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January 5, 2000

To: Internal File

Thru: Mike Suflita, Reclamation Hydrologist, Team Lead *MS*

From: Peter Hess, Reclamation Specialist III *PHH*

RE: 160 Acre IBC, Lodestar Energy, Inc., Western Operations, White Oak #1 and #2 Mines, ACT/007/001-IBC99F

**SUMMARY:**

Lodestar Energy, Inc. is proposing to permit a 160 acre lease modification relative to Federal coal lease No. U-017354. Approval of IBC99F will allow the permittee to develop and extract coal reserves which will otherwise be bypassed through the secondary extraction of developed entries which will be up to the current lease boundary. Should the lease addition be approved by the UDNR/OGM, room and pillar mining will be utilized in both the upper O'Connor (White Oak #1 Mine) and the lower O'Connor (#2 Mine) seams. Life of mine will be lengthened by approximately four years, based on Plates 5-1A and 1B (five year mine plans for the #1 and #2 Mines), which have been submitted with this application.

**TECHNICAL ANALYSIS:**

**OPERATION PLAN**

**COAL MINING OPERATIONS**

Regulatory Reference: R645-301-511.100

**Analysis:**

**Description of Coal Mining Operations**

Section 523, Mining Method(s), (Page 500-11 of 43 of the currently approved MRP)

indicates that the approved Mine Plan calls for mining in the upper twelve feet of each coal seam. Approximately two feet of top coal is left in place to aid roof support. **The next ten feet (first mining) below is mined using a continuous miner. The remaining bottom coal is then extracted during the retreat (second mining) from each mining section.** Room and pillar mining has been the only production method employed thus far.

As noted above, room and pillar mining will be practiced in both the #1 and #2 Mines, extracting approximately twelve feet of coal from both the upper and lower O'Connor coal seams.

By definition, room and pillar mining involves the development of pillars by driving rooms in the seam (primary mining). Pillar mining is the extraction (secondary mining) of the developed pillars. Development (primary) and extraction (secondary) are taking place at the same time. Remaining bottom coal (the lowest part of the seam) is mined by the continuous miner as the pillars are extracted, based on the mining sequence established by the mine's management.

Thus, approximately twenty-four feet of coal seam height will be extracted from the two seams, and no pillars will be left to support anything. Subsidence of the overburden is imminent.

Quoting from submittal ACT/007/001-IBC99F, page 500-19 of 43, paragraph 5, The Subsidence Base Maps 728.100a and 728.100b show angle of draw, survey monument information, gas line locations, power lines and other pertinent surface features related to subsidence. **Plate 5-1A identifies the location of the subsidence monitoring points to be associated with the 1999 Lease Modification area (Section 10).** According to the joint decision document from the BLM and Forest Service the proposed mine plan "will not cause surface disturbance, including subsidence". A copy of the Joint Decision Memo is located in Attachment A of Section 10.

Quoting from Page 300-8 of 77, paragraph 4, of the submittal, "A stipulation in the modification to lease U-017354 is that no subsidence is to occur due to mining activities. Therefore, the mining plan reflects a "no subsidence" recovery plan approved by the BLM per the Joint Decision Memo included as Attachment A to Section 10 of this M & RP.

This analysis has obviously come upon a major problem, in that the stipulation mandated by the joint decision document authored by the BLM and the USFS is contradictory to the room and pillar mining plan approved within the UDNR/OGM mining and reclamation plan.

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The "no subsidence" recovery plan approved by the BLM has not been included in submittal ACT/007/001-IBC99F. Quoting from Page 500-8 of 43 of the approved MRP, under **521.142 PLANNED SUBSIDENCE MINING METHODS**, "Should any change be made in the (mining) methods used, UDOGM will be notified. This has not been done.

### **Findings:**

The submitted, approved mining plan for the White Oak #1 and #2 Mines, as reviewed within the approved MRP, does not reflect a "no subsidence" recovery plan, which the applicant claims has been approved by the USBLM. No copy of the approved USBLM plan has been included with the submittal. The approved MRP indicates that any changes to the mining methods used will receive notification of same to the UDOGM.

This submittal is inadequate and does not meet the requirements of the approved MRP or the "no surface disturbance, including subsidence" stipulation referred to in the joint agreement between the USBLM and the USFS.

