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State of Utah
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING

Michael O. Leavitt
Governor
Ted Stewart
Executive Director
James W. Carter
Division Director

1594 West North Temple, Suite 1210
Box 145801
Salt Lake City, Utah 84114-5801
801-538-5340
801-359-3940 (Fax)
801-538-7223 (TDD)

May 16, 1997

TO: File

THRU: Joe Helfrich, Permit Supervisor *JH*

FROM: Jess Kelley, Reclamation Specialist *JK*

RE: Request for Cessation of Subsidence Monitoring, Western States Minerals Corporation, J.B. King Mine, ACT/015/002-97A, Folder #2, Emery County, Utah

SUMMARY:

On April 28, 1997, the permittee submitted an application to discontinue subsidence monitoring at this site. This ought to be done, the permittee contends, because subsidence has stabilized and monitoring is, therefore, no longer necessary or even useful.

TECHNICAL ANALYSIS:

Mining ceased at this site in 1981 and subsidence monitoring has been done at least every year from that time to the present. Ten points are monitored using standard optical level measuring equipment: 8 subsidence points and 2 control points. The subsidence points are designated S-1 through S-8 while the control points are designated A-A and CAP. The points are all located in a straight line which spans the area above the old workings. Control points A-A and CAP are, of course, outside the subsidence trough. Points S-1, S-2, S-7 and S-8 are close to the edges of the subsidence trough while points S-3, S-4, S-5 and S-6 are over its center.

In the present application, the permittee has tabulated the measured elevations from 1981 to the present and has summarized the data. The data are about what one might expect to see at a site like this one and they do indeed support the permittee's contention that subsidence has stabilized. Most subsidence occurred from 1981 to 1983, the first 2 years after cessation of mining. From 1983 to the present, both subsidence and the rate of subsidence lessen year-by-year and tend to approach a horizontal asymptotic limit. The data are also quite erratic, in some cases showing subsidence one year and an almost equal rebound or gain in elevation the next. And almost all points show a small overall gain in elevation from 1983 to the present. This erraticism in the data is common in conventional subsidence surveys and probably results

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from a combination of measuring error, cantilevering of consolidated subsurface rock strata, and rebound due to the release of residual stresses by removal of coal. Nevertheless, subsidence has stabilized and, even over the center of the subsidence trough, the measurements vary through a range of plus or minus only about 2 to 4 tenths of a foot.

RECOMMENDATION:

It is recommended that the application for cessation of subsidence monitoring be approved and that the permittee amend the plan to show that subsidence monitoring has been discontinued.

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