0006

ACT/015/018A

Rote to Tom, Lee & Wayne and others dim

File in Deer Cr. gh & Wilberg

UTAH POWER & LIGHT COMPANY
1407 WEST NORTH TEMPLE STREET
P. O. BOX 899
SALT LAKE CITY, UTAH 84110

September 4, 1980

RECEIVED SEP 8 1980 DIVISION OF OIL GAS & MINING

DWH 11/17
PGCS 11/5
DJS
MAW
SP
TLP

Mr. Donald A. Crane
Office of Surface Mining
Reclamation and Enforcement
Post Office Bldg., Room 270
1823 Stout Street
Denver, Colorado 80202

Dear Mr. Crane:

Utah Power & Light Company (UP&L) is in the process of developing several coal mines on federal and private lands in Emery County, Utah. In an effort to remain in compliance with evolving federal regulations concerning subsidence and hydrologic monitoring, UP&L has proposed a hydrologic monitoring program that is designed to conform with federal requirements. Annual hydrologic monitoring reports prepared early in 1978, 1979, and 1980 have been submitted to the Utah State Division of Oil, Gas and Mining (DOGM) as well as to the Office of Surface Mining (OSM) in conformity with federal regulations. The hydrologic monitoring program defined in these reports was initially approved by the OSM on August 31, 1979 and notification of the approval was given to UP&L by the DOGM on October 10, 1979. Subsequent to these approvals, UP&L was notified by OSM on May 23, 1980 that the "hydrologic monitoring programs for the Wilberg and Deer Creek Mines must be revised" in order to incorporate procedures recommended by the U. S. Forest Service (USFS), concerned land owners, and others.

A meeting in UP&L's offices on June 25, 1980 attended by representatives of the USFS, DOGM, OSM, UP&L, and concerned surface owners was held to discuss the inadequacies, if any, of the UP&L hydrologic monitoring program and to define modifications of the program that would be necessary to "revise" the program. It was determined in the meeting that many of the "inadequacies" that had been identified by the regulatory authorities were, in fact, included in the most recent annual hydrologic report that had been submitted in April of 1980.

Arrangements were made in the June 1980 meeting to meet in the field and discuss, on site, the revisions that were necessary for the hydrologic monitoring plan to be satisfactory to all parties. Memos

concerning the results of the field meeting which was held on July 16, are attached. Mr. Boley of the USFS stressed his interest in obtaining an infrared photo survey for purposes of defining riparian habitat as well as other features which are of interest to the USFS and agreed to organize a meeting to explain the usefulness of such a survey relative to the hydrologic monitoring program. A meeting concerning infrared photography was held in Ogden, Utah on August 21 which was attended by UP&L and USFS personnel.

The discussions held at the aforementioned meetings have been evaluated by UP&L and the following adjustments have been identified and are proposed for "revision" of the originally approved hydrologic monitoring program:

1. UP&L does not believe that infrared photography will appreciably add to the quality or completeness of the hydrologic monitoring program. The density of shadows from trees will substantially reduce the applicability of the infrared approach. UP&L's helicopter surveys and low level photography flown for subsidence control followed up with ground surveys has adequately defined the features required of the hydrologic monitoring program.

2. UP&L is in the process of installing a weather station on East Mountain that will be capable of continuously recording rainfall and temperature. All effort will be made to determine snow depth on a regular basis.

3. All springs and seeps on East Mountain will be photographed and a geologic description including an interpretation of the source of water will be prepared for each site.

4. As agreed in the field with the USFS, DOGM, and OSM, UP&L will no longer analyze for BOD, coliform, and oil and grease for samples collected from areas removed from mining operations.

5. UP&L will include a detailed discussion along the lines of those previously presented in earlier reports concerning the interrelationship of the geology, surface waters, and structure for the purpose of defining representative sample sites for long-term monitoring. Recommendations concerning representative sample sites will be made in this report.

UP&L believes that the hydrologic monitoring program that has been proposed, including the modifications noted above, is well beyond the level required to adequately assess the hydrology of the area. We request that you evaluate the adequacy of the "revised" hydrologic monitoring program.

