August 24, 1984

TO: Memo to Coal File

FROM: Dave Darby, Geologist

RE: Subsidence Inspection at SUFCO Mine Convulsion Canyon Mine, ACT/041/002, Folders 3, 7 and 10, Sevier County, Utah

On July 17, 1984, Sue Linner, Sandy Pruitt and David Darby met with Kerry Frame, Mine Engineer, at the SUFCO mine, to examine areas where subsidence had occurred above the mine working of the SUFCO underground mine. Proceeding by vehicle we drove into the mountains above the minesite. Kerry pointed out Duncan Draw a site that had previously been subsided. The surface effects could not be distinquished from the vehicles at a distance. We then drove to the areas of primary interest where subsidence had occured along the canyon rim of the North Fork of Quitupah Creek.

We first examined the south rim where slippage along subsidence fractures has created a crevice at the top of the rim which is about 400 feet long, 10-40 feet deep and 0 to 10' wide. The same fracture that caused the crevice parallels two other fractures which trend down from the rim toward the creek. The crevice was caused when the subsidence fracture intersected the rim at an angle parallel to the face of the escarpment. The downward movement of the footwall caused the face of the escarpment to pull away from the hanging wall. Below the rim, fractures show vertical displacement. Kerry stated that the reason for the subsidence in this area was because the area in the mine below had been flooded when converted to an underground reservoir. The water evidently caused the pillars to fail and subsidence ensued.

We then drove to the north rim and examined the area where planned subsidence had taken place. The subsided area occurs on fee land and is outlined in SUFCO's mine plan.

Observations revealed that some fractures appeared on the face of the escarpent but most of the displacement took place above the rim on the plateau. As with the south side, crevices occured on the escarpment face. On the plateau above the rim there was only vertical displacement that ranged from about 3 to 12 inches.

It was observed that all the subsidence fractures trend parallel to the areal fracture pattern. Slippage most probably occurs along pre-existing fractures.

The area should be visually inspected by the Division of Oil, Gas and Mining staff in the future to determine if subsidence effect are continuing. The concept that flooding within the mine causes subsidence is an important factor if the mine is to be flooded after cessation of mining. This should be examined more intensily by the permit review staff especially since the SUFCO Mine produces large amounts of water and will continue to do so even after the cessation of mining operations.

jvb
cc: Sue Linner
Sandy Pruitt
Jack Wittman
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