

#4144
OK

TECHNICAL MEMORANDUM

Utah Coal Regulatory Program

July 26, 2012

TO: Internal File

THRU: Steve Christensen, Permit Supervisor *SLC*

FROM: April A. Abate, Environmental Scientist III *(AAA) 7/26/2012*

RE: Hydrology Plan/Surface Facilities, Bear Canyon Mine, Castle Valley Mining LLC, C/015/0025, Task ID #4144

SUMMARY

On July 10, 2012, Castle Valley Mining LLC, (the Permittee) submitted an amendment to the Division of Oil, Gas and Mining (the Division). The package included revisions to their operational water monitoring plan and a proposed change to their surface facilities area by decommissioning a culvert that is no longer needed for road drainage.

The water-monitoring plan proposes to reactivate several water sampling locations that were suspended until mining resumes. The prior plan to suspend these sampling locations was approved on September 27, 2010 at the time when the mine was transitioning ownership from C.W. Mining to Rhino Energy (Castle Valley LLC). As a result, several springs and surface water sampling locations were temporarily suspended from the quarterly monitoring plan because the mine plan did not call for mining in the Wild horse Ridge/Mohrland area.

The plan will reactivate six stream samples along Fish Creek and five spring samples above the Mohrland #4 mine area. In addition, the Permittee is responding to a Division request to add dissolved oxygen to the surface water operational sample list by revising their Surface Water Quality Parameter list.

Findings:

- **[R645.301-731.224]:** Page 7-50 of the approved Mining and Reclamation Plan (MRP) indicates that all sites projected for re-initiation of monitoring is based on the projected mine plan over the next 12 months and that sampling will *begin at least 6 months prior to projected impacts from undermining*. Mining is planned under the perennial reach of Fish Creek, as such the Fish Creek locations outlined in Table 7-14 will be monitored on a weekly basis one month prior to mining, then weekly monitoring during mining, and will continue weekly until one month

TECHNICAL MEMO

after mining. Monitoring will then be reduced to monthly for an additional 6 months, at which time it will resume its normal quarterly schedule. The weekly monitoring reports are to be sent to the Division via email as indicated in the MRP. The Division would like to request a timeline for this sampling in the area showing the six month timeframe prior to mining, the forecasted duration of the weekly sampling, and the monthly monitoring schedule 6 months after mining is completed in the area. This timeline can be sent to the Division hydrologist via email.

- **[R645.301-731.224]:** Spring sample locations SBC-18, SBC-20, SBC-21, SBC-022 and SCC-2 were selected for monitoring because they were either major contributors to surface water systems or they were springs developed for beneficial use or have water rights associated with them. The rationale provided for samples subject to the more intensive weekly monitoring during mining is listed in the narrative on Page 7-60A. Spring sample SBC-20 is included in the text, but is not marked for weekly sampling on Table 7-14. Given that this spring does not have a water right associated with it and that the flow data does not show a consistent flow (approximately 4-5 gallons per minute in late spring only), the Division does not feel that the weekly monitoring is necessary and that SBC-20 could be removed from the narrative text on Page 7-60A. If the Permittee elects to not sample SBC-20 for weekly monitoring, then please submit a revised page 7-60A.
- **[R645.301-512.110]:** Plates 5-1A, 5-1B, and 5-1C, the Blind Seam, Hiawatha Seam and the Tank Seams is requested from the Permittee if it is determined that the maps are out of date. These areas are located below Fish Creek and were all forecasted for mining between 2007 and 2014. Although not required for this submittal, but in light of the recent transition to new management, The Division recommends these mine workings maps be reviewed to ensure that the most current mine plan forecast information is accurately reflected in the MRP. Please provide updated maps to the Division if it is determined to be necessary.

The Permittee had initially included a request to decommission culvert C-4U (Plates 5-2D and 7-1D) for drainage along the Primary Portal Access Road because it was clogged with debris. This culvert was designed to route undisturbed drainage from the slope above the road and convey it further downslope to another culvert. Since the amendment was submitted, the Permittee has elected to clean out the culvert and return it to functional use. Therefore, they have withdrawn their request to decommission the culvert.

GENERAL CONTENTS

PERMIT APPLICATION FORMAT AND CONTENTS

Regulatory Reference: 30 CFR 777.11; R645-301-120.

