

OGMCOAL - Horizon 2nd Qtr 2010 WQ Memo & 4th Qtr Data

From: Kevin Lundmark
To: Kit Pappas
Date: 12/13/2010 4:48 PM
Subject: Horizon 2nd Qtr 2010 WQ Memo & 4th Qtr Data
CC: OGMCOAL
Attachments: 12092010a.pdf

Kit,
FYI I've attached a copy of the Water Quality Memo for Horizon Mine 2nd Qtr 2010.

I also noticed that there are a handful of samples in the database pipeline with a sample date of 11/05/2011:
2-6-W, HZ-01-06-1, HZ-95-1, HZ-95-1S, HZ-95-2, HZ-95-3, SP-1, SP-2, SP-4, SS-11, SS-12, SS-5

I understand that you may still be working on the data entry, but I wanted to alert you to these "future" sample dates. If these are already submitted and you cannot access to fix the dates, let me know and I'll try to correct from this end.

Thanks,
Kevin

#3565
OK

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WATER QUALITY M E M O R A N D U M Utah Coal Regulatory Program

December 9, 2010

TO: Internal File

THRU: James D. Smith, Permit Supervisor *JS 13 Dec 2010*

FROM: Kevin Lundmark, Environmental Scientist II *KLW*

RE: 2010 2nd Quarter Water Monitoring, Hidden Splendor Resources, Inc., Horizon Mine, C/007/0020 WQ10-2, Task ID #3565

The Horizon Mine is operational and mining coal. The water-monitoring plan is outlined in Chapter 7 - Hydrology of the MRP, which was most recently updated in June 2005. Surface and groundwater monitoring is required for the Horizon Mine under the operation plan, and monitoring procedures and parameters are discussed in MRP Section 7.1.5 (groundwater) and Section 7.2.2.3 (surface water). UPDES permit UTG040019 authorizes discharges from two outfalls and expires on April 30, 2013.

This report was prepared from monitoring data queried from the UDOGM database. The data that support this report were collected and submitted to the database by the Operator. The data were downloaded into file O:\007020.HZN\Water Quality\Spreadsheets\HZN_WQ.xls for this review.

1. Were data submitted for all of the MRP required sites?

Springs YES [X] NO []

Springs SP-1, SP-2, SP-4, SP-9 (Jewkes Spring), 2-6-W (Homestead Spring) and GV-70 will be monitored once each calendar quarter (when the springs are accessible) during the operational and reclamation phases. Ground water quality parameters to be checked are outlined in Table 7-2 of the MRP.

Springs SP-1 and SP-4 were reported with "No Flow" during second quarter 2010. Flows reported for springs 2-6-W, GV-70, SP-2 and SP-9 ranged from 0.35 gpm (2-6-W) to 12 gpm (SP-9).

Streams YES [X] NO []

Stations SS-3, SS-5, SS-7, SS-8, SS-10 and SS-11 will be monitored once each quarter (as access conditions permit). Surface water quality parameters are outlined in Table 7-5 of the MRP.

All stream sites had flows during the second quarter 2010. Flow rates at stream sites ranged from 2 gpm at SS-11 (Sand Gulch tributary to Beaver Creek) to 340 gpm (Jewkes Creek below mine).

Wells **YES [X]** **NO []**

Water level data will be collected during the operational and reclamation phases from wells HZ-95-1, HZ-95-1S, HZ-95-2, HZ-95-3 and HZ-01-06-1 once each quarter, when accessible.

Water levels were reported for wells HZ-95-1, HZ-95-1S, HZ-95-2 and HZ-01-06-1. Well HZ-95-3 was reported as "Dry".

UPDES **YES [X]** **NO []**

Monthly monitoring is required for the UPDES outfalls associated with the mine discharge (001) and sedimentation pond (002).

UPDES sites were monitored monthly for the quarter and all required data were submitted. No flow was reported from the sedimentation pond. Discharge from the underground mine ranged from 300 to 310 gallons per minute.

