file ACT/015/019 #2

0020

utah power
& LIGHT COMPANY
MINING DIVISION
P.O. Box 310
Huntington, Utah 84528

September 23, 1987

Mr. Lowell P. Braxton, Administrator
Mineral Resource Development and Reclamation Program
State of Utah
Department of Natural Resources
Division of Oil, Gas and Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, UT 84180-1203

Dear Mr. Braxton:

RE: Complete Response to Outstanding Mid-Term Review
Wilberg/Cottonwood Mine ACT/015/019.

The information provided with this transmittal should resolve all the issues addressed in your letter to me of August 4, 1987.

Waste Rock Disposal Site

As mentioned in my letter to you on September 3, 1987, Utah Power & Light Company will have a complete permit application for a new waste rock disposal site filed with the Division no later than the fourth quarter of 1988.

It is our desire to amend the approved waste rock cell configuration (sites 7 and 8 combined) as shown on the as-built drawing, number CM-10361-WB that was submitted to you on June 8, 1987. Enclosed are fourteen copies of the drawing for distribution to be inserted in the Wilberg MRP Appendix Volume, Section VII, following the text for the Wilberg Waste Rock Site.

Raptor Monitoring Plan

Enclosed are fourteen copies of the Golden Eagle Nesting/Cliff Subsidence Monitoring Plan of May, 1986, revised 9-22-87 for distribution and insertion in the Wilberg MRP Appendix Volume, Section XVI, Subsidence Monitoring Plan. Fourteen copies of the following maps referred to in the Golden Eagle Nesting/Cliff Subsidence Monitoring Plan are also enclosed:

CM-10587-WB
CM-10651-CW (2 each)
CM-10752-CW
CM-10680-EM

Fourteen copies of a new Table of Contents for the Wilberg MRP Appendix Volume, SECTION XVI are enclosed for distribution and insertion at the beginning of Section XVI.

Vegetation Monitoring

As you requested in your transmittal of August 4, 1987 and as required by our lease with the U.S. Forest Service, enclosed are fourteen copies of a new Vegetation Monitoring Plan for the Wilberg/Cottonwood Mines. This plan, page number 2-142-A, should be distributed for insertion in the Wilberg MRP, Volume 1, Part 2 at the end of the Vegetation Section, page 2-142.

Also enclosed, as recommended, are revised copies to the MRP text and Reclamation Schedules that should resolve Kathryn M. Mutz's concerns outlined in her memo to John Whitehead of June 30, 1987. Fourteen copies of the following pages and schedules are enclosed for distribution and insertion in the Wilberg MRP.

Volume 2, page 4-16, revised 9/22/87
Volume 2, page 4-20, revised 9/22/87
Volume 2, page 4-21, revised 9/22/87
Volume 2, page 4-21-A, revised 9/22/87
Reclamation Schedule, page 3, insert in Volume 2 following page 4-31
Reclamation Schedule, page 4, insert in Volume 2 following page 4-31

We would appreciate your approval of these additions and changes, and await a formal response of such for our files.

Sincerely,

Ray Christensen
Manager
Permitting & Compliance

RC/lbk

enclosures

cc: J. Hislop
M. Moon
V. Payne

GOLDEN EAGLE NESTING/CLIFF SUBSIDENCE MONITORING PLAN

May, 1986

INTRODUCTION

Active Golden Eagle nests have been located by the Fish and Wildlife Service (FWS) within the boundaries of Utah Power & Light Company's (UP&L) coal mining properties (see Map CM-10587-WB). Several nest clusters are situated on vertical sandstone cliffs which overlie the longwall panels in the Cottonwood Mine (see Maps CM-10651-CW, 2 sheets, and CM-10752-CW)

There is concern among regulatory agencies that mining related subsidence and cliff spalling may impact eagle nesting. Therefore, Utah Power & Light will implement the following monitoring plan to identify potential impacts on these species.

OBJECTIVES

1. To collect information on nest location, nest status and nesting success of Golden Eagles within the study area.

2. To monitor the effects of subsidence on Golden Eagles nests in potentially impact areas.

3. Collection of nest and subsidence monitoring information to develop methods to eliminate or minimize adverse subsidence related impacts on Golden Eagles in the study area and to serve as guidance to avoid or resolve similar resource conflicts in the future.

