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February 16, 2006

Nick Rose, P. Eng. Piteau Associates Engineering Ltd. 215-260 West Esplanade North Vancouver, BC V7M 3G7

Dear Sir:

# Re: Response to Your Request for Information of October 25, 2005

This letter is in response to your geotechnical inspection of October 13, 2005 and to the request for information in your letter of October 25, 2005. The response follows the outline of your letter of October 25, 2005.

# General

Your comment;

"The following items are required by the Ministry...

- A copy of the Golder Associates report that confirms the dump design assumptions for the Northeast Zone Dump based on test pit results
- A waste dump construction and monitoring procedure.
- *A copy of the pit slope manual.*
- A copy of the design report for the thick overburden soils in the southeast quadrant of  $\sum_{i=1}^{n} C_{i} = \sum_{i=1}^{n} C_{i} = C_{i} =$ the Wight Pit."

- Visual obx. Valia

Solder

## Response;

# Northeast Zone Dump Design and Procedures

Our geotechnical consultants, Golder Associates dug a total of 6 test pits within the proposed waste dump area this last summer. The test pits confirmed the design assumptions of the report titled; Preliminary Stability Assessment - Northeast Zone Waste Dump dated October 19, 2004.

Except for one test pit, bedrock was encountered at depths between 0.5 and 2.5 metres. The overburden soils consisted of sand, gravel, silt till overlain by a similarly graded colluvium. No seepage was observed in the test pits. A separate letter report on the results of the test pit investigations is provided.

Golder Associates Ltd. visited the site on October 26, 2005. A stability analysis and waste dump construction recommendations were provided in a technical memorandum; Waste Dump Assessment, dated October 28, 2005. See enclosed. Sections 1 - 4 address the dump design assumptions. These recommendations formed the basis of our request for variance submitted November 2005.

Golder Associates Ltd. further visited the site on February 1, 2006. In response to the Ministry's letter dated January 31, 2006, we will be providing cross sections, soil characterization and stability assessments in support of the design.

### Northeast Zone Dump Construction and Monitoring Procedure

The above referenced technical memorandum also addresses your point two. Section 5 addresses the waste dump construction and monitoring procedure.

MPMC initiated the construction recommendations of the technical memorandum immediately in October 2005. Re-sloping operations have been completed on overburden dumps; all unstable material has been dozed down. Overburden dumps are being constructed from the bottom up. Rock disposal is per the "20 degree line projection rule".

MPMC submitted a Request for Variance on November 16, 2005 to allow continuation of dumping at the Northeast Zone Dump while the TSF Haulage Road from Wight Pit to the Tailings Storage Facility is in use. The recommendations of the technical memorandum formed the basis for staged development plans proposed in the variance application. The dump monitoring procedures were listed in that submission as follows:

- Mine senior operations personnel will inspect the crests of all spoils before the lower road is opened.
- Active rock and overburden soils spoil piles will be inspected at least once every four hours.

- Inactive rock and overburden soils spoil piles will be inspected at least once a week.

The complete dump construction and monitoring procedures are contained in the enclosed submission titled; *Rock Disposal Site and Overburden Spoil A: Construction Design Criteria for Northeast Zone Dumps and B: Operations Monitoring and Dumping Procedures.* These same procedures are also included in the response to the Ministry's letter of January 31, 2006.

## Pit Slope Manual

Our geotechnical consultants, Golder Associates Ltd. has provided guidance for excavation of the Wight Pit in a report titled; <u>Pit Slope Stability Assessment of the Proposed Wight Open Pit</u>, dated October 20, 2004. The pit wall and bench configurations have been excavated per the recommendations of this initial report.

-not provided

Also, Golder Associates Ltd. conducts pit slope stability performance reviews on a semi-annual or more frequent basis. The status of our pit slope program is as follows:

Blasting and Excavation

The blasting patterns at final wall have been specifically designed for free face relief. The wall excavations have been to a clean face without undercutting.

### Groundwater

A vibrating wire piezometer was installed in drill hole WB04-75 on the crest of the west wall to monitor water level. Horizontal drain holes shall be installed during mining to control groundwater flow and improve pit wall stability at the design consultant's recommendation when and where required. It would be premature to install horizontal drain holes at this point in the excavation process of the Wight Pit. Only the upper benches have been dug back to final design.

# Geological Mapping / Slope Stability Monitoring

The pit wall monitoring program will follow the "observational approach". Our on-site geologist has been visual monitoring, and mapping structural fabric and faults per the Golder Associates Ltd. format. As final wall is exposed monitoring prisms will be installed in the southeast quadrant and in other locations as conditions dictate.

