

Mount Polley Mine consists exclusively of open pits. Therefore, there are no mine openings to secure. In 2008, permit M-200 was amended by bringing some existing logging roads in the area under permit. This amendment has helped to restrict access to the mine site and facilitate access planning.

5.4.9. Chemical, Reagent or Spill Waste Disposal

In the course of its ongoing operations, Mount Polley utilizes chemicals and reagents that are subject to a waste disposal management plan. Included in this plan are provisions for dealing with the waste products. In 2010 Sumas Environmental Services Ltd. was scheduled on a routine basis to remove and dispose of these waste products in an environmentally safe manner compliant with all relevant waste management legislation.

5.4.10. Acid Rock Drainage/Metal Leaching Program

The Acid Rock Drainage / Metal Leaching (ARD/ML) Monitoring Program for the Mount Polley Mine continued through 2010. The program characterizes all material types that will be handled during the mine life. Mount Polley's LECO analytical machine allows the mine to best manage mine waste by directing it to suitable storage sites, or to construction usage when required and if deemed suitable. The following sub-sections cover general discussions regarding the present program.

5.4.10.1. Waste Rock - Wight Pit, Southeast Pit, Springer Pit, Pond Pit

On each bench, a sample of cuttings was collected from each blast hole and analyzed for total copper, non-sulphide copper, iron, and gold. Blast hole patterns were on average 7.4m burden by 8.5m spacing. Bench height is 12m in the Springer Pit, while bench height is 10m in the Southeast and Pond Pits. Areas of ore and waste were identified by indicator kriging and assigning assay values, mill head value, etc. using an inverse distance calculation. The Mine Geologist then established ore/waste boundaries based on the calculated mill head values. For purposes of ARD-ML monitoring, ore areas were excluded from ABA analysis, as this material is run through the mill. However, any rock destined for the Low grade leach stockpile, #4 High-Ox stockpile, or #3 Non-Economic stockpile had ABA analysis of the blast holes. For each blast, ABA composites were made from a prescribed number of blast hole samples according to the waste tonnage in the blast. Thus, a bigger waste tonnage would correspond to an increasing number of blast samples that would make up the composite. This makes the ABA data more representative of the entire blast.

Survey data by pit is included in appendix K of this report.

A summary (by individual pit) of materials classified NAG and PAG, follows below in table 5.3.

Table 5.3 Tonnes of waste taken from each pit in 2011. Data is summarized using survey data.

Pit	NAG	PAG	Overburden	LSW	Total Waste + Overburden
Pond	1,211,055	1,753,158		369,332	4,264,173
SEZ	0	1,156,683	0	0	1,746,148
Springer	17,741,561	295,625	0	0	23,782,990

Wight Pit

The Wight Pit finished ore production in 2009, and subsequently became a dump location for PAG from the Southeast, Springer, and Pond Pits. A total of 260,000 tonnes of NAG were deposited on the Wight Pit Rock Dump before the Wight Pit finished production.

For 2009, all PAG was deposited in the Wight Pit below the 900m elevation mark. (Polley Lake elevation 922m) The PAG was used to buttress the exposed Kidney Zone wall slash, and to construct a ramp down to the 876m elevation at the north end of the pit where underground development is to occur. Previously, the Bell Pit was used as a PAG dump, but this ceased in November 2008 when the pit became too full and PAG could not be dumped below the long-term groundwater level.

Southeast Pit

All waste from the Southeast Pit was designated PAG and placed in the Wight Pit.

Springer Pit

The majority of Springer waste is NAG except for a distinct zone of PAG along the south margin of the Pit. Diamond drilling data indicated substantial quantities of pyrite in this area; this PAG-rich zone was modeled in 2009. Springer NAG was hauled to the Bell Pit dump while Springer PAG was hauled to the Wight Pit.

Pond Pit

Mining of the Pond Pit began in late 2009 and will be completed in early 2011. ABA test work on Pond Zone drill core indicated the presence of a large volume of PAG rock on both sides of the northwest-trending ore body. PAG to the west of this ore body had a sulphur content of less than 0.3%, and so was considered Low-Sulphur PAG waste (LSW). This facilitated the permitting and construction of a Sandwich Dump where LSW was combined approximately on a 2:1 ratio with high NPR Springer NAG (i.e. NPR greater than 6.0) and used to create a blended stockpile that neutralizes any acid production. Approximately 370,000 tonnes of LSW were removed from the Pond Zone in 2010 and 225,000 tonnes were placed on the sandwich dump.