STUDY AREA

For the purpose of this monitoring effort, the study area will require a Golden Eagle nest taking permit and will consist of that area referred to as Newberry Canyon which overlies the Sixth and Seventh East longwall panels in the Cottonwood Mine. All nests subject to potential subsidence in Newberry Canyon will be included for determination of impacts on nesting (see Map CM-10651-CW 2 of 2 and CM-10587-WB).

This area will be monitored for cliff subsidence and spalling. A portion of representative cliffs, beyond the limits of predicted subsidence, will be monitored for spalling, as a control site to provide comparative data.

Additionally, an aerial nest inventory survey will be conducted within a ten mile radius area as indicated on map CM-10680-EM in early 1987.

PERSONNEL AND EQUIPMENT

Nest inventory surveys will be conducted by the following qualified personnel:

U. S. Fish and Wildlife Service (FWS) - Mike Lockhart or Bruce Waddell

Utah Division of Wildlife Resources (DWR) - Miles Moretti

Utah Power & Light Company (UP&L) - Val Payne

A Jet Ranger or Lama helicopter with complete onboard communications, capable of transporting three (3) field personnel will be used. Both the helicopter and the pilot involved in the nest inventory surveys will be certified to meet FWS requirements.

Cliff subsidence monitoring will be conducted by UP&L engineering personnel using total station Electronic Distance Metering (EDM) equipment and standard surveying practices.

METHODOLOGY

An aerial nest inventory survey was completed in May 1986, within a ten mile radius area of Newberry Canyon. Similar Golden Eagle nest inventory surveys will be completed during the 1987 breeding season. Data developed will be similar to that discussed in the FWS publication Raptor Nest Information Management System, RAPA file and RAPB file.

Surveys will be conducted using a helicopter and observers as previously stated. Similar to the 1986

surveys, the work will be completed by flying near the cliff nest sites at a speed and proximity such that nests are observable.

The inventory flight will be conducted and observed by FWS at approximately mid-incubation (mid-April). During the flight, suitable cliff nest sites within a ten mile radius of Newberry Canyon will be examined for Golden Eagle nests. The appropriate file data and nest status will be recorded for observed nests. The location of all raptor species nests observed in Newberry Canyon, will be recorded.

In addition to the 1986 inventory flight, eagle activity within the ten mile radius area will be observed and recorded, for a twelve (12) month period beginning June, 1986.

Photogrammetric subsidence monitoring in Newberry Canyon will be completed as presently outlined in the UP&L Subsidence Monitoring Plan. In addition, cliff subsidence monitoring will be accomplished through the use of EDM equipment.

Prior to longwall mining, a permanent control station will be located (horizontally and vertically) from which the cliff nesting area can be observed. Four reflector prisms will be installed on the cliff above the nest area. The prisms will be located (horizontally and vertically) in reference to the permanent control station. This will provide a method of determining both horizontal and vertical

movement in the cliff strata. This method of observation will facilitate correlation of surface subsidence with the position of the longwall face.

Initial pre-mining observations will provide baseline information for the cliff strata. Once extraction of the longwall panel begins, observations will be conducted at two (2) month intervals if the nests in Newberry Canyon are inactive. However, if an active pair of eagles is present in Newberry Canyon, EDM monitoring will be completed each month during the breeding season (February through June) and at two-month intervals during July through January.

Fracturing and spalling of the cliff face will be determined by a ground station photo/grid system. A permanent photo station will be located from which photographs of the nesting area cliff face can be taken (see map CM-10587-WB, NC Control Location). Photographs will be taken using a 35mm SLR camera with a telephoto lens. Statistically adequate photographic sampling of the cliff face, which represents affected and control situations, will be made to determine the relative degree of spalling. If beneficial, a grid system will be superimposed upon the photographs whereby areas of fracturing and/or spalling can be better identified. The grid would be of adequate complexity to allow replications and pooled data analysis. Photographic sampling will be conducted according to the same schedule as the EDM monitoring.

Eagle activity associated with active nests in the Newberry Canyon study area will be monitored in conjunction with EDM and photographic data collection. Nest activity data will be recorded on the Nest Activity Data Form correlated with underground mining activities. EDM measurements and cliff spalling data.

Subsidence and Golden Eagle nest monitoring will continue until *major subsidence has ceased, or until such time that data demonstrates a conflict between Golden Eagle nesting and cliff subsidence does not exist.

Data will be reported in UP&L's annual Subsidence Monitoring Report. However, significant subsidence events which affect nests will be immediately reported to Utah DOGM, OSMRE, FWS and DWR. If it is determined that mine related subsidence is going to impact an active eagle nest, Utah Power & Light shall be responsible for salvage.

