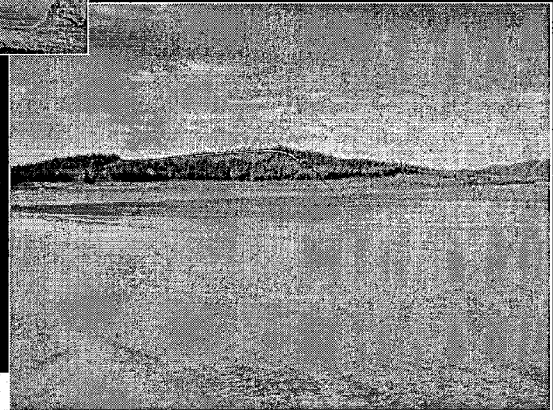


MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY MINE

TAILINGS STORAGE FACILITY
REPORT ON 2010 ANNUAL INSPECTION



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VA101-1/29-2
Rev 1
January 25, 2011

Knight Piésold



ISO 9001, ISO 14001
OHSAS 18001

**MOUNT POLLEY MINING CORPORATION
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Rev	Description	Date	Approved
0	Issued in Final	December 16, 2010	KJB
1	Minor Edits -- Issued in Final	January 25, 2011	<i>KJB</i>

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EXECUTIVE SUMMARY

▲R1

The Mount Polley Copper and Gold Mine is located in central British Columbia approximately 56 kilometres northeast of Williams Lake. Mount Polley Mining Corporation (MPMC) started production in 1997 with an ore reserve of approximately 85 million tonnes of copper and gold in three ore bodies. MPMC milled approximately 27.5 million tonnes of ore prior to suspending operations in October 2001 due to a sustained period of low metal prices. The mine subsequently operated under care and maintenance conditions from October 2001 to March 2005. Exploration activities continued during the care and maintenance period and a new high grade zone, called the northeast zone, was discovered in 2003. The discovery of the northeast zone, along with increased metal prices, resulted in the mine resuming operations again in March 2005.

The ore is processed by selective flotation to produce a copper-gold concentrate at a mill throughput of approximately 20,000 tpd. Mine tailings are deposited by gravity as slurry into the Tailings Storage Facility (TSF) located approximately four kilometers south of the mill. Process water in the TSF is collected and recycled back to the mill for re-use in the milling process. The TSF at Mount Polley consists of one embankment that is approximately 4,200 m long. The TSF embankment is divided into three sections referred to as the Main, Perimeter, and South Embankments. The current crest elevation of the TSF embankment is 958 m. The heights of the TSF embankments are approximately 45 m, 27 m, and 17 m for the Main, Perimeter, and South Embankment, respectively. The tailings embankments have been designed for staged expansion using the modified centreline construction method. The embankments are zoned earthfill/rockfill embankments and include a low permeability core zone which ties into a natural and constructed low permeability basin liner to form a continuous low permeability seepage barrier within the impoundment.

TSF Inspections have occurred on an annual basis, with the exception of 2006, when a formal Dam Safety Review was completed. The next Dam Safety Review should be carried out by 2016, or during detailed closure design, whichever is earlier.

The 2010 TSF inspection of the TSF was completed by Mr. Les Galbraith, P.Eng., of Knight Piésold (KP) on October 7, 2010.

The results and recommendations from the 2010 inspection of the TSF are summarized as follows:

- The classification of the TSF is currently "Significant", as per 2007 Canadian Dam Association Dam Safety Guidelines. The "Significant" classification is analogous to the previous "Low" classification, as recommended in the 2006 Dam Safety Review, which was based on the 1999 CDA guidelines. It is recommended that the TSF classification be reviewed, with specific reference to potential damage to

downstream fish and/or wildlife habitat following a hypothetical dam breach after the TSF has reached its ultimate elevation.

- The TSF embankments were observed to be in good condition, however, a tension crack was observed at the Perimeter Embankment on the downstream side of the crest in the Zone C rockfill material. Although this is likely the result of localized settlement in loosely compacted material along the downstream slope of the embankment, it is possible that there may be a relationship between the tension crack and the excavation of the glacial till borrow area immediately downstream. This should be evaluated as part of the Stage 7 design phase and any additional excavation within the borrow area should be reviewed and approved by the TSF design engineer.
- The downstream slope of the Main Embankment is approximately 1.4H:1V. This was previously constructed as an interim slope to balance the construction material requirements with the waste production schedule for that particular year. This short term slope configuration still exists. It is recommended that the downstream slope of the Main Embankment be evaluated during the Stage 7 design phase to assess whether it requires flattening at this time.
- Slight deviations measured in the lacustrine unit in Inclinator SI01-02 resulted in the requirement for a buttress at the Main Embankment. The buttress was constructed downstream of Inclinator SI01-02 to the west of the Seepage Collection and Recycle Pond and this appears to have been effective as the displacements in Inclinator SI01-02 have stabilized. The Stage 6b design included constructing the buttress along the entire dam as any weak layer in the lacustrine material would likely extend laterally to the east of the Seepage Collection and Recycle Pond as well. It was also recommended that the buttress be constructed prior to the commencement of the Stage 6b embankment raise. The buttress was constructed along only the west side of the dam in 2010. The extent of the buttress should be re-evaluated in 2011, following the Dam Classification review, to assess its timing, lateral extent, and elevation requirements.
- Develop a tailings deposition plan to deposit tailings around the perimeter of the facility to facilitate the development of tailings beaches and manage the location of the tailings pond. The lack of tailings beach development was a deficiency identified in a 2008 geotechnical inspection by the Ministry of Energy, Mines, and Petroleum Resources (MEMPR). The tailings were being deposited from the west abutment of the Perimeter Embankment at the time of the inspection and the supernatant pond was in contact with the South and part of the Main Embankment.
- The minimum freeboard requirement of 1.4 m was maintained throughout 2010. MPMC have provisions in place to transfer excess water from the TSF to the Cariboo Pit to reduce the water storage requirements in the TSF.
- The supernatant pond volume was reported to be approximately 650,000 m³ in June 2010 which is quite low considering the volume was measured after the 2010 freshet. The small supernatant pond may result in suspended solids being returned to the mill with the reclaim water. The mill currently sources its process water from the TSF and it is recommended that the tailings pond have a defined lower operating volume so that there is sufficient settling time for the tailings solids and to ensure that there is enough free water in the TSF to provide process water to the mill through the winter months when there is minimal surface runoff.
- The instrumentation at the TSF consists of vibrating wire piezometers and inclinometers. There have been no unexpected or anomalous instrumentation readings. However, approximately 40% of the vibrating wire piezometers installed at the TSF are no longer functioning. Replacing the lost instrumentation is an outstanding item from the 2006 Dam Safety Review and the program to replace the lost instrumentation has not yet been implemented. Replacing the lost instrumentation should be