Sincerely,

M. Heward, Manager
Mining and Exploration

MH:JV:bb:2153
Encl.

cc: R. Jerman
J. Vaninetti
[redacted]

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Manti-LaSal NF

REPLY TO: 2800 Minerals

August 18, 1980

SUBJECT: UP&L Monitoring Plan Meeting

TO: Forest Supervisor through Forest Engineer

On Wednesday, June 16, 1980, representatives of Utah Power and Light, the State Division of Oil, Gas, and Mining, the Office of Surface Mining, and the Forest Service met on East Mountain to discuss UP&L's hydrologic monitoring plan and work to date.

Those in attendance included:

Rodger Fry	East Mountain Project Geologist	UP&L
Douglas Sorensen	Ferron Range Conservationist	USFS
John Niebergall	Ferron District Ranger	USFS
W.H. Boley	Forest Engineer	USFS
N.J. Carlile	Geologist	USFS
Joe Helfrich	Reclamation Soil Specialist	OGM
Tom Suchoski	Engineering Geologist	OGM
Ed Agaston	Geologist	UP&L
John Nadolski	Utah Coordinator	OSM
D. Wayne Hedberg	Hydrologist	OGM

The objective of the meeting was to reach a better understanding of what problems remain to be solved to create a resource monitoring program which is acceptable and best meets the needs of all parties.

The philosophy of coal leasing on the Manti-LaSal was discussed in an attempt to point up the importance of a sound resource monitoring program. The view was expressed that many of the questions being asked are for the most part going unanswered. Further, that the inability to truly quantify the impacts of underground mining may lead to stipulations being formulated that are not representative of the problem. Industry has a responsibility to protect the surface resources and to quantify the impacts associated with the activity.

The resource monitoring program, as discussed at this meeting, is seen as the best insurance that mining impacts on non-minerals uses can be accurately evaluated and mining compatibility demonstrated.

The program consists of coordination - from baseline data through final reclamation - of the resource concerns. This is achieved by low level photography (1:4800), ground controlled to produce accuracies sufficient to allow precise vertical and horizontal measurements. Once baseline photography has been flown, successive annual flights are made over the area that may be subjected to subsidence. This information is then digitized and 1 foot contour maps are produced. The photos and maps then make up a precise record, through time, of changes in the topography, vegetation, and surface hydrology, as well as an integrated display of interelated changes.

The use and need for infrared photography was also discussed. It was explained that all surface water must be identified over the lease area and on the adjacent land. The waters and their corresponding riparian vegetation must be located and mapped. Infrared photography is essential in this location process and will be used in determining the health and extent of the riparian vegetation. More detailed information on photogrammetric methods, capabilities and requirements is available on request by UP&L.

UP&L inquired as to what the State and OSM felt as to the appropriateness of photogrammetry and infrared photos in a monitoring program. John Nadolski of OSM responded that the Forest Service recommendations offered the best that technology could supply to help us with data collection and monitoring which would be accurate and comprehensive. Tom Suchoski (OGM) concurred with OSM on the applicability of the proposed program.

UP&L plans to install a weather station on an eastern ridge off East Mountain to give climatological information. This information may be correlated with hydrologic data as monitoring proceeds. Rodger Fry inquired whether the Forest Service had a snow course located on East Mountain. He was told that the Soil Conservation Service had charge of snow courses, but that locating one on East Mountain would be an idea to pursue. USFS agreed to provide the name of an SCS contact person for UP&L.

Mr. Fry then conducted a short tour of representative seeps and ponds located in the North Horn Formation. The location of most springs and seeps on East Mountain appears related to the stratigraphy more than to structure (faults, etc.). All evidence which UP&L has advanced substantiates the theory of a perched water table recharged through the Flagstaff Limestone. Mr. Fry explained that they could not find an accurate method for measuring flow rates due to the dispersed nature of the water source. Following a discussion of methods for estimating rates and volumes, it was suggested that photographing the seeps from one well-defined stake or marker would constitute at least a visual record for those that could not be measured.