5.4.10.2. Tailings Storage Facility

Total Pit Material to the dam last year was: 1,765,633 tonnes. Of this, 146,042 t was shipped as LSW, all of which was stored upstream of the dam (contained). Some of this was later identified not to be LSW, but NAG.

5.4.10.3. ABA Data

There were 1437 ABA composites analyzed from three active pits in 2010. The results of these are summarized here in table 5.4 and are tabulated in Appendix K tables K.1-1 and K.1-2.

Table 5.4Summary of ABA data from the operating pits in 2010. Given are total samples taken, tonnes of waste material (NAG or PAG), as well as averages of S (%), AP, C (%), NP, and NPR.

Pit	Samples	Tonnes	S (%)	AP	C (%)	NP	NPR
SEZ	98	843,527	0.8212	25.6629	0.1425	11.8748	1.1646
Pond	478	2,681,684	0.7482	23.3816	0.3321	27.6887	2.5723
Springer	861	16,434,758	0.1667	5.1253	0.3016	24.8925	26.0052

Material stockpiled in the #4 High-Oxide and Leach stockpiles had high NPR, however the material stockpiled in the #3 Non-Economic stockpile had an NPR of 1.59. The lower NPR in the Non-Economic ore is due to a lower oxide ratio and higher pyrite levels.

5.4.10.4. Low Grade Stockpile

At 2010 year end, the low-grade Non-economic ore was estimated to contain 1,949,246 tonnes of ore.

5.4.10.5. Rock Borrow Pit

No rock was extracted from the rock borrow in 2010.

5.4.10.6. Tailings

Representative composite tailings samples were collected to represent the tonnage of tailings deposited to the Tailings Storage Facility. Samples were collected and analyzed for 10 of the 12 months. Table 5.6 displays the ABA data for each of these samples. From January to December 2010, approximately 1,751,735 tonnes of tailings were deposited into the TSF. The composite tailings sample had an average NPR value of 5.2 and a range of NPR values from 1.00 to 10.0.

Table 5.6 ABA Results for Tailings Composite Samples 2010

Mount Polley Tailings Composite		
Tails ABA		**NPR**
2010	**Jan**	**3.8**
	Feb	**1.0**
	Mar	
	April	
	May	**4.3**
	June	**4.9**
	July	**3.7**
	Aug	**8.8**
	Sept	**4.6**
	Oct	**4.0**
	Nov	**6.6**
	Dec	**10**
2010	**Average**	**5.2**

5.4.10.7. Soils and Till

In 2010 a total of 143,287 tonnes of soil was removed from the plant site area in preparation for the Magnetite storage area. No ABA samples were taken for analysis. This soil was stockpiled as follows;

Highway to Heaven: 65,130t
Wraparound Road: 78,157t

5.4.10.8. Field Grab Samples

In 2010 Mount Polley collected 40 grabs samples for ABA analysis.

Sixteen (16) were collected from the tailings storage facility. These samples had an average NPR value of 30.39 and a range of NPR values 1.4 to 166.57.

Five (5) samples were taken from the LSW dump with an average NPR of 4.83 and a range from 1.04 to 8.83.

Five (5) samples were taken from the Bell dump with an average NPR of 19.04 and a range from 2.71 to 51.11.

Four (4) samples were taken from the Wight Pit PAG dump with an average NPR of 3.72 and a range from 1.36 to 10.48. Three of the four samples had an NPR of below 2.

Eight (8) samples were taken from mine roads with an average NPR of 7.09 and a range from 1.06 to 31.19.

5.4.10.9. Quality Control and Assurance

The pulps from 6 ABA grab samples were submitted to ALS for independent ABA analysis as part of Mount Polley's Quality Control and Assurance program. From the analysis Mount Polley's lab consistently reported a higher AP than the external lab.

5.4.10.10. Geological Characterization

Mount Polley ore bodies are alkalic porphyry copper-gold deposits hosted within Jurassic - Triassic Polley Stock that intrudes the Nicola Group volcanic rocks. The Polley Stock is a northwesterly, elongated body approximately five kilometers long and extends from Bootjack to Polley Lakes in the east west direction. The stock is a multi-phase pluton with composition ranging from diorite -to- monzodiorite -to- monzonite. It is variable altered and brecciated. Felsic (plagioclase phyric) and mafic (augite phyric) dykes occur as late stage intrusive phases. Late brittle faults offset lithologies, alteration, and mineralization.

