September 24, 2010

Jack DiMarchi
Large Mine Coordinator
State of Alaska
Department of Natural Resources
Office of Project Management and Permitting
3700 Airport Way
Fairbanks, Alaska 99709-4699

RE: Request for amendment of Plan of Operations F20039500 in terms of dry stack shell construction

Dear Jack,

Sumitomo Metal Mining Pogo LLC (SMM Pogo) is requesting approval to amend the plan of operation to allow construction of the shell for Dry Stack Tailings Facility (DSTF) during winter.

DSTF consists of two parts as shown in Figure 1:

1. shell placement area and;
2. general placement area

SMM Pogo plans to place about 15.8 million cubic feet or 760,000 tons of material in the shell between now and 2015. This quantity constitutes roughly 21% of the total amount of dry stack produced in that time frame. With such a large percentage of dry stack material committed to the shell construction it is imperative that material placement in the shell occur systematically and continually during the warmer weather months of the year.

In fact, Section 7.2.1 of October 2003 Plan of Operation states that "Tailings will be placed in the compacted structural shell only during summer months", with a description of what constitutes a "summer month" in terms of climate clearly defined. "For planning purposes, it has been assumed there will be an average of four months per year when the quality of fill placement and compaction is not potentially affected by cold weather conditions." For purposes of this request to amend the Plan or Operations we would like to redefine the warm weather months as April 15 through October 15.

As cited above, the Pogo Dry Stack Tailings Embankment is designed to be raised incrementally during the warm weather months to provide additional storage capacity for dry stack tailings. There has been more development rock placed into the dry stack facility than originally envisaged which has resulted in a need to accelerate shell development to accommodate dry stack storage needs. Moreover, due to a wet summer season in 2010, progress on raising the Dry Stack Embankment or shell was limited. This coupled with the fact that "proof of principal" test results (see Appendix) indicate that tailings can be effectively placed and compacted during winter months is the basis for this request.

The amendment would allow tailings placement at the shell placement area year round under the conditions summarized below.

1. All snow shall be removed from stockpiled tailings and from the grade to received fill prior to spreading and compaction operations.
2. No placement of Shell materials will occur during active snowfall.
3. A method specification will be employed to control general fill placement. The specification will observe the following.
    - Loose lift thickness will not exceed 9 inches;
    - Compaction should be done by six(6) roller passes with a Cat 10ST drum roller.
4. The ambient temperature during placement and compaction will be monitored and recorded.
5. At average temperatures below -20 degrees F materials will have to be spread and compacted upon arrival at the Dry stack facility. Stockpiling of materials will only occur at average daily temperatures above -20 degrees F.
6. Compaction measurement (performance testing) using a nuclear densometer shall be completed on constructed fill placed between October 15 and April 15 of each year, every 3 feet in elevation. Sufficient performance testing will occur to verify that required compaction is being achieved. The elevation of the tests shall be recorded and a photo shall be taken. In the event of failing tests, the fill will be reworked until passing compaction tests can be obtained. Additional fill will not occur until passing compaction test results are obtained.
7. To confirm Proctor compaction values a minimum of one Proctor sample will be taken per month

Background

Construction of the shell requires compaction of the dry stack tailings material to be at least 92% of the maximum dry density as determined by ASTM D-698[1]. In order to examine the influence of cold weather on the dry stack compaction and to potentially expand the construction window for tailings placement in the shell, a "proof of principal" compaction trial was conducted on January 27, 2010 (see Appendix). The "proof of principal" test was conducted on materials that were stockpiled at the embankment and allowed to remain in stockpiles for a period of 7 days. Ambient temperatures for the 7 days prior to the compaction test ranged between -7 and -26 degrees Fahrenheit. At the end of the 7 days of exposure, the frozen tailings materials were spread and compacted using a 10ST CAT vibratory drum roller. Results of the "proof of principal" compaction test (see Appendix) indicates that frozen tailings can indeed be effectively compacted in freezing conditions, if care is taken during placement of tailings materials. The method described in the Appendix suggests a method specification be observed to confirm that compaction is occurring to the standards described in the design specifications.

At the same time that the January 2010 "proof of principal" test was being conducted, fresh dry stack tailings were hauled directly to the grade in an adjacent area and were compacted using the same compaction equipment to compare compaction results of frozen and fresh tailings. Results of compaction on fresh tailings can also be referenced in the Appendix. As can be seen from the compaction results, the fresh tailings behaved much the same as the frozen tailings to compaction effort in that similar densities were achieved with similar roller passes.

[1] Maximum dry density: The maximum practically-achievable density of soils which is determined by Standard Proctor Test (ASTM D 698-07).

