Norman H. Bangerter
Governor
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Executive Director
Dianne R. Nielson, Ph.D.
Division Director

State of Utah

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203
801-538-5340

January 23, 1992

Mr. William R. Skaggs
Blue Blaze Coal Company
P.O. Box 784
Price, Utah 84501

Dear Mr. Skaggs:

Re: Ground Water Technical Deficiencies, Blue Blaze Coal Company, Blue Blaze Mine, PRO/007/020, Folder #2, Carbon County, Utah

Enclosed please find a technical memorandum that describes the technical deficiencies, requirements and need for site-specific groundwater characterization for the Blue Blaze Mine. This characterization (technical analysis) must be planned by or under the direction of a professional, qualified in the subject of groundwater.

If you have any questions, please call me or Tom Munson.

Sincerely,

Pamela Grubaugh-Littig
Permit Supervisor

jbe
Enclosure
cc: Dianne R. Nielson
Lowell P. Braxton
Tom Munson
007020GW

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TO: Pamela Grubaugh-Littig, Permit Supervisor

FROM: Thomas Munson, Senior Reclamation Hydrologist TM

RE: Technical Deficiencies (Ground Water), Blue Blaze Coal Company, Blue Blaze Mine, PRO/007/020, Folder #2, Carbon County, Utah

Background

The Division sent a Technical Deficiency Document to Mr. Roger Skaggs on October 11, 1991. Two submittals have been received by the Division on December 23, 1991, and January 13, 1992, addressing Technical Deficiencies. On January 7, 1992, the Division had a meeting with Envirosearch International regarding Baseline Groundwater Data Collection at the Blue Blaze Mine. On January 14, 1992, the Division received a formal submittal from Mr. Roger Skaggs including the Envirosearch International report entitled "Baseline Hydrologic Data and Impact Evaluation." This memo will address the adequacy of this analysis report in regards to baseline groundwater data collection as required by R645-301-724.100, R645-301-724.500, and R645-301-728. *Previous comments from the October 1991 Technical Deficiencies are italicized in this memo.*

Previous Comments

724.100 Baseline Information: Groundwater *The applicant has presented drill hole information from Century Geophysical Corporation stating that, "A Gamma Ray Probe was used by Century Geophysical Corporation in the LMC drill holes to check for fluid in impervious layers" (page 7-6, PAP). The Division cannot accept this information as a valid explanation for the occurrence of formation water, per the requirements of the rules, "Groundwater quantity descriptions will include, **at a minimum**, approximate rates of discharge or usage and depth to the water in the coal seam, and each water-bearing stratum above and potentially impacted stratum below the coal seam." The applicant must be made aware that Gamma Logs cannot be used to ascertain the depth to water in the coal seam, and each water-bearing stratum above and potentially impacted stratum below the coal seam. For example, hole LMC 1 water level was determined to be found at 232 feet when in reality*

all the Gamma log was saying was that the water level in the hole following drilling was 232 feet below the surface. Without the driller's log documenting water occurrence and core data this does not indicate that water occurred at this elevation, but shows that the combination of drill fluids and water rose to this level in the hole.

The applicant must provide, groundwater quantity descriptions that include, at a minimum, approximate rates of discharge or usage and depth to the water in the coal seam, and each water-bearing stratum above and potentially impacted stratum below the coal seam. A verified driller's log documenting water occurrence within each stratum is required.

Current Proposal

The applicant attempted to measure water levels in the two open holes (LMC-1 and LMC-3) in December 1991 within the proposed permit area. LMC-1 was reported to be open to 600 feet and LMC-3 was reported to be a dry hole and open to 650 feet. LMC-1 was not open to the Castlegate "A" coal seam. A personal communication with a Mr. Joseph A. Harvey stated very little water was found when holes LMC-1, LMC-3, and LMC-4 were drilled (PAP page 7-65v).

Analysis

The only new information provided on a site specific basis to the PAP was the data collected by Mr. Roger Skaggs to determine water levels in Drill holes LMC-1 and LMC-3. The methods used to collect this data were not described and should be to determine their validity. The personal communication with Mr. Joseph A. Harvey, regarding occurrence of water was vague and not site specific. The applicant did not provide groundwater quantity and quality descriptions (i.e., depth to groundwater in the coal seam, and each water bearing stratum above and potentially impacted stratum below the coal seam).

