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 DIVISION OF OIL, GAS AND MINING

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February 25, 2000

TO: Internal File

FROM: Mike Suflita, Reclamation Hydrologist, Project Team Lead *MS*

RE: 160-Acre Incidental Boundary Change, Lodestar Energy, Inc., White Oak Mine, ACT/007/001-IBC99F

SUMMARY:

On December 10, 1999 the Division received a request to amend the approved Mining and Reclamation Plan (MRP) to include an additional 160 acres. This action required a lease modification to Federal Coal Lease No. U-017354 which was jointly approved by the Forest Service and Bureau of Land Management on September 29, 1997. The Bureau of Land Management and Forest Service manage the coal and surface resources, respectively. The added coal reserves would extend the life of mine by about five years.

On January 18, 2000 the division responded to the submittal with a Draft Technical Analysis which outlined the areas where the submittal did, and in some instances, did not meet regulatory requirements. On February 15, 2000 the Applicant met with the Division to review and discuss revisions to the amendment. A second submittal was received by the Division on February 17, 2000. This Technical Analysis explains the manner in which the submittal meets the regulatory requirements of the Utah Coal Regulatory Program. Only those elements of the regulations that are relative to this request are included.

TECHNICAL ANALYSIS:

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:

Ground-water monitoring.

The proposed addition is within the Upper Huntington Creek and Mud Creek Basins CHIA. This was determined by comparing CHIA Figure 2 and Plate 7-1, Permit Extension-Surface And Ground Water Rights And Monitoring Points. The CHIA does not need to be revised due to this proposed amendment.

The proposed 160 acre addition is located on the south edge of the present lease area on the west end. The 160 acres is at the headwaters of Coal Canyon, which is a spring-fed stream. Cox Canyon is the stream one mountain ridge to the south, and both streams could potentially be impacted by mining operations. Cox Canyon is also spring-fed. The existing permit area extends to the headwaters area of Cox Canyon. Both streams are shown on the U.S. Geological Survey maps (Candland Mountain Quadrangle) as perennial streams for most of their length. The submitted baseline monitoring data shows flows during all seasons, except one date in November when both streams were frozen.

The area is characterized by perched water tables which have springs issuing on the mountainside. Spring locations are shown on Plate 7-1, Permit Extension-Surface And Ground Water Rights And Monitoring Points. Baseline data in Appendix 722.100d shows a one-time monitoring of 16 springs feeding Cox Canyon and nine springs feeding Coal Canyon. The amendment proposes to establish three new monitoring points in addition to those already in the MRP. Monitoring point COAL is near the mouth of Coal Canyon where the stream enters Electric Lake, COX is near the mouth of Cox creek near where the stream enters Electric Lake, and SCOAL-1 is at a spring at the southwest corner of the lease addition, just outside the boundary.

It's recognized that fourth quarter monitoring may not be feasible due to frozen streams and snow preventing access. However, review of the submitted data still shows a rather sparse amount of data. Specifically, of the three remaining quarters for data gathering, the following numbers of data points were obtained for the new monitoring points:

COX:	1996 - two,	1997 - three,	1998 - one,	1999 - one	Total 7
COAL:	1996 - two,	1997 - three,	1998 - one,	1999 - one	Total 7
SCOAL-2:	1996 -one,	1997 - zero,	1998 - one,	1999 - zero	Total 2

The regulations require, "Ground-water will be monitored and data will be submitted at least every three months for each monitoring location." The same is true for surface-water monitoring. Reference R645-731.212 and 731.223. On that basis, assuming three data points per year, there should have been a total of 36 data points. Only 16 data points were submitted. The submitted data also shows "no access" to the COX and COAL sites on 6/28/99, 6/23/98, and

TECHNICAL MEMO

10/24/96. It's difficult to understand why the sites would be inaccessible during those seasons when COX and COAL are within 1 ½ mile of a paved road.

On 6/28/96 all of the contributing springs and both streams were monitored. Included were flows for all the points. Review of these data showed a curious situation with regard to the amount of flow contributed to the streams by the springs. SCOAL-3 through SCOAL-8 are located directly on the stream. When the flows are totaled for them they equal 74.0 gallons per minute (gpm). The flow for COAL, at the mouth of the stream is only 7.93 gpm or 11% of the flow entering the stream. SCOAL-8 is about 2500 feet up from COAL and it's flowing 31.6 gpm. Even considering some reaches of the stream absorbing water, it's difficult to understand where 89% of the water went. Coal Canyon has a similar situation. SCOX- 11 through SCOX-14 are located directly on the stream and all are within about 4,200 feet of COX, at the mouth of the stream. When the flows are totaled they equal 54.00 gpm. The flow at COX is 11.22 gpm or 21% of the flow entering the stream. COX-14 is about 1,200 feet up from COX and it's flowing 18.2 gpm. It's difficult to understand where 79% of the water went. These figures do not consider another 26.10 gpm flowing in one side canyon and another 14.2 gpm in another side canyon. Again, even considering some reaches of the stream absorbing water, it's difficult to explain these comparisons that show such large water losses.

Referring to Plate 7-1, Permit Extension-Surface And Ground Water Rights And Monitoring Points, and comparison of the flows in the springs adjacent to the proposed 160 acre extension, shows the best spring may not have been selected for monitoring. Looking at the 6/28/96 data for all springs shows the following:

SCOAL-1	7.9 gpm	
SCOAL-2	1.2 gpm	This is the proposed monitoring point.
SCOAL-3	14.3 gpm	
SCOAL-4	1.0 gpm	
SCOAL-5	11.6 gpm	

All of these springs are within or immediately adjacent to the proposed 160 acre extension. The data were collected on the same day in the late spring/early summer when flows were higher than other seasons. It's better to monitor springs with higher flows than lower flows. SCOAL-3 or -5 would be much better monitoring points. SCOAL-1 is directly above the proposed mining area, and it has a greater flow than SCOAL-2. It seems the best combination for monitoring would be SCOAL-1 and SCOAL-3 or -5.

A significant concern has been raised concerning the amount of subsidence that will occur in the proposed addition. The original lease modification assumptions and the actual subsidence due to this submittal seem to be different. The concern is that more subsidence will occur than originally planned. In turn, this could impact recharge to the springs feeding Cox and Coal Canyons.

Review of Plate 5-1B, Permit Extension-White Oak No. 1 Mine- 5yr. Mine Plan shows that the mining in the 160 acre extension to be about 12 acres (7%) during the year 2000. This area is located in the extreme northeast corner of the extension and should have little impact on the monitoring points. Considering this timing, and the lack of baseline data, and the concern regarding subsidence, the Division requires the Applicant to collect complete data during at least three quarters of the year 2000 and to add that to the baseline data. It will also be necessary to select a more appropriate set of springs to monitor in and/or adjacent to the 160 acre addition.

Findings:

In it's present form the submittal does not meet regulatory requirements. Accordingly, the Applicant must address those deficiencies as found within this Technical Analysis and provide the following, prior to approval, in accordance with the requirements of:

R645-301-731, select a more appropriate set of springs to monitor in and/or adjacent to the 160 acre addition, collect complete data during at least three quarters of the year 2000 and add that to the baseline data, and use the data to show a more consistent accounting of stream inflows and outflows for Coal and Cox Canyons.

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