considered a high priority by MPMC. No additional raises of the TSF should be constructed until the lost instrumentation is replaced.

- An instrumentation and flow monitoring plan should be developed that is consistent with the required frequencies outlined in the Operations, Maintenance and Surveillance Manual.
- MPMC is managing the site water balance and it has not been reviewed by the TSF design engineer in 2010. It is recommended the site water balance be reviewed and updated as part of the Stage 7 design of the TSF and include a stochastic analysis to evaluate wet and dry precipitation conditions.
- The mine site is currently reported by MPMC to be operating with a water surplus. Site surplus water is currently being stored in the TSF and transferred to the Cariboo Pit. MPMC is currently seeking regulatory approvals to discharge water from the site to reduce the increasing water storage requirements.
- The TSF is a key component in the water management plan and it is imperative that MPMC appropriately engage the TSF design engineer with respect to modification to the water management plan and water balance to ensure the design and operational requirements of the TSF are not jeopardized by the transfer of large volumes of water into the impoundment.
- A preliminary design of the TSF, completed by Knight Piésold in 2005, considered an ultimate embankment crest elevation of 965 m and provided storage for approximately 85 Mt of tailings. The MPMC mine plan is evolving as new resources are discovered and it is possible that the ultimate mineable resource will exceed the ultimate storage capacity of the TSF as defined in the 2005 study. It is recommended that the tailings storage requirements be re-evaluated to assess whether modifications are required to the TSF layout. Additionally, the closure and reclamation plan for the TSF should be updated to reflect the increased resource and tailings storage requirements. The TSF should be designed for closure and defining the ultimate storage requirements along with the closure and reclamation plan for the TSF are key considerations for future design phases.

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- VA101-1/29-102 Rev 0 Stage 6b Tailings Embankment – General Arrangement
- VA101-1/26-104 Rev 1 Stage 6b Tailings Embankment – Material Specifications
- VA101-1/26-210 Rev 1 Stage 6b Main Embankment – Plan
- VA101-1/26-215 Rev 1 Stage 6b Main Embankment – Section
- VA101-1/26-216 Rev 1 Stage 6b Main Embankment – Detail
- VA101-1/26-220 Rev 1 Stage 6b Perimeter Embankment – Plan
- VA101-1/26-225 Rev 1 Stage 6b Perimeter Embankment – Section
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- VA101-1/29-255 Rev 0 Stage 6b – Instrumentation – Plan View of Piezometer Planes
- VA101-1/29-256 Rev 0 Stage 6b – Instrumentation – Main Embankment Planes A and B
- VA101-1/29-257 Rev 0 Stage 6b – Instrumentation – Main Embankment Planes C and E
- VA101-1/29-258 Rev 0 Stage 6b – Instrumentation – Perimeter Embankment Planes D, G and H
- VA101-1/29-259 Rev 0 Stage 6b – Instrumentation – South Embankment Planes F and I

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- Appendix A Piezometer Records
 - A1 Tailings Piezometers
 - A2 Foundation Piezometers
 - A3 Fill Piezometers
 - A4 Drain Piezometers
- Appendix B Inclinator Data
- Appendix C 2010 Annual Inspection Photographs

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SECTION 1.0 - INTRODUCTION

1.1 PROJECT DESCRIPTION

The Mount Polley Copper and Gold Mine, which is owned and operated by Mount Polley Mining Corporation (MPMC), is located in central British Columbia approximately 56 kilometres northeast of Williams Lake. The mine is accessible by paved road from Williams Lake to Morehead Lake and then by gravel road for the final 12 km. Mount Polley Mine started production in 1997 with an ore reserve of approximately 85 million tonnes of copper and gold in three ore bodies. The Bell and Cariboo Pits were developed in the early years of operations with pioneering work being completed on the Springer Pit.

