



GARY R. HERBERT
Governor
GREG BELL
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining
JOHN R. BAZA
Division Director

Technical Analysis and Findings

Utah Coal Regulatory Program

February 5, 2016

PID: C0150018
TaskID: 5064
Mine Name: DEER CREEK MINE
Title: REDUCE HYDROLOGIC MONITORING

Summary

On October 16th, 2015 the Division of Oil, Gas and Mining (the Division) received an amendment to Reduce Hydrologic Monitoring sites at the Deer Creek mine from Interwest Mining Company (the Permittee). The amendment was assigned Task #5028. Task #5028 was returned deficient. This is the second round of the amendment by the Permittee to reduce water monitoring at five springs and two wells. The current amendment is assigned Task ID #5064. The Division approved a reduction in water monitoring sites for the Deer Creek mine in Task #'s: 4332, 4381, and 4443.

Deficiencies Details:

kstorrar

Environmental Resource Information

Maps Mine Working

Analysis:

The amendment meets the State of Utah R645 requirements for a Mine Workings Map. The amendment shows the locations of underground workings with respect to the spring locations on the surface and subsidence contours. The amendment includes these maps of the mine workings and the location of the springs 80-48, 89-65, 89-66, 89-67, 89-68 in relation to the workings.

kstorrar

Operation Plan

Hydrologic Ground Water Monitoring

Analysis:

The amendment meets the State of Utah R645 requirements for Hydrology.

Springs 80-48, 89-66, 89-67, and 89-68 – These four springs are located within the same small swale drainage near the top of the ridge. The subsidence map provided in the amendment shows the recharge area for each of the springs, from the springs up to the ridgeline, has not been affected by subsidence. The discharge rate of the springs appears to be heavily

influenced by the climatic trends of the Palmer Hydrological Drought Index. Graphing PHDI as the explanatory variable vs. spring discharge rates as the response variable shows a strong positive correlation with r2 values of: 80-48 = 0.427, 89-66 = 0.283, 89-67 = 0.31, and 89-68 = 0.298. See the attached graphs supporting these findings. Given the recharge area of the springs is unaffected by mining and that they are strongly correlated with climatic trends, it is justified to remove these springs from the monitoring plan.

Spring 89-65 – This spring is located just up-channel from a small pond, west of the other four springs. It is located in a rocky talus/soil slope making it difficult for the operator to accurately take a measurement of the low flows that are typical for the spring. This probably contributes to the fact that there is greater variability in the data than the other four springs. The monitored flows have appeared to stabilize at or above 0.5 GPM since 2008. Based on these factors it is justified to remove this spring from the water monitoring plan.

Well EM-31 – This well has been relatively stable, only fluctuating between a water elevation of 7360' and 7365', since 1991. The fact that it does show seasonal variations probably indicates the well is in communication with shallower groundwater systems as stated in the amendment. Based on the fact the well level has been consistent for so long it is justified to remove it from the water monitoring program.

I spoke with Vicky Miller, a representative of the Fossil Rock mine, that this well may be dropped from the Deer Creek mine water monitoring program and she expressed interest in adding to the well to the Fossil Rock mine water monitoring program. I encourage the Deer Creek mine operators to contact the Fossil Rock mine prior to reclaiming it, to see if the Fossil Rock mine would like to take over managing the well.

kstorrar