2. Were all required parameters reported for each site?

Springs **YES [X]** **NO []**

Streams **YES [X]** **NO []**

Wells **YES [X]** **NO []**

UPDES **YES [X]** **NO []**

3. Were irregularities found in the data?

Springs **YES [X]** **NO []**

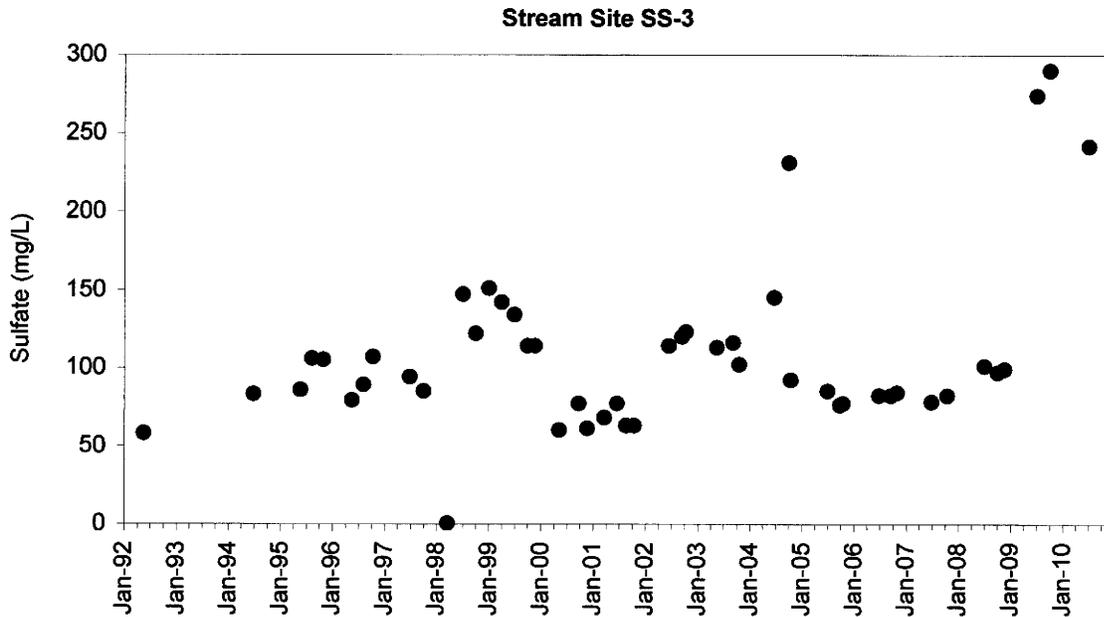
The chloride concentration reported for the June 30, 2010 sample collected at spring 2-6-W was 14.5 mg/L, which is the highest chloride concentration detected to date at this spring. Chloride concentrations at this spring are typically 7 mg/L to 9 mg/L. The total dissolved solids (TDS) concentration in the June 30, 2010 sample at 2-6-W was 306 mg/L, which is below the average TDS concentration in samples collected to date (337 mg/L). The cation-anion balance for the analysis of the June 30, 2010 sample at 2-6-W was acceptable (1%).

The alkalinity reported for spring GV-70 was 457 mg/L, which is greater than two standard deviations above the average value for this spring (average 406, standard deviation 9.07). The bicarbonate and TDS results for spring GV-70 were within the ranges of values typically reported for this site, and the cation-anion balance for this sample was acceptable (4.6 %).

Streams **YES** **NO**

The total iron concentration in the June 30, 2010 sample from site SS-11 (Sand Gulch Beaver Creek Trib BL Future Min) was 5.88 mg/L. The dissolved iron concentration was reported as 0.036 mg/L, which is below the applicable Utah Water Quality Standard for dissolved iron (1.0 mg/L). The flow in Sand Gulch on June 30, 2010 was reported as 2 gpm, which is well below the average of flow values previously reported (12.6 gpm, n = 30). The total suspended solids (TSS) concentration on June 30, 2010 (128 mg/L) also appeared to be somewhat elevated relative to other samples collected during periods of similar flow; however, the TDS concentration (162 mg/L) was not elevated. Mining information submitted by Hidden Splendor for Task ID# 3666 shows that underground mining has occurred below the Sand Gulch watershed; however, the timing of mining was not provided. The elevated iron appears to be a result of a high solids content of the sample.

The sulfate concentration reported for site SS-3 (Jewkes Creek below mine) on June 30, 2010 was reported at 241.5 mg/L, which is more than double the average value of 108 mg/L (std. deviation = 53.4 mg/L). Sulfate concentrations at station SS-3 are variable, but appear to have been elevated during recent sampling events (see plot below).



Wells YES [] NO [X]

UPDES YES [] NO [X]

4. On what date does the MRP require a five-year resampling of baseline water data.

Re-sampling due date is third quarter, July-September 2012.

5. Based on your review, what further actions, if any, do you recommend?

Groundwater monitoring well HZ-95-3 intercepted the coal seam and was reportedly mined through by a previous permittee. The surface completion for well HZ-95-3 is on a high ridge above Portal Canyon with no road access (Inspection Report No. 2413). The current MRP identifies that monitoring data collected at well HZ-95-3 "...will allow early assessments of mining impacts to be made" (MRP page 7-32). The MRP does not mention that well HZ-95-3 has been mined through. If well HZ-95-3 is no longer operational, then the MRP should be revised to describe the loss of this well, and the Groundwater Monitoring Plan should be updated accordingly. The Operator should either replace the well or demonstrate why monitoring data is no longer necessary to meet the objectives of the groundwater monitoring plan in the MRP (R645-301-731.214). Well HZ-95-3 must be properly abandoned (R645-301-731.215, R645-301-765).

Does the Mine Operator need to submit more information to fulfill this quarter's monitoring requirements? YES [] NO [X]

- 6. Follow-up from last quarter, if necessary.
Did the Mine Operator submit all the missing and/or irregular data (datum)?**

None needed.

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