The number of water sources to be monitored was discussed. Mr. Fry stated that 75 individual sources had been found and that he would like the Forest Service to choose the ones we wanted monitored. He also requested that the type of monitoring be indicated. It was explained that once all the surface waters had been identified and their interrelationship with each other and the geologic structure had been determined that a representative cross section of waters to be sampled would be made. It is the F.S. opinion that this effort to determine the interrelationship based on water chemistry or other scientific means, is a vital link in understanding the hydrologic regime on the mountain. This must be done before a representative cross section can be determined.

Mr. Fry stated that he was monitoring for water quality. It was determined that water quality samples would not be required at these high elevations; that water chemistry would aid in the formulation of Stiff diagrams, but that water quality sampling served no purpose. Water quality sampling would be required at designated locations where contamination from the mining activity was likely.

Doug Sorensen volunteered the information that poor range management practices could affect the vegetation on the mountain to a great degree. Both the Forest Service and UP&L have much work still to do to define the existing environment on East Mountain, load in the variables which may produce change, and begin monitoring. The Forest Service concern is for perpetuating the present surface resources which are dependent upon the existing waters on East Mountain.

N. J. Carlile

N. J. CARLILE
Geologist

cc: D-2
Utah DOGM
UP&L

JUL 23 1980

MINING AND
EXPLORATION

MEMORANDUM

TO: J. Vaninetti

FROM: Edward N. Agoston & Rodger C. Fry

DATE: July 18, 1980

SUBJECT: East Mountain Hydrologic Meeting with Concerned Government Agencies

On July 16, 1980, a meeting was held on East Mountain to review UP&L's water monitoring program and field practices. Present at the meeting were the following:

U. S. Forest Service:	Bill Bowley Nancy Carlyle John Neibergal Doug Sorenson
Office of Surface Mining:	John Nadolski
Utah State Division of Oil, Gas, and Mining:	Thomas Sechoski D. Wayne Hedberg Joe Helfrich
Utah Power and Light:	Edward Agoston Rodger C. Fry

The Forest Service representatives were concerned that all riparian areas have not been identified. Amplifying their concern is the fact that 1% of the Wasatch Plateau is composed of riparian areas with 75% of the wildlife and livestock depending on it. They believe that infrared imagery is the most effective/economical tool in identifying and monitoring these areas. The frequency at which this type of survey should be conducted has not yet been determined. Presently it is felt that a five year interval would be adequate with actual experience better determining this in the future. A benefit of the infrared survey would be to offer the hydrologic survey more control by tying it in with

the photogrammetric survey for subsidence monitoring. The Forest Service has agreed to set up a meeting with their photogrammetry experts and UP&L to discuss and demonstrate infrared applications.

Concerning the actual physical monitoring of springs, it was felt that representative springs could be selected for sampling once a family of water (common source) had been identified and the location of water most beneficial to man and wildlife had been targeted. Determination of the hydrologic source would be accomplished through the cataloguing of the geologic/hydrologic conditions of each spring and the chemical identity of the water. Hopefully, enough data will have been collected by the end of this field season to identify representative springs.

The question of what type of water analyses should be performed on East Mountain Springs, water quality or water chemistry, was raised. It was felt that water chemistry (to aid in the determination of source area) should be emphasized rather than water quality such as Oil and Grease, BOD and Coliform. UP&L will therefore drop Oil and Grease from their determinations and concentrate on the chemical characteristics of the water.

A suggestion to photograph in the field those areas not sampled, seeps and damp areas, for documentation will be considered.

To better understand the hydrologic regime of East Mountain, a climatic record of precipitation, temperature and snowpack/snow melt should be established. The Forest Service has agreed to contact the Soil Conservation Service concerning the possibility of them establishing and operating a snow course on East Mountain. They will also ask that their meteorologist suggest the best location for the establishment of UP&L's weather monitoring station.

All present at the meeting felt that the exchange of ideas was very useful and that this line of communication be maintained for the benefit of all.