Analysis:

The application as submitted included revised Tables 7-14 and 7-17. Table 7-14 lists the Water Monitoring Matrix by location and frequency of sampling. FC-1 thru FC-8 and SBC-18, SBC-20, SBC-21, SBC-22, and SCC-2 are proposed for reactivation. Table 7-17 is the Surface Water Quality Parameter List. Dissolved oxygen has been added to the list as a laboratory analytical parameter.

The Permittee has also submitted Plate 5-2D - Surface Facilities Map as part of this application to denote the decommissioned culvert on the Primary Portal Access Road.

Findings:

The Permittee has submitted all the required information necessary for the review of this amendment. The requirements for Permit Application Format and Contents as provided in R645-301-120 have been met.

OPERATION PLAN

HYDROLOGIC INFORMATION

Regulatory Reference: 30 CFR Sec. 773.17, 774.13, 784.14, 784.16, 784.29, 817.41, 817.42, 817.43, 817.45, 817.49, 817.56, 817.57; R645-300-140, -300-141, -300-142, -300-143, -300-144, -300-145, -300-146, -300-147, -300-147, -300-148, -301-512, -301-514, -301-521, -301-531, -301-532, -301-533, -301-536, -301-542, -301-720, -301-731, -301-732, -301-733, -301-742, -301-743, -301-750, -301-761, -301-764.

Analysis:

Proposed Reactivated Locations for Stream Site Monitoring

The Permittee is submitting a request to reactivate the following stream sample locations in their water monitoring plan: FC-1 thru FC-8 are stream sampling locations along Fish Creek. Page 7-50 of the approved Mining and Reclamation Plan (MRP) indicates that all sites projected

TECHNICAL MEMO

for re-initiation of monitoring is based on the projected mine plan over the next 12 months and that sampling will begin at least 6 months prior to projected impacts from undermining.

According to page 7-60A of the approved MRP, the Left fork of Fish Creek is fed by several springs. The upper reaches of Fish Creek is a perennial stream that is to be undermined. The MRP states that because these sites locations overlie the perennial reach of Fish Creek, they will be monitored on a weekly basis one month prior to mining. Weekly monitoring will continue until one month after mining has left the area. Monitoring will then be reduced to monthly for an additional 6 months, at which time it will resume its normal quarterly schedule.

Stream sites in the Fish Creek area include Sample Ids: FC-2, FC-3, FC-4, FC-5, FC-6, FC-7 and FC-8 located in T16N R8E, Sections 7, 12, 17, 18, and 29. The sampling frequency of the Fish Creek stream samples noted in Table 7-14 states that sampling will be re-initiated when mining occurs in Sections 7, 17, 18, 19, and 20. The Fish Creek samples are footnoted in Table 7-14 with a commitment to weekly monitoring one month prior to mining and until one month after mining then going to a monthly schedule 6 months after mining.

The weekly monitoring reports are to be sent to the Division via email as indicated in the MRP. The Division would also like to request a timeline for this sampling in the area showing the six month timeframe prior to mining, the forecasted duration of weekly sampling, and the monthly monitoring schedule 6 months after mining is completed in the area. This timeline can be sent to the Division hydrologist via email.

Proposed Reactivated Locations for Spring Site Monitoring

The Permittee is submitting a request to reactivate the following spring sample locations in their water monitoring plan: SBC-18, SBC-20, SBC-21, SBC-22 and SCC-2. According to Page 7-56 of the MRP, these springs were included in a 2006 field investigation by the regulatory agencies and other interested parties because the springs are above the coal seam where flow quantity impacts are possible. SBC-18, SBC-20, SBC-21, SBC-022 and SCC-2 were selected for monitoring because they were either major contributors to surface water systems or they were springs developed for beneficial use or have water rights associated with them.

The rationale provided for samples subject to the more intensive weekly monitoring during mining is listed in the narrative on Page 7-60A. Spring sample SBC-20 is on the list, but is not marked for weekly sampling on Table 7-14. Given that this spring does not have a water right associated with it and that the flow data does not show a consistent flow (approximately 4-5 gallons per minute) in late spring only, the Division does not feel that the weekly monitoring is necessary and that SBC-20 should be removed from the narrative text on Page 7-60A. If the Permittee elects to not sample SBC-20 for weekly monitoring, then please submit a revised page 7-60A.