<u>Lithologies</u>

Volcanics: These volcanic and volcaniclastic rocks are the oldest on the property, form part of the Nicola Group, and are Upper Triassic in age. They consist mainly of andesitic basalt or augite phyric alkali basalt, and volcanic breccias. Volcanic rocks do not make up a significant component of material from the pits.

Diorite: The diorite occurs mainly in the western section of the Bell Pit and is bluish-grey, fine to medium grained and equigranular to weakly porphyritic. Phenocrysts are plagioclase, minor augite, and occasional magnetite, biotite, calcite, and apatite.

Monzonite: The monzonite unit is greyish white to pinkish grey or greenish grey, medium to coarse-grained, and equigranular to weakly feldspar phyric. Predominate feldspars are orthoclase and albite. Accessory minerals include magnetite, augite, biotite, calcite, apatite, and epidote. This unit is variably flooded with potassic alteration and epidote. This unit is variable brecciated and hosts copper / gold mineralization.

Potassium feldspar phyric dykes: These dykes are pinkish orange to orangish grey. The matrix is fine to medium grained, orangish grey and composed largely of potassium feldspar. The phenocrysts are elongated subhedral to euhedral plagioclase laths up to 10mm long. These dykes are often planar occurring in various orientations and filling fractures of the brecciated monzonite. They vary in width from fractions of a metre to 5 meters wide.

Augite Phyric Dykes: These dykes are distinctive dark green with a fine to medium grained mafic matrix and scattered up to 3mm augite phenocrysts (up to 8% of rock) and occasionally up to 2% euhedral magnetite phenocrysts. Dykes are generally planar in form and tend to fill fractures and faults. They occasionally exhibit orange potassic alteration.

Alteration and Mineralization:

Brecciation and hydrothermal alteration variably affected the Polley Stock and the surrounding Nicola Group volcanics. Alteration can be described in terms of a potassic core enveloped by a propylitic zone. In core of the system, intense potassic alteration is accompanied by variable strong albite, magnetite, and actinolite alteration. Propylitic alteration (calcite – chlorite – minor pyrite) occurs near the perimeter of the system.

Mineralization is variable. In the Bell Pit, chalcopyrite is the dominant sulphide. In the northeast corner of this pit, there is a pyrite zone, where up to 5 % pyrite occurs. From an ABA point of view, this material is generally potentially acid generating. Ore waste contacts in the Bell Pit are generally gradational. The west contact is lithologically controlled by a diorite contact. In the Wight Pit, chalcopyrite and bornite are the main sulphides accompanied by locally minor pyrite. The mineralizing solutions were deficient of sulphur. Wight Pit ore is particularly high in silver (compared to Bell Pit ore).

Structures

Faults recognized to date are late and brittle. Two dominate fault sets have been recognized. One is a north-north-east trending, steeply dipping set. The other is a west northwest trending, also steeply dipping. Both fault sets offset and terminate the ore.

5.4.10.11. Drainage Monitoring Program

Mount Polley's Effluent Permit PE 11678 with the MOE requires that water samples be collected from the Tailings Supernatant Pond (Sample Site E1) and the Main Embankment Seepage collection Pond (Sample Site E4). Composite samples of the foundation drains (Sample Site E5) of the Tailings Storage Facility are also collected. Sampling occurs twelve (12) times per year. These samples are analyzed for total metals using ICP scan and for conventional parameters such as nutrients, pH, alkalinity and sulphate. Discussion of sampling results for these and other sample sites are found in Section 2.3.

5.4.10.12. ARD/ML Research - Kinetic Testing

Kinetic Rate information is a critical part of drainage chemistry prediction that provides a measure of the dynamic performance or "reactivity" of the material being tested. Steve Day of *SRK Consulting Engineers and Scientists* has been retained by Mount Polley Mining Corporation to interpret results of the kinetic-testing program and suggest other recommended testing, if required.

The final analysis and report from SRK is included in appendix L of this report.

6.0 MINING PROGRAM

A detailed Mine Plan was presented in the Reclamation and Closure Plan submitted to MEM and approved under Permit M-200.