EA:RCF:mm
7/21/80

SCOTT M. MATHESON
Governor

GORDON E. HARMSTON
Executive Director, NATURAL RESOURCES

CLEON B. FEIGHT
Director

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS, AND MINING
1588 West North Temple
Salt Lake City, Utah 84116
(801) 533-5771

OIL, GAS, AND MINING BOARD

CHARLES R. HENDERSON
Chairman

JOHN L. BELL
C. RAY JUVELIN
THADIS W. BOX
CONSTANCE K. LUNDBERG
EDWARD T. BECK
E. STEELE McINTYRE

October 10, 1979

RECEIVED
OCT 18 1979
MINING AND
EXPLORATION

Mr. Jerry Vaninetti
Director of Exploration
Mining and Exploration
Utah Power and Light Company
1407 West North Temple
P.O. Box 899
Salt Lake City, Utah 84110

Re: Hydrologic Monitoring Plans
Utah Power and Light Company
Deer Creek & Wilberg Mines
ACT/015/018a & ACT/015/018b
Emery County, Utah

Dear Jerry:

The Division has reviewed the Hydrologic Monitoring plans and modifications for Utah Power and Light Company's Deer Creek and Wilberg Mines. Approval of the Hydrologic Monitoring plan is hereby issued.

A copy of the Office of Surface Mining's approval is also enclosed for your information.

Sincerely,

Thomas J. Suchoski

THOMAS J. SUCHOSKI
RECLAMATION HYDROLOGIST

TJS/sp
enc: O.S.M. Approval
cc: M. Heward, Utah Power and Light
R. Jerman, Utah Power and Light
C. Shingleton, Utah Power and Light
K. Gurr, Utah Power and Light
J. Hardaway, O.S.M., Denver

United States Department of the Interior
OFFICE OF SURFACE MINING
Reclamation and Enforcement
POST OFFICE BLDG. RM. 270
1823 STOUT STREET
DENVER, COLORADO 80202

OFFICE OF THE REGIONAL DIRECTOR

31 AUG 1979

Mr. Ron Daniels
Staff Assistant
Division of Oil, Gas and
Mining
Department of Natural Resources
1588 West North Temple
Salt Lake City, Utah 84116

Reference: Utah Power and Light Company Subsidence and Hydrology Monitoring Plans, Deer Creek and Wilberg Mines

Dear ~~Mr. Daniels~~ Ron:

We are hereby providing approval of the hydrology monitoring plan submitted by Utah Power and Light (UP&L) for the Deer Creek and Wilberg Mines. The proposal was originally submitted to the U.S. Geological Survey in correspondence dated December 20, 1977, in combination with a subsidence monitoring plan. This letter does not constitute an approval for the subsidence or the sedimentation pond design for the Wilberg and/or Deer Creek Mines.

The above mentioned correspondence states that an engineering assessment of potential subsidence associated with the room and pillar method for the area being mined is included. However, no copy of this assessment was found. Please have UP&L forward a copy of the report to this Office.

Due to the questions of subsidence interfering with springs in the East Mountain area, OSM suggested that quarterly flow data be taken for these springs. It is also suggested that quarterly samples be taken for "Other Ground Water Sources."

The concept of using a photogrammetrical survey to monitor subsidence is acceptable to OSM. However, the methods used to maintain the 1.0 feet relative elevation accuracy must be demonstrated. In order to maintain such vertical accuracies, large scale photography, at least 1:6000, is needed as well as experienced operators conducting the study.

UP&L proposes using a third order-first class (1:10,000) grid system (page 3). There is some confusion as to what is meant by a third order-first class grid. The U.S. Geological Survey in Denver is unsure as to what is meant by third order-first class system, since third order signifies a 1:5000 scale. OSM requests that UP&L clarify what type of system is meant by third order-first class. If the scale is 1:10,000, UP&L must show that the operator will have the ability to maintain the vertical accuracy of 1.0 feet.

UP&L must show that the operator can maintain this accuracy in the given topography and vegetation cover with the given scale. Who will be doing the photogrammetrical survey (in-house verses contractual or federal agency)? What are the qualifications of this (these) persons? The questions pertaining to the ability of the operator is because of the high accuracy predicted by UP&L.

Copies of this letter are enclosed for transmittal to the company by your Office.

Sincerely,

DONALD A. CRANE

cc: Howard, BLM (1)
Feldmiller, USGS (1)
Daniels, UT-NS (2)
BLM District, Moab (1)
Moffit, USGS (1)