Water Rights and Water Replacement

The approved MRP contains commitments on page 7-61 to replacement any state appropriated water supply impacted by mining or mining-related activities. In addition, Federal lease stipulation 21 also requires that any water resource identified for protection has been impacted; the Permittee will replace the water source. Figure 7-0 in the MRP lists all water sources identified for protection. The following water resources are listed for protection that are subject to reactivation sampling as per this amendment:

SBC-18	Right Fork of Fish Creek
SBC-22	Wild Horse Ridge (Stockwater Trough)

Both of these spring locations will be subject to the same weekly sampling requirements as the other sample locations outlined in Table 7-14. In addition to other water right locations listed in the permit area (found on Plate 7-12 of the MRP), these locations were specially designated for protection based on an interagency field reconnaissance in 2006.

Addition of Dissolved Oxygen in Surface Water Quality Parameters

The Permittee has complied with the Division's earlier request to add dissolved oxygen to the list of surface water parameters. The dissolved oxygen analysis will be conducted by laboratory analysis and has been added to the list of laboratory measurements found in Table 7-17 in the MRP.

Findings:

[R645.301-731.224]: Page 7-50 of the approved Mining and Reclamation Plan (MRP) indicates that all sites projected for re-initiation of monitoring is based on the projected mine plan over the next 12 months and that sampling will begin at least 6 months prior to projected impacts from undermining. Mining is planned under the perennial reach of Fish Creek, as such the Fish Creek locations outlined in Table 7-14 will be monitored on a weekly basis one month prior to mining. Then weekly monitoring during mining, and will continue until one month after mining. Monitoring will then be reduced to monthly for an additional 6 months, at which time it will resume its normal quarterly schedule. The weekly monitoring reports are to be sent to the Division via email as indicated in the MRP. The Division would like to request a timeline for this sampling in the area showing the six month timeframe prior to mining, the forecasted duration of the weekly sampling, and the monthly monitoring schedule 6 months after mining is completed in the area. This timeline can be sent to the Division hydrologist via email.

TECHNICAL MEMO

[R645.301-731.224]: SBC-18, SBC-20, SBC-21, SBC-022 and SCC-2 were selected for monitoring because they were either major contributors to surface water systems or they were springs developed for beneficial use or have water rights associated with them. The rationale provided for samples subject to the more intensive weekly monitoring during mining is listed in the narrative on Page 7-60A. Spring sample SBC-20 is included in the text, but is not marked for weekly sampling on Table 7-14. Given that this spring does not have a water right associated with it and that the flow data does not show a consistent flow (approximately 4-5 gallons per minute in late spring only), the Division does not feel that the weekly monitoring is necessary and that SBC-20 could be removed from the narrative text on Page 7-60A. If the Permittee elects to not sample SBC-20 for weekly monitoring, then please submit a revised page 7-60A.

MAPS, PLANS, AND CROSS SECTIONS OF MINING OPERATIONS

Regulatory Reference: 30 CFR Sec. 784.23; R645-301-512, -301-521, -301-542, -301-632, -301-731, -302-323.

Analysis:

Part of the evaluation of this amendment involved a review of the Hiawatha, Tank, and Blind Seam Working maps, which are listed as Plates 5-1A, 5-1B, and 5-1C in the MRP. According to Plates 5-1A, 5-1B, and 5-1C, the Blind Seam, Hiawatha Seam and the Tank Seams These areas are located below Fish Creek and were all forecasted for mining between 2007 and 2014. Although not required for this submittal, but in light of the recent transition to new management, The Division recommends these mine workings plans be reviewed to ensure that the most current mine plan forecast information is accurately reflected in the MRP. Please provide updated maps to the Division if it is determined to be necessary.

Findings:

- **[R645.301-512.110]:** Plates 5-1A, 5-1B, and 5-1C, the Blind Seam, Hiawatha Seam and the Tank Seams is requested from the Permittee if it is determined that the maps are out of date. These areas are located below Fish Creek and were all forecasted for mining between 2007 and 2014. Although not required for this submittal, but in light of the recent transition to new management, The Division recommends these mine workings maps be reviewed to ensure that the most current mine plan forecast information is accurately reflected in the MRP. Please provide updated maps to the Division if it is determined to be necessary.

RECOMMENDATIONS:

Additional information is requested from the Permittee prior to issuing final approval of the water monitoring portion of this amendment.

O:\015025.BCN\WG4144\WG4144aaa.doc