6.1. SURFACE DEVELOPMENT TO DATE

6.1.1. Areas of Disturbance to End of 2010

At the end of 2010, the total disturbed area in all categories was 868.24 hectares. Surface areas of the various disturbed reclamation units are outlined in appendix I of this report.

Figure 6 provides a detailed summary of all disturbance areas overlain on an updated (as of 2010) aerial orthophoto mosaic.

6.1.2. Surface Development in 2010

In 2010, the waste dumps in size by 3.10 ha, pit areas increased by 1.04 ha and road disturbance area increased by approximately 22.9 ha. The tailings ponds had no significant increase in disturbance.

6.2. PROJECTED SURFACE DEVELOPMENT FROM 2010 TO 2015

6.2.1. Areas of Disturbance

Table 6.3 included in appendix I of this report outlines the projection of further disturbance for the next five years and mine life.

6.2.2. Salvaging and Stockpiling of Surficial Materials

Soil salvage is a critical component of reclamation planning, as it will provide the soil material necessary to reclaim the mine site for desired end land uses. In 1997 Mount Polley prepared a Soil Salvage and Stockpile Protocol, SSSP-97, which addressed site-specific criteria relating to soil management.

In 2010, approximately 236,813m3 of soil was salvaged from the plant site area which contributes to a total of 3,400,000 m3 in storage held at Mount Polley (Table 6.4 Appendix I). This amount over 695 ha (total area disturbed minus pits and stockpiles) yields a nominal 46cm (vertical equivalent) of soil in storage for each hectare disturbed.

6.2.3. Drainage Control and Protection of Water Courses

Mount Polley maintains several ditches around the property. These ditches are observed daily by the pit operations shifter and weekly by environmental staff. As well these ditches are inspected bi-annually by environmental staff. Sediment and erosion control systems are put in place as required.

6.3. **TEST HEAP LEACH**

In 2006 Mount Polley applied for an amendment to the M-200 permit allowing them to build a Leach Pad and Copper Recovery Facility. The amendment was granted to Mount Polley on March 29, 2007. The M-200 permit now requires that all monitoring data from this facility be included in this report.

In 2010 the total volume LCRS was 930,476 gallons. There was a total of 90 386 tonnes of materials sent to the mill from the leach pad in 2010. As well there was 21,888 tonnes of new material added to the leach pad.

In 2010, the leach pad ran for approximately 90% of the year. Table 6.3 reports the average monthly temperatures, conductivity, pH, dissolved oxygen, oxygen reduction potential, and copper and iron recovery.

	Monthly Average							Leachate Solution	
	Temperature (^{0}C)	Conductivity (uS/cm)	DO (mg/L)	pH	ORP	Sump (level)	Flow (m3/hr)	Copper (Cu)	Iron (Fe)
January	13.6	50	13.6	353	363.43	20	78	1424	42
February	11.8	49.6	15	3.52	363.5	21	75	1414	35.4
March	10.68	45.8	3.69	3.51	398.73	22	72	1316	29
April	9.91	44.5	1.43	3.47	399	22	70	1288	27
May	10.14	44.5	2.89	3.43	416	22	65	1148	26.77
June	11.52	44.08	1.3	3.32	423	18.4	68	1250	35
July	14.3	43.6	1.2	3.41	461	7.9	34	1268	32
August	16.5	43.8	0.95	6	462	8.5	30	1082	57
Septembe	16.1	45.17	2.3	2.58	434.2	20	NR	1509	198
October	15.4	34.7	0.96	3.32	385	20	NR	1211	223
November	15.6	23.1	7.6	3.29	396	15	NR	660	252

Table 6.1 Monthly averages at Heap Leach Test Pad

7.0 DISCUSSION

This report satisfies the reporting requirements of the Ministry of Environment effluent permit, PE 11678 and the Ministry of Energy and Mines permit M-200. Mount Polley continues to monitor and report as required by all permits.

With regards to hydrological monitoring, MPMC recognizes that more flow data is required from this site and plans to conduct a small study in the Spring of 2011 on what improvements might be made to the site to allow for more accurate gauging.

MPMC also plans to develop a monitoring program for the LSW sandwich dump in 2011 that will include some profile sampling and ABA analysis.

MPMC intends to follow the recommendations for biological monitoring as outlined in section 3.1 of this report.

REFERENCES

British Columbia Ministry of Environment. 2006a. British Columbia Approved Water Quality Guidelines 2006 Edition. Updated August 2006.

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