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February 11, 2016

Mr. Chris Yde
Coal & Uranium Program Supervisor
Department of Environmental Quality
P.O. Box 200901
Helena, MT 59620-0901

Permit ID: C1993017
Revision Type: Amendment
Permitting Action: Response
Subject: **AM3; Response to January 29, 2016 Fifth Round Acceptability Deficiency**

Dear Mr. Yde,

Signal Peak Energy is submitting the attached Comprehensive Evaluation of Probable Hydrologic Consequences (PHC) and below discussion in response to the Department's January 29, 2016, Fifth Round Acceptability Deficiency Letter.

(1) ARM 17.24.314(3): In Appendix 314-5, the Executive Summary on pages ES-2 and ES-4, and Sections 3.4.5 on page 314-5-22 and 5.1.1 on page 314-5-40 discuss the potential that one spring has shown mining related impacts. Sections 6.1 on page 314-5-43 and 6.5.1 on page 314-5-58 state there is no evidence any springs have been impacted. Please revise Sections 6.1 and 6.5.1 so that they do not contradict the earlier sections. Recent data (up to Sept 2015) provide evidence that Spring 17145 may have been affected by mining activity.

Response: Modifications to the relevant sections were made by incorporating the same language used in the Executive Summary as follows: "Since 2009, ten springs have been undermined by longwall mining. There is the possibility that one spring, 17145, has been affected by long-wall mining. Continued monitoring is necessary to confirm if this is, or is not, the case. None of the remaining nine springs have been adversely affected by the long-wall mining and associated subsidence."

(2) ARM 17.24.314(3): In Appendix 314-5, Attachment I, Table I-1, the values for sodium from both gob water samples are above the maximum baseline values, however the final column states the gob values are within the baseline range. Please correct this error.

Response: The correction was made.

(3) ARM 17.24.314(3): In Appendix 314-5, Table I-1 in Attachment I lists the minimum and maximum baseline values for analytical parameters in the Mammoth coal and overburden groundwater. Please also include the median baseline values in the Mammoth coal and overburden for all parameters listed in this table.

Response: Medians are now included in Table I-1 for all parameters as available.

(4) ARM 17.24.314(3): Table ES-1 shows ‘Existing Uses’ and ‘Assessment of other Possible Uses’. Please identify, include and assess the capability of waters to meet the specific beneficial uses for Class II and Class III water as given in ARM 17.30.1006.

Response: Table ES-1 has been revised per the comment. Table 4C was revised in the same manner for consistency.

(5) ARM 17.24.314(3): In several places in the PHC, support of ‘existing uses’ is assessed. To be consistent with the groundwater standards, please address designated beneficial uses, rather than only existing uses.

Response: “Existing uses” (also users) phraseology was replaced with terminology defining existing and designated beneficial uses. Note that qualifying language as to the viability of designated beneficial uses was also set forth in the text and in the relevant tables.

(6) ARM 17.24.314(3): In Section 3.3.3, estimates of groundwater flow through the Mammoth Coal is estimated at 1.2 gpm, based on modeling conducted during baseline studies (Appendix 304(6)-10 is cited). The basis and background for this modeling study cannot be confirmed and, presumably, are based on permit boundaries and geological dimensions derived from the initially permitted acreage. For instance, the northern permit boundary was different from this application than it is in the present application. It is recommended that this portion of analysis rely on the more recent modeling effort (Appendix 314-6), rather than the original baseline modeling results found in Appendix 304(6)-10.

Response: The recent groundwater model simulation results (Appendix 314-6) are now used. For the record, the baseline model was a mass balance effort, not a groundwater model simulation effort. That mass balance effort including all the assumptions and limitations is thoroughly documented in Appendix 304(6)-10.

(7) ARM 17.24.314(3): In several places in the PHC, it is stated that the deep underburden is suitable in quality and quantity to supply any future mitigation needs. Five of six samples collected recently from deep underburden wells (BMP 128, BMP129) showed exceedances of the arsenic human health standard. Presumably, high arsenic values may render these waters unsuitable (without treatment) for public and private water supply. SPE must clarify these statements further and/or address how high arsenic levels would be addressed in the mitigation for public and private water supplies.

Response: Additional language was added to clarify the following:

- *In the event that it comes necessary to mitigate a water supply adversely affected by mining via a deep underburden well, and if testing results confirm that the arsenic standard is exceeded, then part of the mitigation action would be to supply and maintain on-site treatment system.*
- *The arsenic concentrations at the deep underburden test wells are below recommended guidelines for livestock.*

(8) ARM 17.24.314(3): Section 3.4.2 of the PHC (pp 314-5-16, 314-5-17) describes subsidence effects associated with longwall mining from a theoretical standpoint. Longwall mining in the Bull Mountains has progressed since year 2010. Please describe the actual observed effects of longwall mining in the Bull Mountains. For example, surface cracking has occurred throughout the mine area, as is evidenced on aerial photographs and through field visits. This appears to be contrary to the statement that “The deformation zone does not fracture upon subsidence.”

Response: Additional detail was added to the section to describe observed effects of longwall mining in the Bull Mountains.

(9) ARM 17.24.314(3): In Section 3.5 of the PHC, please do not ascertain the class of groundwater using ‘average’ conditions. Wells showing water quality results that span Class II to Class III criteria should be described as producing both Class II and Class III water.

Response: Applicable sections are now edited to indicate the nature of the range in Class designations as applicable.

(10) ARM 17.24.314(3): In the PHC where baseline water quality and/or quantity is addressed, it must be noted that most baseline wells were not BMP wells, but were separate wells drilled by Meridian. BMP wells were emplaced later at approximately the same location as the original Meridian wells.

Response: Additional language was added per the request in the very first portion of Sections 3.4 and 3.5 respectively

(11) ARM 17.24.314(3): In Section 4.0 of the PHC, it is stated that “*Whether the surface expression of flow meets the definition of an intermittent or ephemeral waterbody is a regulatory determination made by the Water Quality Standards Section of the DEQ*”. Please change ‘Water Quality Standards Section of the DEQ’ to the ‘permitting authority’.

Response: The text was edited per the comment. It is noted that the revisions replace revisions that had been previously recommended by DEQ during development of the PHC Addendum.

(12) ARM 17.24.314(3): In Section 4.1.2 of the PHC, the period of record for surface water monitoring station 11746 is referenced to support the position that Rehder Creek is ephemeral in nature. Station 11746 recently replaced station 11756, which is very close in proximity to 11746 and has a period of record from 2003 to 2014. Please include this longer period of record in the discussion.

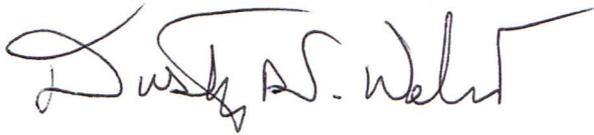
Response: The information available from replaced station 11756 is now discussed in the text.

(13) ARM 17.24.314(3): Section 7.0 of the PHC references Table 314-11. This table is a summary of the probable hydrologic consequences, their significance, and potential mitigation measures. Please include this table within the PHC (Appendix 314-5).

Response: Note that an updated table (Table 7 (314A) for the Probable Hydrologic Consequences was developed and included in the report.

Please contact me if you have any questions or concerns with this submittal.

Sincerely,



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Attachments:
Appendix 314-5_PHC_AM3_20160211.pdf

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Sincerely, Dusty R. Weber

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