MPMC milled approximately 27.5 million tonnes of ore prior to suspending operations in October 2001 due to a sustained period of low metal prices. The mine subsequently operated under care and maintenance conditions from October 2001 to March 2005. Exploration activities continued during the care and maintenance period and a new high grade zone, called the northeast zone, was discovered in 2003. The discovery of the northeast zone, along with increased metal prices, resulted in the mine resuming operations again in March 2005. Current mine production includes the development of the Springer and Southeast deposits (mining the northeast zone as the Wight pit was completed in mid-2009), with ongoing exploration in other zones on the property.

The ore is processed by selective flotation to produce a copper-gold concentrate at a mill throughput of approximately 20,000 tpd. Mine tailings are deposited by gravity as slurry into the Tailings Storage Facility (TSF) located approximately four kilometers south, southeast of the mill. Process water in the TSF is collected and recycled back to the mill for re-use in the milling process. The overall site plan for the mine, showing the Stage 6b footprint of the TSF, is shown on Drawing 101-1/18-100.

1.2 SCOPE OF REPORT

Mount Polley Mining Corporation requested Knight Piésold complete a site inspection of the TSF and prepare an Annual Inspection Report that meets the guidelines outlined by the Ministry of Forests, Mines and Lands, (previously the Ministry of Energy, Mines and Petroleum Resources). Mr. Les Galbraith, P.Eng., of Knight Piésold (KP) conducted the 2010 inspection on October 7, 2010. This report presents the results of the annual inspection. The inspection involved making visual observations of the TSF and includes a review of the instrumentation records. This report also includes a review of the ancillary works, which includes the tailings and reclaim pipelines, the Mill Site Sump, and the South Bootjack Dam.

Selected photographs taken during the site inspection are included in Appendix C.

SECTION 2.0 - TAILINGS STORAGE FACILITY AND ANCILLARY WORKS

2.1 TAILINGS STORAGE FACILITY

2.1.1 General

▲R1

The principal objectives of the TSF are to provide secure containment for tailings solids and to ensure that the regional groundwater and surface water flows are not adversely affected during or after mining operations. An additional requirement for the TSF is to allow for effective reclamation of the tailings impoundment and associated disturbed areas at closure.

The TSF at Mount Polley consists of one embankment which is approximately 4,200 m long. The TSF embankment is divided into three sections referred to as the Main, Perimeter, and South Embankments. The current crest elevation of the TSF, which corresponds to the Stage 6b embankment raise completed in the summer of 2010, is 958 m. The heights of the TSF embankments corresponding to a crest elevation of 958 m are approximately 45 m, 27 m, and 17 m for the Main, Perimeter, and South Embankment, respectively. The tailings embankments have been designed for staged expansion using the modified centreline construction method. The TSF plan and sections, corresponding to the Stage 6b construction program, are shown on the following drawings:

- VA101-1/29-100 Rev 0 Stage 6b Tailings Embankment – Overall Site Plan
- VA101-1/29-102 Rev 0 Stage 6b Tailings Embankment – General Arrangement
- VA101-1/26-104 Rev 1 Stage 6b Tailings Embankment – Material Specifications
- VA101-1/26-210 Rev 1 Stage 6b Main Embankment – Plan
- VA101-1/26-215 Rev 1 Stage 6b Main Embankment – Section
- VA101-1/26-216 Rev 1 Stage 6b Main Embankment – Detail
- VA101-1/26-220 Rev 1 Stage 6b Perimeter Embankment – Plan
- VA101-1/26-225 Rev 1 Stage 6b Perimeter Embankment – Section
- VA101-1/26-226 Rev 1 Stage 6b Perimeter Embankment – Detail
- VA101-1/26-230 Rev 1 Stage 6b South Embankment – Plan, and
- VA101-1/26-235 Rev 1 Stage 6b South Embankment – Section 1.

2.1.2 Tailings Storage Facility Components

The main components of the TSF are as follows:

- TSF embankments. The TSF embankments are zoned earthfill/rockfill embankments that include the following zones and materials:
 - Zone S - Core zone - fine grained glacial till.
 - Zone F - Filter, drainage zones, and chimney drain - processed sand and gravel. Zone F material provides a filter relationship between the Zone S and the Zone T material.
 - Zone T - Transition filter zone - select well-graded, fine-grained rockfill. Zone T material provides a filter relationship between the Zone F and the Zone C material.
 - Zone C - Downstream shell zone – rockfill.

- Zone U - Upstream shell zone – materials vary. Zone U provides upstream support for the Zone S core zone for modified centreline construction.
- A low permeability basin liner (natural and constructed) covers the base of the entire facility at a nominal depth of at least 2 m. The Zone S core zone ties into the basin liner to provide a continuous low permeability seepage barrier within the impoundment.
- Seepage Collection and Recycle Ponds located downstream of the Main, Perimeter and South Embankments. The Seepage Collection and Recycle Ponds were excavated in low permeability soils and collect water from the embankment drains and runoff from the downstream slope of the embankments. Water collected in the ponds is pumped back to the TSF.
- A foundation drain and pressure relief well system located downstream of the Stage 1B Main Embankment. The foundation drain and pressure relief well system prevents the build-up of excess pore pressure in the foundation. Groundwater and/or seepage are transferred to the Main Embankment Seepage Collection Pond.
- Embankment drainage provisions, which include foundation drains, chimney, longitudinal and outlet drains, and upstream toe drains. Flows from the embankment drainage provisions report to their respective Seepage Collection Ponds where the flows are measured prior to being pumped back to the TSF.
- Geotechnical Instrumentation in the tailings, embankment fill materials, embankment drains, and embankment foundation materials. Geotechnical instrumentation includes vibrating wire piezometers and slope inclinometers.
- A system of groundwater quality monitoring wells installed around the TSF.

