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August 8, 2000

TO: Internal File

FROM: Michael Suflita, Senior Reclamation Specialist MS

RE: Ditch CGD-5, Plateau Mining Corp., Willow Creek Mine, ACT/007/038 - AM00H

SUMMARY:

A recent earthquake caused a rockslide which closed ditch CGD-5. The Operator wishes to abandon the ditch and convey the water flows down another route.

TECHNICAL ANALYSIS:

HYDROLOGIC INFORMATION

Regulatory Reference: R645-300-730

Analysis:

An earthquake in the waste rock pile area caused a portion of a rock escarpment to fall. This filled in approximately 200 foot of ditch CGD-5. Much rock fell onto the waste pile and the entire escarpment is weakened. A field visit was made on August 7, 2000 to inspect the ditches and discuss the proposed amendment with the mine Operator. Numerous fresh cracks were evident and these make work in the area very hazardous. This situation has necessitated the proposed amendment.

The design flow in ditch 5 is 20.2 cfs. This flow is to be diverted into ditch 18 which flows to the uppermost point of the waste rock pile. From there the flow would be directed to either ditch 6 or 7 which run along the edges of the pile. Both of these ditches are designated by and "Upper" and "Lower" sections. The upper sections are located on top of the waste rock pile

and are regraded as material is added or removed from the pile. The lower sections are located at the two edges of the face of the pile, where the pile abuts the natural ground surface. Ditch 7 extends from the end of ditch 18, through the upper and lower reaches, and flows directly to sediment pond 13. Ditch 6 flows from the end of ditch 18, through the upper and lower reaches, into ditch 19, into culvert CGC-4, and into pond 13. Drawings Map 3.4-4, A through F, show these routings and the text explains the proposed changes as described above.

It's evident from the field inspection that flows typically run through ditch 6, ditch 19, and culvert 4 into pond 13. There is a sediment pile in the pond at the outfall of the culvert. The end of ditch 7, at the edge of the pond, has no sediment flows present. The amendment proposes that the entire length of the lower ditches 6 and 7 will be grout lined. Also, ditch 19 will be fully grout lined. This it to accommodate the increased flows in these ditches. Ditch 18 will be reconstructed with riprap lining. All of the revised ditch designs were checked for adequacy and found to be done in accordance with the R645 regulations. This includes roughness coefficients, design storms, and runoff coefficients. Details are not presented here simply to save time. Field checks showed there was adequate space to provide the indicated depth and freeboard in the ditches. It was also noted that those lengths of ditches 6 and 7 that had grout linings were performing well. No cracks or flows outside the lining were found. This indicates the proposed linings should work.

Culvert 4 was designed to handle 38.5 cfs and the increased flow from ditch 5 would result in 41.42 cfs into the culvert. This difference of 2.9 cfs is believed will not occur due to three conservative assumptions used in the original design. First, it was assumed all the flow from the top of the pile would go to ditch 6, when in fact, some will go to ditch 7. Second, all of the additional 202. cfs is assumed to flow into ditch 6, when some would also go to ditch 7. Third, peak flows from the several watersheds would arrive simultaneously when naturally they would occur at different times. These assumptions are probably correct. In addition, during the field inspection, the pile was noted to be comprised of relatively porous crushed rock. As such, much of the flows from ditch 18 and upper ditches 6 and 7 will simply drain into the waste rock pile. It's unlikely the full 41.42 cfs will reach culvert 4. In the event culvert 4 capacity is exceeded, the excess flow would run down the road and be caught in sediment pond 001, so there is little risk.

The design of pond 13 emergency spillway was checked and found to be adequate for the increased flows as was culvert CGC-5. This culvert carries the spillway flow under the railroad tracks and roads to the Price River. Field inspection showed the inlet and outlet of this culvert are clear.

The operation of pond 13 will have to be changed due to the increased volume of runoff now flowing to the pond. Originally, minewater was pumped to pond 13 which had a design capacity of 5.91 acre-feet for that water. With the increased runoff volume and sediment now flowing to pond 13, the minewater storage capacity will be reduced to 3.14 acre feet. The

minewater flows that formerly went to pond 13 can be routed to ponds 1, 12A, 12B, and the thickener tank overflow pond. This change in the operation of pond 13 is necessary and has been committed to in the amendment. The text and Map 3.4-7 indicate the above changes in operation.

In summary, he proposed new routing of flows from ditch 5 appear to be properly designed. A field inspection indicates the new route can be expected to function as designed. The change will require less minewater be pumped into pond 13.

The Operator is cautioned that if the Mine Safety and Health Agency, MSHA, has any jurisdiction over this pond, then the Operator needs to contact that agency and inform them of this revision to the pond construction and operation. By way of suggestion, the trashrack on the inlet to CGC-4 may need to be revised. It has small openings, about one inch in size. Debris on the rack indicates the water has filled to the top of the rack and flowed through an opening on the west side of the rack. Consideration may be given to enlarging openings or otherwise prevent plugging of the trashrack.

Findings:

The proposed amendment meets minimum regulatory requirements.

RECOMMENDATION

The amendment can be approved in its present form.

sm
cc: Pete Hess
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