## Design for Overburden Soils in the Southeast Quadrant of Wight Pit

The <u>Pit Slope Stability Assessment of the Proposed Wight Open Pit</u> report dated October 20, 2004 also addresses your point four. The relevant sections are; Overburden Soils and Hydrological Conditions

MPMC, in consultation with Golder Associates Ltd. have deferred finalizing the overburden wall design parameters to now, until the soils can be exposed and assessed in a low height interim wall. To date, these glacio-lacustrine and glacio-fluvial deposits on the east side of Wight Pit have been excavated to daylight in the mining process. The stability of temporary overburden walls has been observed. A hydrogeological investigation has been ongoing and reported in; Draft Report on Hydrogeological Investigation, Proposed Wishbone Open Pit, Mount Polley Mining Corporation, Likely, B.C. dated October 18, 2004. Further well monitoring data has been gathered through 2005 and 2006.

In the interim, MPMC has performed an economic evaluation of artificial support systems in the overburden deposits near Polley Lake with the intent to maximize recovery of the mineral resource. Excavation of a dozer shaped dewatered overburden slope would appear to be most cost effective.

The data will be compiled by Golder Associates Ltd. in the near future and a design for this quadrant of the pit slope will be forthcoming.

overburden design forthcoming

## Tailings Storage Facility

## Your comment;

"The beach on the southwest side of the impoundment was noticeably narrow or submerged. It is understood that a tailings deposition plan is being developed to discharge tailings from the Perimeter, Main and South Embankments to help develop beaches and manage the location of the pond in accordance with recommendations from the design consultant."

# Response;

The TSF embankment raises completed during the Stage 4 construction program involved constructing an embankment zone (Zone U) upstream of the Zone S core material, on the tailings beach, to provide upstream lateral support for the core as it was raised. The Main Embankment Zone U was constructed from local borrow materials. Zone U for the Perimeter and South Embankments was constructed by discharging the tailings into constructed holding cells. The coarse tailings were retained within the cells with the finer tailings exiting the cells through pipes placed within the cell confining berms. The coarse tailings were spread and compacted with a dozer to create a dense, uniform fill material within the cells. This method was completed under the supervision of Knight Piésold Ltd and the constructed material met the design requirements.

The first lift of the Zone U tailings material at the South Embankment was placed in June 2005. The lift was approximately 2 m thick. The discharge of tailings at the South Embankment was continued for approximately one week following the cell construction, creating a submerged tailings beach upstream of the Zone U fill. The tailings pipeline was then relocated to the

Perimeter Embankment for Zone U construction there. This method of construction has proven to be successful and will continue on the Perimeter and South Embankments until the completion of Stage 4. The cells at the South Embankment were approximately 18 meters wide at elevation 945 and the deposition of tailings within the cells has accelerated the beach development at this location. Tailings will continue to be deposited around the perimeter of the facility during on- going operations to facilitate progressive development of the tailings beaches and to manage the location of the tailings pond.	A DESCRIPTION OF A DESC
Cariboo Pit and Bell Pit Access Road	
Your comment:	
''Waste dump and haulage road construction and monitoring shall be carried out in accordance with standardized procedures, as requested above.''	
Response:	
MPMC will construct as per the standardized procedures.	
Bell Pit	
Your comment:	
"No baseline monitoring has been established to date."	
Response;	
MPMC adheres to the observational approach of slope stability monitoring. Visual monitoring is carried out routinely and survey monitoring will be considered if adversely oriented structures are identified or if instability develops. Mount Polley has assigned the same person to visual monitor and record the results and also map the pit walls. -base he - base he	
Bell Dump distak	
Your comment;	
"No signs of large settlement or dump instability were noticed."	
Response:	
Dumping has been following a sequence recommended by our design consultants, Golder Associates Ltd.	
Wight Pit	
Your comment:	
"A review of bench performance is required during the design consultant's next visit to confirm whether design assumptions (i.e. structural and rock mass conditions, design catchment berm widths, etc.) are being achieved."	
Response;	
The design consultant's last scheduled visit to review pit wall stability was February 1, 2006.	
Northeast Zone Waste Dumps and Haulage Road	
Your comment;	
"However, development of the Northeast Dump has not followed the recommended design by Golder Associates (October 19, 2004 report) involving bottom-up construction of three 20 to 40m high benched lifts defining an overall slope 2:1 slope. Construction of the Northeast Zone Dump	

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shall be undertaken in accordance with the design provided by the design consultant, as per conditions of Permit M-200 Amendment dated November 1, 2004. Dump stability monitoring shall be undertaken in accordance with the permit conditions. It is understood that a variance application is being prepared by MPMC that would allow dumping on the Northeast Zone Dump while haulage is active on the TSF Haulage Road, but would require development of construction, operation and monitoring procedures to provide adequate protection for personnel on the TSF Haulage Road and for Polley Lake from waste dump run-out potential. No signs of large settlements or instability were noticed on the rock portion of the Northeast Zone Dump.