The current approved approach which employs a method specification would continue to be used for warm weather months (April 15 through October 15) of Tailings placement in the shell zone and the method described above employing both a method specification and a performance specification, would be used for cold weather (October 15 through April 15) tailings placement in the shell zone. It should be noted that the "proof of principal" test program, summarized in the Appendix, indicates that a method specification employing six(6) roller passes with a Cat 10ST drum roller is typically sufficient to achieve the required compaction. Since Cold weather construction can have a number of ambient conditions that can negatively impact compaction, the method specification suggested in the "proof of principal" test in the Appendix will be observed during normal placement conditions and will be augmented with a performance check every 3 feet of embankment raise. Zones that fail the performance checks will be addressed as defined above.

SMM Pogo proposes that this amendment to the QAPP in the Plan of Operations be employed in the winter of 2010-11 and that the result of the trial be reevaluated in the summer of 2011 to optimize an approach that can be employed in the future.

SMM Pogo will update their Plan of Operation, QAPP, and Solid Waste Monitoring Plan to reflect this amendment to ADNR under separate cover.

Please feel free to contact Ms. Sally McLeod at 907-895-2728 if you have any questions regarding this request.

Sincerely,

R. Michael Smith, P.E.
Principal Engineer and Vice President
AMEC Earth and Environmental

cc: Tim Pilon, ADEC

Appendix:

- Field Compaction Test using Frozen Dry Stack, January 27, 2010 (Pogo internal memorandum)

