

0017

Mine file 007/04  
S. Linsky

L. Braxton, DOGM

United States  
Department of  
Agriculture

Forest  
Service

Manti-LaSal  
National Forest

599 West Price River Dr.  
Price, Utah 84501

Reply to: 2820/7140

Date: February 8, 1989

**RECEIVED**  
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DIVISION OF  
OIL, GAS & MINING

Robert Eccli  
U.S. Fuel Company  
P.O. Box A  
Hiawatha, Utah 84527

Dear Mr. Eccli:

As you are aware, the Manti-LaSal National Forest is terminating the joint Forest Service/U.S. Fuel Co. photogrammetric subsidence monitoring program.

The program was developed in 1978 and 1979 to provide for subsidence and vegetative monitoring of Federal lands within the mine permit areas which would be consistent between the individual coal mining operations on the Forest and would consist of a permanent record of topography and vegetation over time. Color aerial photography would provide a means for looking backward in time to make comparisons with present conditions and would provide accurate photogrammetric subsidence data. Color infrared (CIR) photography would provide information on any changes or trends in ground moisture and vegetative conditions which are a good indicator of other resource conditions and uses. The program was designed to be the most effective method for evaluating subsidence and impacts while minimizing cost to the mining companies.

Planimetric maps at a scale of 1:1200 (1 inch = 100 feet) were generated for the monitoring area to serve as a base for mine planning and subsidence, hydrologic and vegetation monitoring. The map shows the coordinate grid system (common to surface and underground surveys), surface facilities, and planimetric features such as drainages and areas of dense vegetation. It was intended that the mining company could use overlays to the base map to locate springs, vegetative communities, mine workings and other needed data points such as drill hole locations, facilities, etc. Subsidence could then be displayed as yearly overlays to the base map as lines of equal subsidence (isopleths) or some other means acceptable to the Forest Service and the operator. Changes in vegetative communities, if they occurred, could also be displayed as overlays based on five-year intervals.

As the photogrammetric data was compiled from the aerial photography, several problems developed. They included our inability to timely analyze the data and rapidly determine if the ground control submitted by the operator was accurate and if any of the control monuments located outside of the area of predicted subsidence were subjected to any movement. In addition, it was found several

years after the ground control was submitted that survey information was not accurate enough for photogrammetric interpretation. An assumption which was erroneously made at the onset of the project, was that the control monuments set outside of the U.S. Fuel Co. monitoring area would not be subjected to subsidence. We have determined that several were set in areas over old mine workings. In addition, the monuments which were set at the northern end of the study area were undermined by Plateau Mining Co. Since the monuments were not surveyed each year prior to flying the photography, we cannot recreate movement of the monuments for the purposes of annual photogrammetric readings.

Utah Power and Light Co. and Coastal States Energy Co. have been using the aerial photogrammetric method for subsidence monitoring successfully for several years. We feel that the photogrammetric method is sound and that past successes can be attributed to all of the information being provided by a single consultant who is able to make timely analyses of photogrammetric data, assure that targets are in place and make ground survey adjustments as needed.

We sincerely regret that the joint monitoring program has not been successful. We will continue to analyze the existing data to salvage as much information as possible. A planimetric base map at a scale of 1 inch = 100 ft. has been compiled with the mine coordinate system superimposed with other planimetric features. We will provide you with a copy of this map and other information as it is compiled.

Only charges for the cost of flying and processing the photography have been billed to U.S. Fuel Co. We do not intend to charge for any of the photogrammetric interpretation which has been completed to date or to further analyze the existing data. Our previous figures on your account showed a balance of \$702.64. Our accounts show that there were no administrative charges against the account as previously estimated, therefore, the actual balance is \$1,091.22. We have sent the attached request for refund of this amount to U.S. Fuel Co. to our finance center. The refund should be arriving in a few weeks. This letter should serve as official notice that we will cancel the collection agreement between U.S. Fuel Co. and the Manti-LaSal National Forest for subsidence within 30 days of this letter.

If you have any questions, please contact the Forest Supervisor's Office in Price, Utah.

Sincerely,

/s/ Aaron L. Howe

for  
 GEORGE A. MORRIS  
 Forest Supervisor

cc: L. Braxton, DOGM  
 R.O., Geometronics  
 D-3  
 C. Reed