2.2 ANCILLARY WORKS

Ancillary works that are key to the operation of the TSF include the following:

- Tailings and Reclaim Pipelines. The tailings pipeline comprises approximately 7 km of HDPE pipe of varying diameters and pressure ratings extending from the mill down to the crest of the tailings embankment. The tailings pipeline and discharge system extends around the TSF to facilitate tailings beach development. The tailings pipeline has a design flow of 20,000 tpd at 35% solids by dry weight. The reclaim pipeline system returns water from the TSF to the mill site for re-use in the process. The system comprises a pump barge, a reclaim pipeline and a reclaim booster pump station.
- Mill Site Sump. Runoff from the Mill Site is routed and stored in the Mill Site Sump. Excess water from the sump is routed into the tailings pipeline near the mill for storage in the TSF.

2.3 2010 CONSTRUCTION ACITIVITIES

The construction activities at the TSF during the past year included the following:

- Completing the Stage 6b expansion of the TSF that involved raising the crest elevation to 958 m, an increase of 4 m from the Stage 6a crest elevation. The Stage 6b construction program was

completed in August 2010. Details of the Stage 6b construction program were issued in the Stage 6b Construction Report¹.

- Expanding the TSF Main Embankment buttress. The buttress requirements for the Main Embankment were reviewed and revised by Knight Piésold in 2009 resulting from slight displacements measured in inclinometer SI01-02².
- Constructing the Seepage Collection and Recycle Pond at the South Embankment.
- Extending the upstream toe drain installation at the South Embankment west abutment.

¹ Knight Piésold report - Tailings Storage Facility – Report on Stage 6b Construction. Ref. No. VA101-1/29-1. December 2010.

² Knight Piésold Letter – Buttress Requirements for the Main Embankment. Ref. No. VA09-00838), July 3, 2009.

SECTION 3.0 - SITE INSPECTION

3.1 GENERAL

Mr. Les Galbraith arrived on site on October 7, 2010, and held discussions with Mr. Ron Martel of MPMC regarding activities and observations at the TSF over the past year. Mr. Martel indicated that a tension crack had been identified at the Perimeter Embankment. No other concerns were raised by Mr. Martel. The 2010 inspection of the TSF occurred that afternoon. The weather conditions at the time of the inspection consisted of clear skies.

3.2 TAILINGS STORAGE FACILITY

3.2.1 Tailings Dam Classification

The classification of the TSF was reviewed as part of the 2006 Dam Safety Review (DSR)³. The Dam Safety Review recommended that the hazard classification be reviewed assuming that the owner's costs were not included in the rating selection. This was discussed with MPMC and the hazard classification for the TSF was subsequently reduced to "LOW" based on the 1999 Canadian Dam Association (CDA) guidelines⁴.

The CDA updated their 'Dam Safety Guidelines' in 2007⁵, which introduced a new rating system that included five classifications from Low to Extreme. The updated classification of the TSF was revised in 2007 to the "Significant" category, which was analogous to the previous "Low" classification from the 1999 CDA guidelines.

The classification of the tailings dams, as recommended in the 2006 Dam Safety Review, was based on potential consequences to the receiving environment and public safety. The environmental impacts resulting from a theoretical dam breach have not been evaluated and it is therefore recommended that a Dam Breach and Inundation Analysis be completed in 2011. The study should evaluate dam breaches at various TSF locations using the ultimate height of the TSF embankments. The Dam Breach and Inundation Analysis will evaluate whether there is significant or major loss to important or critical fish and/or wildlife habitat and whether the "Significant" classification for the tailings dam is still considered appropriate.

The results of the Dam Breach and Inundation Analysis would also be incorporated into the Emergency Preparedness and Response Plan.

³ AMEC Report – Dam Safety Review. December 2006.

⁴ Canadian Dam Association - Dam Safety Guidelines - 1999

⁵ Canadian Dam Association - Dam Safety Guidelines - 2007

3.2.2 Tailings Storage Facility Embankments

Pertinent observations regarding the condition of the TSF were as follows:

- A tension crack was observed at the Perimeter Embankment at an approximate chainage of 3+400. The tension crack is in the Zone C material at the downstream edge of the embankment crest. The tension crack was apparently identified two months earlier by the grader operator and was approximately 10 to 15 m long. The area has since been graded over but portions of the tension crack are still visible. The location of the tension crack in relation to the downstream slope is not an uncommon occurrence in rock slopes as the outer edge of the material typically receives less compaction effort. A tension crack does not necessarily indicate a plane of weakness in fill materials but it can't be ignored either. The tension crack is located on a section of the Perimeter Embankment located upstream of the Zone S borrow area.

It is recommended that a stability assessment be completed for this area to assess whether the borrow area configuration has any impact on the integrity of the current, and ultimate embankment section. It should also be noted that the identification of a tension crack, or any other abnormal observation at the tailings dam, should be reported to the design engineer immediately and prior to any remedial action being taken.

