0017

April 23, 2004

Dan Meadors, General Manager
Canyon Fuel Company, LLC
HC 35 Box 380
Helper, Utah 84526

Re: Findings for HCI Groundwater Model Report in PHC, Canyon Fuel Company, LLC, Skyline Mine, C/007/0005, #1871, Outgoing File

Dear Meadors:

The above referenced amendment, received at the Division March 19, 2004, has been reviewed and found deficient. The deficiencies were sent, informally, to Mr. Chris Hansen via email. In addition, a meeting was conducted on April 19, 2004, in the HCI offices in Lakewood, Colorado where the Groundwater Model report and PHC were discussed in detail. It was discussed during the meeting that a number of modifications were to be made to the report and current PHC submittal. The modifications are detailed in attachment titled, "Skyline Flow Model Recommendations". In order for us to continue to process your application, please respond to these deficiencies and modifications by June 1, 2004.

If you have any questions, please call me at (801) 538-5325 or Gregg Galecki at (801) 538-5262.

Sincerely,

/S/

Daron R. Haddock
Permit Supervisor

an
Enclosure:
cc: Price Field Office
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Skyline Flow Model Recommendations

As an addendum to the Office of Surface Mining's (OSM) evaluation of the Skyline Mine flow model Findings Report, OSM is providing the follow specific list of deficiencies. OSM found Hydrologic Consultants, Inc's (HCI) Findings Report to be incomplete after initial review in January 2004. On April 19, 2004 OSM meet with a representative from the Utah Division of Oil, Gas and Mining (DOGM), Canyon Fuel Company (CFC), and HCI to obtain clarification regarding the conceptual model development and numerical setup, and to discuss completeness for the probable hydrologic consequences (PHC) determination. The following comments are recommendations for additional clarification in the Findings Report documentation, and details necessary information for DOGM's evaluation of impacts to the hydrologic balance.

(1) Three objectives of the groundwater flow model are presented in Section 1.2 of the Findings Report. Addition of a fourth objective presenting water quantity impacts associated with drawdown of the Starpoint Aquifer is recommended. Specifically, water quantity diminution to (a) Mud Creek, (b) Fish Creek, (c) Upper Huntington Creek/Electric Lake, (d) Huntington Creek below Electric Lake, and (e) Left Fork should be projected and presented as part of the PHC determination. The determination should also project post pumping aquifer recovery, and project to the year 90% or more recovery is achieved.

(2) The end of Section 1.2 discusses that the flow model is in a heuristic stage, and there is some hesitation to use the model for predictive purposes. Incorporation of additional drawdown data, and performing a validity analysis using all available drawdown measurements, will likely add credibility to the model use for predictive purposes. If the addition of the objective discussed above is pursued, a validity analysis is necessary.

(3) Figure 11 in the Findings Report presents the upper most layer of the model. A separate figure of each model layer with the active features should be provided. The explanation on each figure should clearly present if the fault is hydraulically active in that layer of the model, and if the hydraulic conductivity represented is for that above the Lower O'Conner B (LOB) or below the LOB. The legend/explanation should identify the formations presented and hydraulic conductivity assigned to the formation the layer shown using color coding. Each figure should also present Scofield Reservoir, Electric Lake, and pumping well JC-1 for reference.

(4) Figure 11 should have a third cross-section C-C'. The cross-section should extend from the southern most portion of the model (to depict thinning of the Blackhawk Formation and the likely Star Point Formation recharge area), cross the intersection of A-A' and B-B' and extend to the Fish Creek Fault near Scofield Reservoir.

(5) Figures 12 and 13. Gooseberry and Pleasant Valley Faults are considered no flow boundaries. Slight extensions of cross-sections beyond the no flow boundaries would be useful to visualize the amount of displacement, and better understand the rationale for no flow boundaries presented in Section 3.3: "regional faults juxtapose the Starpoint sandstones against thick sequences of much lower permeability siltstones and shales."

(6) Electric Lake is assigned as a constant head boundary. It is unclear how much water, if any, is added to or taken from the system from the constant head boundary. Please include that information as part on the water budget on Table 6 of the Findings Report.

(7) It is stated, "During the predictive runs, the pumping node is converted to a constant head node when the calculated water level reaches the elevation of the top of the Panther Sandstone. This numerical approach enables the reduction in the pumping rate of JC-1 due to dewatering of the deep ground-water system to be replicated" (Findings Report, Page 38, Section 4.6,). The rationale for this approach is not clear. How can a pumping node be assigned as a constant head node and appropriately simulate drawdown? Please clarify the intended concept and application.

(8) HCI provided a comparison scatter plot (Figure 15) to represent the calibration documentation. Overall, there appears to be an unbiased distribution based on the scatter plot provided. However, it is unclear what hydrostratigraphic units the various water levels represent. There may be a bias in a particular hydrologic zone. It is recommended that the comparison scatter plot be color coded to represent all the water levels of each unique hydrologic zone. Additionally, HCI should provide a table of the observations, simulated values, residuals, and formation of water level observation.