## **SUBSIDENCE CONTROL**

Regulatory Reference: R645-301-525.300, 525.400

### **Analysis:**

#### **Subsidence Monitoring**

As noted above, and quoting from Page 500-19 of 43 of the submittal, "**Plate 5-1A identifies the location of the subsidence monitoring points to be associated with the 1999 Lease Modification area (Section 10).**"

A review of Plate 5-1A, which is titled "**Permit Extension-White Oak No. 2 Mine-5 Yr. Mine Plan**, (lower O'Connor seam) does indeed show the location of two subsidence monitoring points, as indicated by the black triangles within the designated lease modification area. The lease modification area has indication that it will be mined in 2003; the map is P.E. certified by Richard B. White, EarthFax Engineering.

A review of Plate 5-1B, which is similarly titled but shows the 5 year mine plan for the #1 Mine (upper O'Connor seam), **DOES NOT SHOW THE LOCATION OF ANY SUBSIDENCE MONITORING POINTS**. The map shows that mining will take place in the lease modification area in the #1 Mine during 2001, 2002, and 2003. Thus, it appears that the

applicant intends to mine in the first two areas of the #1 Mine within the lease modification area without installing any subsidence monitoring points. It is common knowledge, that in multiple seam mining, extraction occurs from the top seam and proceeds to lower seams in sequence.

If no monitoring points are installed prior to the development and extraction of the lease modification area in Mine #1, it will not be possible to establish baseline elevation data in order to monitor subsidence.

Upon reviewing the annual reports for the last two years for the site, the subsidence monitoring for the permit area consists of making a traveling visual (referred to as a pedestrian inspection within the annual reports) of the mine permit area. The 1998 report refers to sixty tagged sites including sink holes, cracks, fractures, etc. The locations of same are referred to by latitude and longitude. A map showing the tagged sites was included with the 1997 annual report, but not with the 1998 annual report. There was not a differential elevation survey run for either year for any of the tagged sites.

Page O-5 of 14, of the approved MRP discusses the **Subsidence Monitoring Plan**. The text refers to a 1988 commitment made by the operator (Valley Camp Coal Co. at that time) to conduct annual aerial surveys in an effort to monitor subsidence. These surveys proved to be unfruitful due to heavy forestation of the area. The data generated was found to be unusable. A pedestrian survey, in coordination with the aerial survey, was part of the commitment. Quoting text from the approved plan, "The pedestrian survey, in coordination with a differential level survey of subsided areas utilizing rebar monuments, has proved to be the most reliable source for the identification of surface disturbance". Further text indicates that the pedestrian survey was conducted annually by Hansen, Allen, and Luce, Inc. since 1982, and that the control survey was completed by Bruce T. S. Ware. "Data recorded as part of these surveys is documented on Maps 728.100a and 728.100b."

Map R645-301-728.100a, Subsidence Base Map, which was submitted as part of the 1997 annual report, and was P.E. certified by Mr. Richard B. White of EarthFax Engineering on March 30, 1998. According to this map, it was last updated in March of '98. The map does show sixty tagged subsidence features, however the only elevations indicated on this map are elevations for five survey monuments, the mine fan and four "nontagged" subsidence features. There is no information provided relative to elevation differentials for any of these sites.

#### **Findings:**

The installation of two subsidence monitoring points after mining has been initiated in

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the upper O'Connor seam is not adequate. The monitoring points must be installed in advance of the development of the #1 Mine to establish baseline elevations such that it is indeed possible to determine if subsidence is occurring. The Division needs to require the applicant to monitor the survey points more frequently (R645-301-525.490) than annually to determine if any subsidence will occur during development of the upper O'Connor. More survey points may need to be established, particularly if pillaring is initiated. If monitoring indicates that subsidence is occurring, then secondary extraction must be stopped and no longer allowed. Whether or not development of the lower O'Connor seam (#2 Mine) is allowed must be determined after it has been determined that no subsidence has occurred from primary mining (inclusive with secondary mining, if so practiced). This should meet the "no surface disturbance, including subsidence" lease stipulation mandated under U-017354.

**CONCLUSIONS AND RECOMMENDATIONS:**

This submittal is not adequate to meet the mining methods or subsidence monitoring requirements of the R645 coal rules. Same should be returned to the applicant to address the aforementioned deficiencies.

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