- Other than the tension crack mentioned above, no signs of distress were identified at the tailings embankments. The embankment slopes were approximately planar and there was no evidence of cracking, bulging or slumping in the embankment fill. The embankment crest appeared to be relatively level with no signs of differential settlement or distress. There was no evidence of animal burrowing.
- No major unexpected or uncontrolled seepage was observed from the embankments, including fill slope and foundations.
- The tailings embankments currently have a downstream slope of approximately 1.4H:1V. This was previously constructed as an interim slope to balance the construction material requirements with the waste production schedule for that particular year. This short term slope configuration still exists.

It is recommended that the downstream slope of the Main Embankment be evaluated during the Stage 7 design phase to assess whether it requires flattening at this time.

- Slight deviations measured in the lacustrine unit in Inclinator SI01-02 resulted in the recommendation for constructing a downstream buttress². The results of the stability assessment recommended a buttress be constructed downstream of the Main Embankment to an elevation of 920 m for a crest elevation of 958 m, the crest elevation for the Stage 6b embankment. The Stage 6b buttress footprint, which extends to both sides of the Main Embankment Seepage Collection and Recycle Pond, is shown on Drawing VA101-1/29-210. The letter also recommended that the buttress be constructed prior to the commencement of the Stage 6b construction program, which did not happen.

It is recommended that the Main Embankment buttress requirements and timing be re-evaluated as part of the Stage 7 design of the TSF.

3.2.3 Tailings Beach

MPMC is currently single point discharging tailings near the northwest corner of the TSF. Prolonged discharge from this location has resulted in the supernatant pond migrating towards the Main and South Embankments where there is a lack of beach development. The beached tailings, when left to drain and consolidate, form the competent foundation required for the modified centerline construction embankment raises.

Knight Piésold has previously recommended to MPMC⁶ the following regarding tailings beach development in the TSF:

- A beach width of at least 20 m is to be maintained along the abutments of the embankments (where the embankment contacts natural ground) and at least a 10 m width elsewhere to keep the pond away from the embankments.
- MPMC should develop a plan and schedule to enable the minimum target beach widths to be re-established within a 2 week period should they be infringed upon.
- MPMC shall increase the frequency of measurements for embankment instrumentation systems (piezometers and foundation drains - flow rate and turbidity) to at least once per week during any periods that ponded water encroaches within the minimum target beach widths.

It is recommended that MPMC adhere to the previous recommendations and develop a tailings management strategy that results in the MEMPR requirements for beach development along all of the embankments.

3.2.4 Operations, Maintenance and Surveillance Manual and the Emergency Preparedness and Response Plan

The Operations, Maintenance and Surveillance Manual and the Emergency Preparedness and Response Plan are live documents updated regularly by MPMC. The Operations, Maintenance and Surveillance Manual was last updated March 30, 2010. The Emergency Preparedness and Response Plan was last updated 2010 (no month provided).

3.2.5 Impoundment Freeboard Requirements

The design basis for the TSF includes a freeboard allowance to contain the 72-hour PMP event, which corresponds to approximately 1,070,000 m³. This would result in an increase in the TSF pond elevation of approximately 0.6 m. The freeboard requirement for wave run-up is approximately 0.8 m, for a total freeboard requirement of 1.4 m. The supernatant pond was at elevation 952.9 m at the time of Mr. Galbraith's inspection on October 7th, 2010 and the freeboard

⁶ Knight Piésold Memo – Geotechnical Inspection by MEMPR – Ref. VA08-01436. August 5, 2008.

requirement of 1.4 m has been maintained during the previous year by MPMC. MPMC does not have a discharge permit and has provisions in place to pump surplus water from the TSF to the Cariboo Pit, if required, to ensure the minimum freeboard requirements for the TSF are not infringed upon.

MPMC reported that the supernatant pond volume was approximately 650,000 m³ in June 2010. A small TSF operating pond increases the risk of higher total suspended solids in the reclaim process water. A small pond may also result in operating challenges (insufficient depth to float the reclaim barge, insufficient water available for reclaim from the TSF) associated with drier than expected conditions that are difficult to predict.

The mill currently sources its process water from the TSF and it is recommended that the tailings pond have a defined lower operating volume so that there is sufficient settling time for the tailings solids and also to ensure that there is enough free water in the TSF to provide process water to the mill through the winter months when there is minimal surface runoff.

3.2.6 Seepage Collection Ponds

The Main, Perimeter and South Embankment seepage collection ponds are located immediately downstream of their respective embankments. These ponds were excavated in low permeability glacial till materials and collect water from the embankment drain systems and from local runoff. The seepage collection ponds were observed to be in good condition with no observed erosion activity.

3.2.7 Drain Flow Data

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The upstream toe drain and foundation drains at the Main Embankment flow into the sump at the Main Embankment Seepage Collection Pond where the flows are measured. The upstream toe drains at the Perimeter and South Embankment drain into their respective seepage collection ponds via a ditch. The flow rates are currently measured at the end of the pipe. Water from the upstream toe drains and foundation drains is pumped back into the TSF.

The flow rates have been measured since July 2000; however the flow rates from the drains were not monitored during the Care and Maintenance Period. This condition was anticipated as flow monitoring is only possible during operations when the seepage pond level has been pumped down.