COMPENSATION - MITIGATION

A stated objective of the monitoring plan is to use the plan data, "to develop methods to eliminate or minimize adverse subsidence related impacts on Golden Eagles". Therefore, specific mitigation or compensation measures

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*Major subsidence represents 80% of extracted seam height.

cannot be identified until the impacts are defined. However, in accordance with the requirements of the applicable statutes, regulations and permits related to the monitoring plan, UP&L will cooperate with FWS in developing appropriate mitigation or compensation measures if adverse subsidence related impacts occur. Possible compensation or mitigation measures may include:

1. Creation of artificial nest sites or structures.
2. Relocation of nests.
3. Salvage or relocation of nestlings.
4. Habitat enhancement.

UP&L will obtain current information on recent activities related to Golden Eagle nest manipulation for use in developing compensation or mitigation measures.

APPENDIX XVI
SUBSIDENCE MONITORING PLAN

Table of Contents

UTAH POWER & LIGHT COMPANY
VEGETATION MONITORING PLAN
WILBERG/COTTONWOOD MINES

The purpose of this monitoring plan is to define and establish a system to locate, measure, and quantify the progressive and final effects of underground mining activities at the Wilberg/Cottonwood mines on vegetation. The monitoring system will utilize techniques which will provide a continuing record of change over time and an analytical method for location and measurement of a sufficient number of points located on surface areas that will be impacted by underground mining. The monitoring shall be an extension of the baseline data as outlined in the Wilberg MRP Volume 1, Section 2-101.

Aerial photography will be used for delineation of vegetative types, documentation of changes in vegetation and detection and monitoring of stressed vegetation.

Field studies, including permanent transects and photo stations, will provide detailed quantitative and qualitative vegetation data. The field study data points will be tied to the surface survey control system.

The vegetation monitoring information and an evaluation of the impacts of mining on vegetation will be submitted in an annual report following the year in which monitoring is conducted.

Infrared photography will be taken of impacted surface areas during September, 1987, and the evaluation of the photography will be incorporated in the Vegetation Monitoring Report for 1987.

2. Weed control will not be undertaken unless it is determined necessary due to weed dominance and delayed rate or succession. Studies indicate that competition from weeds, including Salsola kali, is greatly reduced within three (3) years after revegetation. Preliminary on-site studies support published reports on this matter.

3. Rodent damage, on revegetated areas, will be assessed and species specific control measures will be implemented as necessary.

4. A site visit will be scheduled each spring to check on fitness of the sites and check progress of the plant growth.

5. A site visit will be conducted in August to record plant growth. Two photo stations will be located on each slope to record yearly progress. The shrub plantings will be tallied for the survival rate and health of each species (survival judged as 50% of crown alive). A permanent 100' line intercept or quadrat transect will be located on each slope to record species composition and cover.

6. An annual report that summarizes the year's work will be placed in the Company's files and forwarded to D.O.G.M.

7. The soil materials on the fill slopes will be sampled at five year intervals to record productivity changes. Ten samples at 0-20" depths would be compiled from each of the five fill slopes for analysis. Analysis will include:

    Organic Nitrogen
    Phosphorous (ppm)
    Potassium (ppm)
    Nitrate Nitrogen
    Sodium Absorption Ratio
    Electrical Conductivity (mmhos/cm)
    pH

    The soil sampling after final regrading at all locations will be two samples/acre at 0-20" depth composited and core samples to specifically detect aberrant SAR levels. One core per fill with samples at two-foot intervals to bottom of fill.

3. Clump Composition:
   Lower: 3 shrubs
   Middle: 3 shrubs
   Highest: 1 tree
   Juniper on xeric sites
   Firs on mesic sites

8. The two sedimentation ponds will be revegetated with the above techniques at end of ten year responsibility period.

9. Irrigation will be utilized should the initial seedings and plantings fail. Following the second effort, sprinkle irrigation to soil surface saturation will be scheduled at two week intervals during May, June, July, and August.

Maintenance and Monitoring

1. Signs will be placed around the planted slopes for their protection.

2. Weed control will not be undertaken unless it is determined necessary due to weed dominance and delayed rate or succession. Studies indicate that competition from weeds, including Salsola kali, is greatly reduced within three (3) years after revegetation. Preliminary on-site studies support published reports on this matter.