The applicant has supplied a variety of historical mining data on faults and previously mined areas surrounding this permit area. It is noted in the Envirosearch report that no differentiation was made regarding verified or unverified faults. All faults were treated equally in regards to documentation in the report. Although this information is certainly useful in making any groundwater impact assessment, an attempt to verify fault location using on site reconnaissance would be appropriate in determining the importance of faults as water bearing structures.

The Division has determined that the applicant still needs to supply site-specific seasonal baseline groundwater data (one year minimum) on the depth to the water in

the coal seam, and each water-bearing stratum above and potentially impacted stratum below the coal seam, as well as, quality on any groundwater encountered. This data collection must be a scientific investigation planned by or under the direction of a professional qualified in this subject.

Previous Comments

724.500 Supplemental Information *The applicant has chosen to use data collected in September 1976 from four logged drill holes to describe groundwater conditions on the Blue Blaze permit area. This information is referenced on pages 7-6 and shown on Figure 1. This information is considered the supplemental information necessary to evaluate the probable hydrologic consequences of mining on groundwater but is inadequate.*

*Such supplemental information may be based upon **drilling, aquifer tests, hydrogeologic analysis of the water-bearing strata, flood flows, or analysis of other water quality or quantity characteristics.** The applicant must submit site-specific data so that an assessment of the Probable Cumulative Impacts of **all** anticipated coal mining and reclamation operations on the hydrologic balance in the cumulative impact area can be made. A determination that the proposed operation has been designed to prevent material damage to the hydrologic balance outside the permit area must also be made using site-specific groundwater information.*

The applicant must provide a survey that shows whether aquifers or areas for the recharge of aquifers exist within the permit and adjacent area and whether subsidence, if it occurred, could cause material damage or diminution of reasonably foreseeable use of aquifers or areas for the recharge of aquifers. Renewable resource survey information must be incorporated into the subsidence control plan as required by R645(R614)-301-525.

Current Proposal

The applicant has not provided a sufficient survey that shows whether aquifers or areas for recharge of aquifers exist within the permit and adjacent area and whether subsidence, if it occurred, could cause material damage or diminution of reasonably foreseeable use of aquifers or areas for the recharge of aquifers. The only figure which shows recharge areas in a very limited sense is Figure 2, titled "Figure 2: Cross-Section A-A, Blue Blaze Coal." No baseline groundwater data other than spring quality and quantity have been presented to demonstrate impacts to aquifers within the permit area aside from the outcome of historical mining on water resources in the area.

Analysis

The applicant still needs to identify areas of recharge of aquifers within the permit area and adjacent areas and whether subsidence, if it occurred could cause material damage or diminution of reasonably foreseeable use of aquifers or areas for recharge of aquifers. This technical analysis must be planned by or under the direction of a professional qualified in this subject.

Previous Comments

728. Probable Hydrologic Consequences (PHC) Determination *The applicant has not provided accurate groundwater information from drill holes LMC 1-4 explained in the deficiency of R-614-301-724.100. Until this information is submitted, the PHC cannot be considered complete and accurate and, therefore, cannot be reviewed.*

Current Proposal

The applicant provided marginal data regarding drill holes LMC 1-4 as found on page 7-65v of the PAP in the form of personal communications with Mr. Roger Skaggs and Mr. Joseph Harvey. None of this data can be regarded as conclusive based on past data demonstrating water occurrence in the drill holes as shown on drill logs.

Analysis

The applicant must provide seasonal baseline groundwater data (both quantity and quality) on all potentially-impacted aquifers and potential adverse impacts which may occur to the hydrologic balance both within and outside the permit area based on site-specific groundwater data. This data collection must be a scientific investigation planned by or under the direction of a professional qualified in this subject.

Technical Deficiencies

The applicant still needs site-specific groundwater characterization for the Blue Blaze Mine. This characterization must be a scientific investigation (technical analysis), planned by or under the direction of a professional qualified in the subject of groundwater (R645-301-132).

Site-specific seasonal baseline groundwater data must be collected and submitted (one year minimum) on the depth to the water in the coal seam, and each water-bearing stratum above and potentially-impacted stratum below the coal seams, as well as, quality of any groundwater encountered.

The areas of recharge of aquifers within the permit area and adjacent areas must be identified, and whether subsidence, if it occurred, could cause material damage or diminution of reasonably foreseeable use of aquifers or areas for recharge of aquifers.

Seasonal baseline groundwater data (both quantity and quality) must be provided on all potentially-impacted aquifers and predict, based on site- specific groundwater data, the potential adverse impacts which may occur to the hydrologic balance both within and outside the permit area.

jbe
BBGW