The inspection frequency for the upstream toe drains and the foundation drains, as per the Operation, Maintenance and Surveillance (OMS) Manual, is weekly. The inspection includes a visual check on flow clarity, and an estimate of the drain flows. The flows have been measured only once since June 2009, which is not in compliance with the OMS Manual which recommends weekly monitoring.

It is recommended that a monitoring plan be developed by MPMC to allow for drain flow monitoring as per the OMS Manual.

3.2.8 Piezometer Data

3.2.8.1 General

Vibrating wire piezometers have been installed at the TSF along nine planes, designated as monitoring planes A to I. Monitoring planes A, B, C and E are located on the Main Embankment, monitoring planes D, G, and H are located on the Perimeter Embankment, and monitoring planes F and I are located on the South Embankment. The location of the TSF monitoring planes are shown on Drawing 255. The Monitoring Planes are shown in section on Drawings 256, 257, 258, and 259. The piezometers are grouped into tailings, foundation, fill and drain piezometers. The results from each group are discussed below. The timeline plots for the piezometers are included in Appendix A.

The reading frequency for the piezometers, as outlined in the Operation, Maintenance and Surveillance Manual, is monthly at a minimum, and weekly during periods of construction. The monthly reading frequency was not maintained during the last year. The reading frequency tends to increase during non-construction periods.

The piezometric levels provide valuable input to the design and operation of the TSF and it is recommended that MPMC develop an instrumentation reading plan to ensure the piezometers are read and reported to the design engineer at the required frequency.

The TSF has been in operation since 1997 and approximately 92 vibrating wire piezometers have been installed in the TSF, of which approximately 60% are still functioning. The 2006 DSR stated that there were “about the right number of piezometers installed in the embankment dams”, but also noted that there was little redundancy with respect to the piezometers and lost instrument locations should be re-established with new installations. An instrumentation installation program has been proposed to MPMC to replace the lost instrumentation⁷. This program is expected to be carried out toward the end of 2010.

3.2.8.2 Tailings Piezometers

There are currently 10 functioning tailings piezometers. The tailings piezometers are typically installed close to the embankments and the pore pressures are sensitive to the location of the tailings pond in relation to the embankments. The pore pressures observed in the tailings piezometers at the Main Embankment have shown slight fluctuations during the Stage 6b construction program in response to the development of the tailings beach and the subsequent re-location of the tailings pond away from the embankment. Timeline plots of the tailings piezometer data are included in Appendix A1.

⁷ Knight Piésold Letter – Mount Polley Tailings Storage Facility – Instrumentation Repair, Productivity Upgrade and remote Monitoring Capacity. Ref VA10-01175. July 22, 2010.

The tailings piezometers show the upstream toe drain is effective in reducing the piezometric head in the tailings mass.

3.2.8.3 Embankment Foundation Piezometers

There are currently 8 functioning embankment foundation piezometers. Artesian conditions are present in 3 of the 7 foundation piezometers installed under the Main Embankment. Artesian conditions have previously been identified in the foundation of the Main Embankment and the piezometers installed in this area are used to confirm that pore pressures remain below the design threshold level of 6 metres above ground level⁸. No unexpected high pore pressure increases were noted during the Stage 6b construction program with the artesian pressures ranging from surface to 2.17 m above ground. The artesian head values (above ground surface level) measured in August 2010 are shown on Table 3.1.

Timeline plots of the embankment foundation piezometers are included in Appendix C2. There are no concerns with the embankment foundation piezometers, however, several of the Main Embankment piezometers are no longer working. There are currently no functioning piezometers located in the Plane A foundation at the Main Embankment. Additional piezometers are planned for installation in this location in the upcoming piezometer installation program.

It is recommended that no additional raises be completed on the TSF until the lost instrumentation has been established.

3.2.8.4 Embankment Fill Piezometers

There are currently 23 functioning embankment fill piezometers. There have been no significant changes in the trends of the embankment fill piezometers. Piezometer A2-PE2-03, located at the Main Embankment, showed a slight increase in pore pressures corresponding to fill placement during the Stage 6b construction program. This trend has been observed in the past with this piezometer and it is anticipated that the slightly elevated pore pressures will dissipate following the construction programs as they have previously.

Timeline plots of the embankment fill piezometer data are included in Appendix A3.

3.2.8.5 Drain Piezometers

There are currently 15 functioning drain piezometers. The drain piezometers are installed in the foundation drains, chimney drain, upstream toe drains, and outlet drains.

⁸ Knight Piésold Report – Updated Design Report. Ref. No. 1162/7-2. June 1997.

The majority of the drain piezometers showed near-zero pore pressures, indicating that the drains are functioning as intended. Timeline plots for the drain piezometers are shown in Appendix C4.

3.2.9 Slope Inclinerometers

A total of five slope inclinometers have been installed at the Main Embankment to measure potential displacements in the lacustrine unit that underlies the embankment. One of the inclinometers (SI01-01) was damaged during the placement of the shell zone material and is no longer functioning. The last reading for SI01-01 was March 2006. There are four functioning inclinometers installed at the Main Embankment.

The results of the inclinometer readings indicate that there have not been any significant deviations measured in three of the inclinometers since their installation. However, inclinometer SI01-02 is showing slight deviations (approximately 4 mm) at an approximate depth of 10 m below ground in the lacustrine silts. This is being closely monitored by MPMC who have expanded the buttress at the Main Embankment as a result of the measured displacements in SI01-02. The results of the readings for inclinometers are included in Appendix B.