3. Rodent damage on revegetated areas, will be assessed and species specific control measures will be implemented as necessary.

4. A site visit will be scheduled each spring to check on fitness of the sites and check progress of the plant growth.

5. Annual monitoring will include inspection for rills and gullies. Should these be present, they will be filled and replanted as required.

6. Monitoring will be conducted in years two and five to determine cover, species composition and shrub/tree density and to assess the need for contingent seeding and planting.

7. Maintenance and monitoring activities will be reported in the Annual Vegetation Monitoring Report.

Revised 11/21/83
Revised 12/8/86
Revised 9/22/87

Sampling for Ten Year Responsibility Period and Bond Release

1. All sampling will be undertaken in the late summer for maximum plant growth.

2. The line intercept or quadrat method will be used to measure cover and species composition.

3. The point-center quarter method based on the line intercept transects will be used to measure shrub and tree density.

4. Sample size for cover will be tested at the 90 percent confidence level and density sample size at the 80 percent confidence level. This will equate the sampling tests for reference site measurements, see Vegetation Information for the Wilberg Mine, Waste Rock, Cottonwood Fan Portal, Barker, J.R. for details.

5. Productivity measurements will be a double sampling procedure of clipped plots and ocular estimates. Five each 6.27" x 100" rectangular plots at five random points will be located in reference areas and revegetation sites. Sampling confidence at the 80 percent level.

6. The reference areas will be checked to detect any changes from man-induced activities. The BLM and Utah Power & Light Company will have maps with these areas marked to preserve in management of respective lands.

Revised 11/21/83
Revised 12/12/83
Revised 1/13/84
Revised 2/10/84
Revised 9/22/87

7. Revegetation Success:

a) Inventory of reference sites at end of ten year responsibility period according to methods used at initial inventory and approved by D.O.G.M.

b) Cover is established for two consecutive years at the end of responsibility period at 70 percent of reference site ground cover.

c) Shrubs and trees will be in place for at least two growing seasons, the tree or shrub is alive and healthy and the tree or shrub shall have at least one-third of its length in live crown.

d) The woody plants established on the revegetated site are equal-to or greater-than 90 percent of the stocking of live woody plants of the same life form of the approved reference areas with 80 percent statistical confidence.

e) The students t test of the sample means will be used for the statistical comparison test.

WILBERG COAL MINE
RECLAMATION SCHEDULE
(cont.)

#	1st YEAR RECLAMATION (cont.)	JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.
	SEEDING & PLANTING												
9	Wilberg Mine			■	■						■		
	Cottonwood Fan Portal				■						■		
	Waste Rock Storage Site										■		

#	10 YEAR REVEGETATION & MONITORING	1st YEAR	2nd YEAR	3rd YEAR	4th YEAR	5th YEAR	6th YEAR	7th YEAR	8th YEAR	9th YEAR	10th YEAR
	PLANT MONITORING- DISEASE & PEST CONTROL										
10	Wilberg Mine		■	■	■	■	■	■	■	■	■
	Cottonwood Fan Portal		■	■	■	■	■	■	■	■	■
	Waste Rock Storage Site		■	■	■	■	■	■	■	■	■
	SOIL STABILIZATION - RILLS & GULLIES										
11	Wilberg Mine		■	■	■	■	■	■	■	■	■
	Cottonwood Fan Portal		■	■	■	■	■	■	■	■	■
	Waste Rock Storage Site		■	■	■	■	■	■	■	■	■

REVISED 12/8/86

FOLLOWING PAGE 4-31 REVISED 9-22-87

WILBERG COAL MINE
RECLAMATION SCHEDULE
(cont.)

#	10 YEAR REVEGETATION & MONITORING (cont.)	1st YEAR	2nd YEAR	3rd YEAR	4th YEAR	5th YEAR	6th YEAR	7th YEAR	8th YEAR	9th YEAR	10th YEAR
	CONTINGENT SEEDING & PLANTING										
12	Wilberg Mine		■			■					
	Cottonwood Fan Portal		■			■					
	Waste Rock Storage Site		■			■					
	REVEGETATION INVENTORY FOR BOND RELEASE										
13	Wilberg Mine										■
	Cottonwood Fan Portal										■
	Waste Rock Storage Site										■
	SEDIMENT CONTROL STRUCTURE REMOVAL										
14	Wilberg Mine										■
	Cottonwood Fan Portal										■
	Waste Rock Storage Site										■