An overburden soil stockpile that shows signs of instability has been developed on the northern portion of the Northeast Zone Dump. Materials from the stockpile have slumped down-slope to the location of the approximately 10m high toe buttress alongside and upslope of the TSF Haulage Road. It is understood that at least one wireline extensometer is being used to monitor the stability of the overburden soil stockpile. Development of the soil stockpile has been shut down until a dumping plan and monitoring plan is developed and is submitted to the Chief Inspector for approval, that provides adequate stability for the waste rock and soil materials and protection to personnel on the TSF Haulage Road

With respect to the stability of the overburden soil materials and development of the Northeast Zone Dump, the following information shall be provided to the Geotechnical Inspector within 7 days of the receipt of this report:

- Slope monitoring procedures and slope movement threshold response criteria detailing monitoring frequency and type (i.e. visual and wireline extensometer), and operational response criteria for the TSF Haulage Road based on slope movement rates for the Northeast Zone waste rock and overburden soil dumps.
- Records for both visual and wireline extensometer(s) monitoring carried out to date on the Northeast Zone Dump.

#### Response;

The stability analysis and waste dump construction recommendations provided in the enclosed technical memorandum; <u>Waste Dump Assessment</u>, dated October 28, 2005 by Golder Associates Ltd. is a further refinement of the dump design based on current conditions. MPMC submits this technical memorandum as the construction guidelines of relevance. MPMC is currently implementing the Golder Associates Ltd. recommendations.

The variance application of November 16, 2005 addressed the details of construction, operation and monitoring procedures and staged dump development to provide adequate protection for personnel on the TSF Haulage Road and for Polley Lake from waste dump run-out potential.

The waste rock dumps and overburden soil stockpiles instabilities as noted are undergoing a program to stabilize the dumps and improve surface drainage.

- The waste rock dumps will be set back at all times below a line projected at 20 degrees from the inside edge of the Tailings Haulage Road, such that rolling rocks or potential rock failure debris is not expected to reach the road. Any instability that develops on the face of the rock dumps as indicated by cracking at the crest or bulging at the toe will be re-sloped immediately. Dump monitoring procedures have been enacted.
- The overburden spoils have been re-sloped and as during construction, the crests are continuously dozed down. A rock containment berm is under construction on the inside of the Tailings Haulage Road and then the soil spoils will be constructed bottom up.

• A further assessment of soil stability both in natural and saturated states will be performed by Golder Associates Ltd., which will include a general soil characterization.

The slope monitoring procedures, slope movement threshold responses and operational response criteria for the Tailings Haulage Road based on slope movement rates for the Northeast Zone waste rock and overburden spoils are enclosed. Visual monitoring results are enclosed.

We trust that the information meets your requirements.

Yours truly,

MOUNT POLLEY MINING CORPORATION

Howard Bradley Mine Manager

cc: Al Chance, Golder Associates Ltd. Ken Brouwer, Knight Piésold Ltd.

#### Enclosures;

- 1) Golder Associates Ltd. (October 28, 2005) Technical Memorandum "4) 'Waste Dump Assessment'', Chance, Al
- 2) Mount Polley Mining Corporation, Rock Disposal Site and Overburden Spoil

A": " Construction Design Criteria for Northeast Zone Dumps" and

- B: "Rock Disposal Site and Overburden Spoil Dumping and Monitoring Procedures".
- 3) Mount Polley Mining Corporation,
  - A: 'Mine Operations Dump Monitor Procedure" and
  - *B)* Visual monitoring record samples
- 4) "Operational Criteria For the Tailings Storage Facility (TSF) Haulage Road Procedure"
- 5) Golder Associates Ltd. (February 8, 2006) Northeast Zone Waste Dump Foundation Test Pits: Chance, Al

### References:

- Golder Associates Ltd. (October 20, 2004) Pit Slope Stability Assessment of the Proposed Wight Open Pit, Mount Polley Mining Corporation, Likely, B.C.
- Golder Associates Ltd. (October 18, 2004) Draft Report on Hydrological Investigation, Proposed Wishbone Open Pit, Mount Polley Mining Corporation, Likely, B.C.