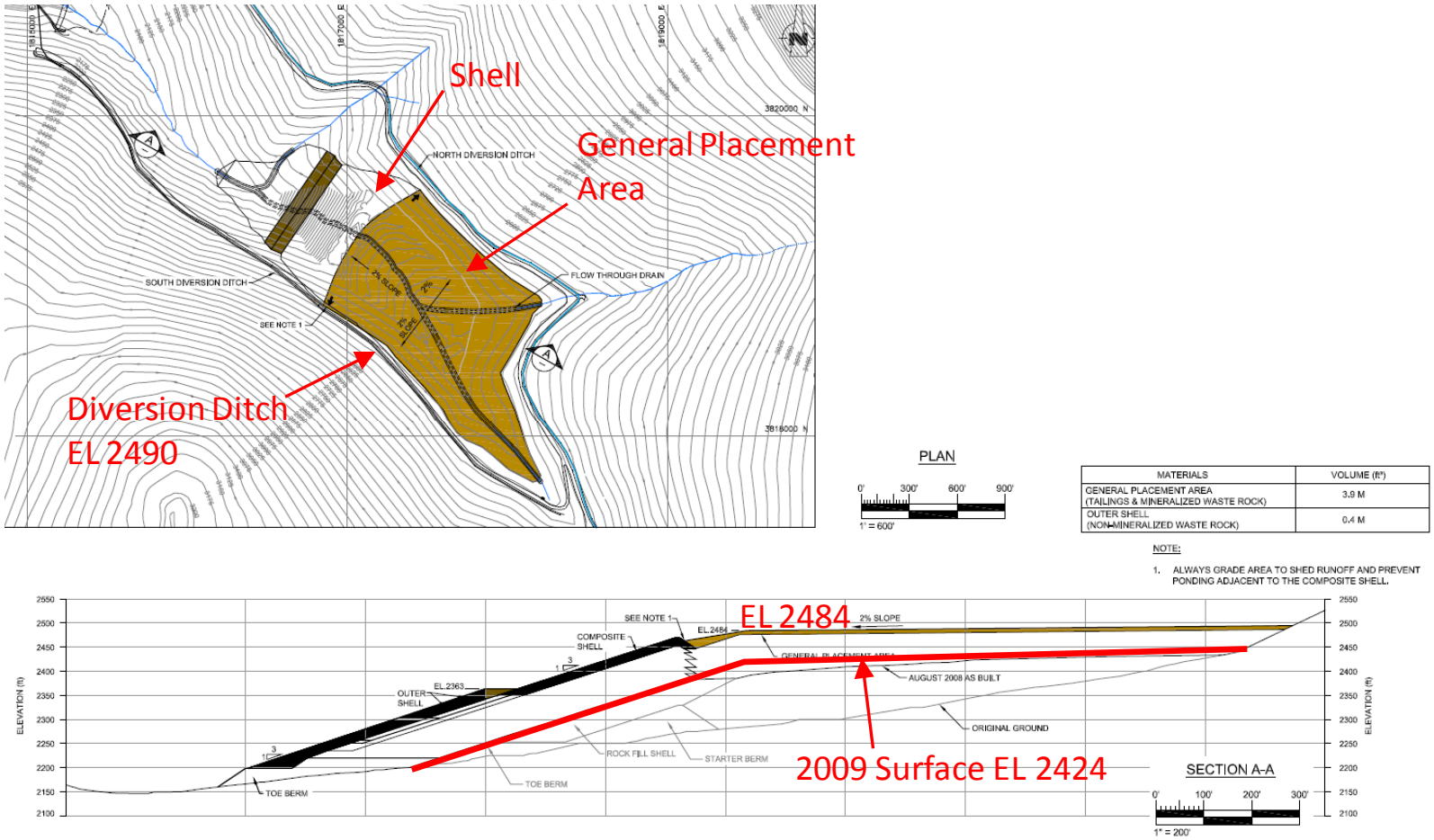

Figure 1 Conceptual design of Dry Stack Tailings Facility in 2015 (AMEC, Nov. 2008)

Appendix

Field Compaction Test Using Frozen Dry Stack

To: Bryan Rairdan
Cc: Kurt Smith, Casey Mueller, Ben Farnham, Stacy Staley, Nori Ushirone
From: Makoto Umedera
Subject: Field Compaction Test Using Frozen Dry Stack
Date: January 27, 2010

Introduction

The OMS manual[1] of the Pogo dry stack tailings facility stipulates on the operation during winter condition that "Windows of tailings have to be dozed down and spread within 1 hour." This stipulation intends to prevent the insufficient compaction with frozen dry stack, however, this procedure requires more man power than normal summer procedure. The compaction work can be done more efficiently if the dry stack can be stocked on the general placement area for several days during winter.

At the general placement area, it is expected to compact the dry stack to make the dry density more than 93 pcf or 92% of maximum dry density. This trial aims to examine how the frozen condition of dry stack would affect on the compaction.

Test Methods

Two trail pads were prepared using the frozen dry stack and fresh dry stack.

The frozen dry stack was collected from the mill on January 19 and 20, 2010, and was left on the general placement area of dry stack tailings facility for 7 days before being spread out and compacted.

The fresh dry stack was collected in the morning of trial date (January 27) and was compacted immediately.

[1] Teck-Pogo, January 2006, Pogo Mine Dry Stack Tailings Facility OMS Manual Rev. 2.

Both pads were compacted by 10st CAT vibratory roller with three different passes, i.e. 4, 6, and 8 passes.

The dry density and moisture content were measured using Troxler density gauge by Mappa technician. The depth of measurement point was 6 inch from surface.

Results

Table 1 and 2 shows the dry density and moisture content of the compacted fresh dry stack and frozen dry stack, respectively. The maximum dry density was assumed to be 107.5 pcf in reference to the results of Standard Procter tests conducted in summer 2009.

Table 1 (fresh dry stack) shows that:

- The water content is somewhat higher than the expectation of 12-15%;
- The dry density is almost constant with number of passes;
- Only one result failed to meet the compaction target (93 pcf or 92% of Max. dry density).

Table 2 (frozen dry stack) shows that:

- The moisture content of frozen dry stack is up to 2% lower than that of fresh dry stack;
- All measurements except for one achieved compaction target (93 pcf or 92% of Max. dry density);
- The dry density of 6 passes is higher than that of 4 passes, however, the dry density of 8 passes was almost as same as that of 4 passes;
- It seems that the dry density of frozen dry stack is a little lower than that of fresh dry stack, however, the difference can’t be quantitatively identified from this data.

Conclusions and Recommendations

- There was no difference on compaction between frozen dry stack and fresh dry stack. Thus, dry stack can be left on the placement area during winter condition unless the frozen condition would make the handling difficult;
- Four passes is enough to achieve the compaction target at the general placement area, however 6 passes may be recommended to remove the variability of working condition.

Table 1 Fresh dry stack

No. of Passes	Moisture Content %	Dry Density pcf	% of Max. Dry Density %
4	17.8	104.6	97%
4	15.5	104.7	97%
Average-4 passes	16.7	104.7	97%
6	16.3	104.0	97%
6	16.5	89.7	83%
Average-6 passes	16.4	96.9	90%
8	15.5	102.7	96%
8	17.7	103.7	96%
Average-8 passes	16.6	103.2	96%

Table 2 Frozen dry stack

No. of Passes	Moisture Content %	Dry Density pcf	% of Max. Dry Density %
4	14.2	98.4	92%
4	14.9	101.1	94%
4	14.5	91	85%
Average-4 passes	14.5	96.8	90%
6	13.6	109.6	102%
6	14.3	105.4	98%
6	15.8	99.5	93%
Average-6 passes	14.6	104.8	98%
8	15.6	94.9	88%
8	16.3	97.5	91%
Average-8 passes	16.0	96.2	89%

Appendix : Field density measurement using Troxler gauge (January 27, 2010)

Frozen dry stack test pad

Fresh dry stack test pad