3.2.10 Survey Monument Data

There are currently no survey monuments installed on the TSF embankment crests due to the ongoing construction of the TSF embankments.

3.3 WATER MANAGEMENT

3.3.1 General

MPMC mine personnel complete on-going surface water monitoring and water management activities to ensure compliance with the current mine permits. The site inspection evaluated the physical aspects of the water management program at the TSF. Knight Piésold has not reviewed the geochemical characteristics of the water management operations. This report focuses on the aspects of the water management plan that are significant from a dam safety perspective.

3.3.2 Surface Water Control

Surface water control at the mine site comprises the interception of runoff from disturbed (and some undisturbed) catchment areas for diversion into the TSF. Surface water control structures include the following:

- Mill Site Area - Surface water from the Mill Site Area is routed into the Mill Site Sump where it is transferred to the TSF via the tailings pipeline.
- Southeast Rock Disposal Site - Surface water is intercepted by runoff collection ditches and transferred to the Perimeter Embankment Seepage Collection Pond via a runoff collection ditch.
- North East Zone Pit and Waste Dumps – Surface and groundwater from the North East Zone are stored in the North East Zone Pit. Surface runoff from the North East Zone Waste

Dumps is directed to the Perimeter Embankment Seepage Collection Pond via a diversion ditch.

- Tailings Storage Facility Area - Clean surface water runoff from the undisturbed catchment area above the impoundment is routed around the TSF to reduce the accumulation of water within the impoundment. The diversion ditch was unobstructed at the time of the inspection and the water flowing in the ditch was clear.

3.3.3 Water Balance

▲R1

MPMC is managing the site water balance and it has not been reviewed by the TSF design engineer in 2010. Short and long term water management planning is an integral component solids waste management at any mine. Furthermore, as with any complex model, it is good practice to employ a review of the water balance model to ensure it is functioning as designed.

It is recommended the site water balance be reviewed and updated as part of the Stage 7 design of the TSF and include a stochastic analysis to evaluate wet and dry precipitation conditions.

The mine site is reported by MPMC to be currently operating with a water surplus, as total inflows from precipitation and surface runoff exceed losses from evaporation, void retention in the tailings mass in the TSF, and seepage loss. Site surplus water is currently being stored in the TSF, the Cariboo Pit and the North East Zone Pit. MPMC is currently seeking permits from regulatory authorities for the discharge of surplus water to reduce the increasing site water storage requirements. The site water balance is an important component to the operation of the mine as it not only provides key inputs to the planning, design and operation of the TSF, it also tracks site water to ensure the mine is in compliance with water storage and discharge permits.

3.3.4 External Water

MPMC staff carries out water quality monitoring of external water regularly. The water being monitored includes surface water from ditches, streams, creeks and lakes, as well as groundwater from monitoring wells. The results of the site water quality monitoring are reported by Mount Polley in the Annual Environmental and Reclamation Report.

3.4 ANCILLARY WORKS

Ancillary works that are key to the operation of the TSF include the tailings and reclaim pipelines, the Mill Site Sump, and the South Bootjack Dam:

3.4.1 Tailings and Reclaim Pipelines

The tailings pipeline was in operation at the time of the inspection with tailings being single point discharged at the northwest corner of the embankment. There have been no reported problems with the tailings pipeline.

The reclaim pipeline was recycling supernatant water back to the mill for re-use in the process at the time of the inspection. There have been no reported problems with the reclaim pipeline and the pipeline was observed to be in sound condition.

3.4.2 Mill Site Sump

Surface water from the Mill Site Area is routed into the Mill Site Sump where it is transferred to the TSF via the tailings pipeline. The embankments at the Mill Site Sump were observed to be in good condition, and no cracks, seepage or slumping was noted. The emergency overflow culvert was clear of obstructions.

3.4.3 South Bootjack Dam

The South Bootjack Dam was observed to be in good condition at the time of the inspection. Observations include the following:

- Both upstream and downstream fill slopes were in good condition, with no evidence of seepage or slumping
- No cracks were observed on the dam crest, and
- The spillway contained some minor vegetation, but was generally unobstructed.

SECTION 4.0 - SUMMARY AND RECOMMENDATIONS

▲R1

The TSF at Mount Polley incorporates an embankment approximately 4,200 m long which is divided into three embankment sections; the Main, Perimeter, and South embankments. The current crest elevation of the TSF embankment is 958 m, and the current height of the embankment ranges from 45 m, 27 m, and 17 m for the Main, Perimeter, and South embankments, respectively. The tailings embankment has been designed for staged expansion using the modified centreline construction method. The zoned earthfill/rockfill embankment includes a low permeability core zone which ties into a natural and constructed low permeability basin liner to form a continuous low permeability seepage barrier within the impoundment.

The classification of the TSF is currently "Significant", as per 2007 Canadian Dam Association Dam Safety Guidelines. The environmental impacts resulting from a theoretical dam breach have not been evaluated and it is recommended that a Dam Breach and Inundation Analysis be completed in 2011 to assess whether there is a requirement to modify the classification based on downstream impacts to fish and/or wildlife habitat.

