SUBSIDENCE MONITORING REPORT
1987

STAR POINT MINES
ACT 007/006

Cyprus-Plateau Mining Corporation
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Introduction

During the months July through September, subsidence monitoring was conducted on surface lands above underground mining. The land surface above all full extraction mining was visually searched for evidence of surface disturbance. Monitoring points above the longwall mining area were surveyed for vertical movement. Additional monitoring points were established above longwall panels 6 and 7.

Longwall mining of panels 5 and 6 constituted the majority of mining in 1987, with some development mining and pillar extraction in Section 6, T15S, R8E, and development mining in Section 18, T15S, R8E.

The Manti-LaSal National Forest Service plan for studying the affects of underground mining was not conducted in 1987. The Forest Service is evaluating their program and trying to work out a few problems. Plateau's continued participation in this program depends on the resolution of the current problems.

The enclosed maps have been updated to show mining conducted in 1987.

Surface Effects

No new surface effects were observed over the older mined areas in 1987.

Maximum subsidence has occurred over the center of longwall panel 2 at monitoring point P117 (-6.28 feet). This panel was mined between November, 1984 and July, 1985.

Subsidence contours have been plotted on Map 61, Map A. A cross-section is shown as Section A-A on the enclosed map titled Subsidence Cross-Section A-A. The location of this cross-section is shown on Map 61, Map A.

As was discussed in the 1986 monitoring report, a determination of the angle of draw cannot be made to any degree of accuracy because of faulting and other mine workings on three sides of the longwall area. Longwall panel 7, which is currently being mined, is the last panel in the current coal block. Additional monitoring points were established in 1987 that should allow an angle of draw to be determined over the next few years.

Two methods of ground searches were conducted in 1987. The old mining areas (pre-1984) were searched from the air by helicopter. The longwall mining area in Sections 12 and 13 were searched from the air by helicopter and by foot.

The only visual evidence of subsidence found consisted of two short cracks above longwall panel 4, as shown on Map 61, Map A. These cracks are believed to have developed as a result of an east-west trending fault encountered in the mine. As subsidence is progressing from south to north associated with longwall panels, the east-west fault has apparently provided a plane of weakness to which subsidence has broken. The western crack was approximately two inches wide. The deepest measurement that could be found from the ground surface down was two feet. The eastern crack was similar but had some minor topsoil sloughing near the road shown on Map 61, Map A. There was no damage to vegetation or to the fence shown on Map 61, Map A. The road was graded and no access problems were created as a result of the crack crossing the road.

Mining will have progressed approximately 1700 feet past the fault by this summer. CPMC believes that as the ground north of the fault subsides, the cracks will close up.

Vegetation

There appears to be no effect on vegetation from subsidence. Grasses, trees and shrubs at the edges of old displacements show no adverse effects. No visible changes are apparent at the longwall subsidence area.

Surface Water and Groundwater

There are no problems being caused to surface drainages by subsidence. There are no perennial streams in the area of mining conducted in 1987.

A complete discussion of hydrology data and effects from mining is included in the CPMC 1987 hydrology report. Water monitoring data indicates there are no adverse impacts as a result of mining by CPMC.

Surface Structures

The only impact to surface structures consisted of a two-inch wide crack crossing a U.S. Forest road. The road was graded and repaired during the summer of 1987.

Projected Mining

One longwall panel will be mined in the current longwall block in 1988. Development mining will continue in Section 18, T15S, R8E, to set up the area for longwall mining. Longwall mining in this area will begin approximately in June and a portion of the first panel will be mined in 1988. Exploratory drilling in this area identified a geologic feature that eliminated the northernmost longwall panel. The mining projection map, Map 6, has been revised to reflect the new plan. A copy of this map, as well as maps showing the mining sequence for the entire mine, have been furnished to the Division under separate cover.

Development mining will continue in Section 11, T15S, R7E, and pillar extraction will continue in Sections 6 and 7, T15S, R8E.

Monitoring

Monitoring in 1988 will include those commitments outlined in the approved permit as follows:

1. Field survey monitoring points above the longwall area mined since 1984.

2. Establish new monitoring points in Section 18 to monitor the stream channel area and the cliff area where golden eagle nests exist.

3. Taking ground based photographs of the cliff face in Section 18 and a reference area cliff as detailed in Exhibit 41 of the approved permit.

4. Visual observation of the surface above all mined areas for surface affects of mining.