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TO: Internal Files

FROM: Michael J. Suflita, Senior Reclamation Hydrologist *ms*

RE: Water Monitoring Revisions, Castle Gate Holding Company, Castle Gate Mine, C007/004-AM01C

SUMMARY:

On May 23, 2001 the Division received a request to amend the Mining and Reclamation Plan (MRP) to eliminate three groundwater monitoring points. This is an analysis of the Hydrologic aspects of the proposed amendment. There is one minor deficiency.

TECHNICAL ANALYSIS:

RECLAMATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 784.14, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-301-512, -301-513, -301-514, -301-515, -301-532, -301-533, -301-542, -301-723, -301-724, -301-725, -301-726, -301-728, -301-729, -301-731, -301-733, -301-742, -301-743, -301-750, -301-751, -301-760, -301-761.

Analysis:

General

There are a some of typographical errors that need correction: 1) In Appendix 7-7, pages 8 through 34, inclusive are not numbered, 2) There is no Table of Contents in Appendix 7-7, and 3) Appendix 7-7, page 2, paragraph 4, has the word "flowing" which should be "following".

TECHNICAL MEMO

Ground-water monitoring

The amendment proposes to remove groundwater monitoring points BM-30, BM-31, and BM-32. The water monitoring data for these sites is presented in tabular and graphical form in a new Appendix 7-7, Groundwater Monitoring Analysis and Evaluation BM-30, BM-31, and BM-32. The locations are referenced on a new map, Exhibit 7-3, Drainage Areas Location Map with Water Monitoring Stations and U.P.D.E.S. Discharge Points. Some changes are made to Chapters 3 and 7 in the original MRP.

The MRP requirement, "Groundwater will be sampled for a period of two years after sealing of the mine unless significant changes in quality of the water occurs from previous years of data." is driving this request to delete the monitoring points. Data for each site is presented showing the years 1984 to 2000, 16 years.

Data for BM-30 showed no discernable impact from past mining activities. The flow roughly follows the drought index. The pH remained consistent at about 8, which is alkaline indicating no acid mine drainage. TDS remained consistent at about 4,000mg/l. Other sampled parameters did not vary over the 16-year period.

Data for BM-31 also showed no discernable impact from past mining activities. Sampled parameters did not vary much. TDS was consistent at about 800mg/l. The pH stayed about 7.6, again in the alkaline region. Total iron decreased slightly over the 16-year period.

Data for BM-32 also showed no discernable impact from past mining. TDS varied from 1,500 to 2,000 mg/l while pH remained consistent at about 8. None of the three sites showed marked changes in parameter values during the last two years on monitoring when compared to the previous years. This is shown in Table A, Operational and Post Mining Monitoring Data.

Importantly, all three monitoring points are located outside the mine workings area of influence. From all the data analyzed, there appears to be no significant changes in the quality or quantity of groundwater due to mining operations. There are some data inconsistencies which are explained by different persons doing the sampling, apparently at different locations. However, these cannot be corrected and appear to have little influence. The three monitoring points can be removed from the monitoring plan per provisions of the original MRP.

Findings:

Information provided in the proposed amendment is not considered adequate to meet the requirement of this section. Prior to approval, the Permittee must provide the following in accordance with:

R645-301-121.200, correct the three typographical errors described above.

RECOMMENDATIONS:

The amendment should be approved only after correction of the deficiency listed above.

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