A tension crack was observed at the Perimeter Embankment on the downstream side of the crest in the Zone C rockfill material. Although this is likely the result of localized settlement in loosely compacted material along the downstream slope of the embankment, the stability of this section of the Perimeter Embankment should be evaluated as part of the Stage 7 design phase.

Other than the tension crack, the TSF embankments were observed to be in good condition. No seepage or slumping was observed and no signs of instability were observed in the embankment fill slopes. No major unexpected or uncontrolled seepage was observed.

The downstream slope at the Main Embankment is approximately 1.4H:1V. This was previously constructed as an interim slope but the over-steepened slope configuration still exists. It is recommended that the downstream slope of the Main Embankment be evaluated during the Stage 7 design phase to assess whether it requires flattening or buttressing.

Slight deviations identified in Inclinator SI01-02 have resulted in the construction of a buttress at the Main Embankment. An initial buttress was constructed downstream of the affected inclinometer but was not constructed across the entire embankment as recommended.

The TSF at Mount Polley is required to have a minimum freeboard of 1.4 m at all times for containment of the 72-hour PMP event and for wave run-up requirements. The freeboard requirements for the TSF were maintained throughout the past year.

The instrumentation at the TSF consists of vibrating wire piezometers and inclinometers. There have been no unexpected or anomalous instrumentation readings. However, approximately 40% of the vibrating wire piezometers installed in the tailings embankments are no longer functioning. Replacing the lost instrumentation is an outstanding item from the 2006 Dam Safety Review. The program to replace the lost instrumentation is still outstanding.

The Millsite Sump, and South Bootjack Dam were observed to be in good condition with no geotechnical issues outstanding. The Southeast Sediment Pond is no longer in service and runoff that previously reported to the Southeast Sediment Pond is now being routed to the Perimeter Embankment Seepage Collection Pond.

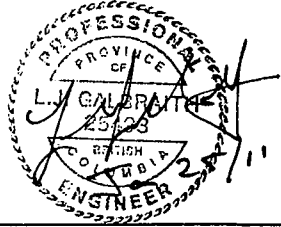
Recommendations for on-going operations of the TSF are summarized below:

- Develop an instrumentation monitoring plan that is consistent with the reading frequencies reported in the Operations, Maintenance and Surveillance Manual. The schedule for reading the instrumentation and embankment drain flows is as follows:
 - Piezometer and Inclinator readings - monthly as a minimum (weekly during construction programs), and
 - Drain monitoring sumps - weekly.
- Continue to update the Operations, Maintenance and Surveillance Manual and the Emergency Preparedness and Response Plan Manuals as appropriate.
- Develop a tailings deposition plan to deposit tailings around the perimeter of the facility to facilitate the development of tailings beaches and manage the location of the tailings pond.
- Continue regular monitoring of the water quality and levels in the surrounding groundwater wells.
- Continue regular monitoring of the tailings pond elevation.
- Review the Water Management Plan and site water balance on a regular basis.
- Define a lower operating volume so that there is sufficient settling time for the tailings solids and also to ensure that there is enough free water in the TSF to provide process water to the mill through the winter months when there is minimal surface runoff.
- Design for closure. All design phases of the TFS should consider the closure and reclamation requirements.

A Dam Safety Review was completed in 2006. The next Dam Safety Review should be carried out by 2016, or during detailed closure design, whichever is earlier.

SECTION 5.0 - CERTIFICATION

This report was prepared and approved by the undersigned.



Prepared:

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Reviewed and
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Managing Director

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TABLE 3.1
MOUNT POLLEY MINING CORPORATION
MOUNT POLLEY PROJECT
TAILINGS STORAGE FACILITY
EMBANKMENT FOUNDATION PIEZOMETERS

Print Dec/08/10 12:17:51

Piezometer	Piezometer Elevation (m)	Surface Elevation (m)	August 2010 Pressure Elevation (m)	August 2010 Artesian Pressure (m)
A2-PE2-01	903.68	912.67	No Longer Functioning	-
A2-PE2-02	909.77	912.67	No Longer Functioning	-
A2-PE2-06	898.01	912.91	No Longer Functioning	-
A2-PE2-07	902.81	912.91	No Longer Functioning	-
A2-PE2-08	907.56	913.36	No Longer Functioning	-
B2-PE1-03	914.05	915.55	915.92	0.37
B2-PE2-01	901.98	916.98	No Longer Functioning	-
B2-PE2-02	909.51	916.98	919.15	2.17
B2-PE2-06	914.59	916.89	No Longer Functioning	-
C2-PE1-03	912.59	-	No Longer Functioning	-
C2-PE2-02	910.53	915.71	916.71	1.00
C2-PE2-06	906.84	915.99	914.74	-1.25
C2-PE2-07	912.29	915.99	No Longer Functioning	-
C2-PE2-08	914.03	915.99	914.77	-1.22
D2-PE2-02	927.32	930.92	930.89	-0.03
E2-PE2-01	914.21	918.81	917.27	-1.54
E2-PE2-02	909.66	918.81	916.74	-2.07

M:\1101\00001\29\A\Report\2- Annual Inspection Report\Tables\[TABLE 3.1 (Foundation Piezos).xls]Foundation piezos

0	14OCT'10	ISSUED WITH REPORT VA101-1/29-2	GL	GIJ	KJB
REV	DATE	DESCRIPTION	PREP'D	CHK'D	APP'D