

0033



# State of Utah

DEPARTMENT OF NATURAL RESOURCES  
DIVISION OF OIL, GAS AND MINING

Norman H. Bangarter  
Governor

Dee C. Hansen  
Executive Director

Dianne R. Nielson, Ph.D.  
Division Director

355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203  
801-538-5340

June 13, 1991

Mr. Jim Dykman  
Utah State History  
300 Rio Grande  
Salt Lake City, Utah 84101

Dear Mr. Dykman:

Re: Coal Lease UTU-64263, Cyprus-Plateau Mining Company, Star Point Mines,  
ACT/007/006, Folder #2, Carbon County, Utah

Enclosed please find the cultural resources portion of the environmental assessment for the above-referenced coal lease. The mining plan has not been approved to this date. However, the operator has requested a 50-acre modification to this lease.

Please review the attached modification and advise the Division by letter, if the State Historic Preservation Officer can concur with this modification.

Thank you for your assistance in this matter.

Sincerely,

A handwritten signature in cursive script that reads "Pamela Grubaugh-Littig".

Pamela Grubaugh-Littig  
Permit Supervisor

jbe  
Enclosure  
AT007006.003

United States  
Department of  
Agriculture

Forest  
Service

Manti-La Sal  
National Forest

599 West Price River Dr.  
Price, Utah 84501

Par, route to file (see p2)

ACT/007/006 #2

Reply to: 2820

Date: May 8, 1991

Lowell Braxton  
State of Utah Natural Resources  
Division of Oil, Gas and Mining  
355 West North Temple  
3 Triad Center, Suite 350  
Salt Lake City, Utah 84180-1203

RECEIVED

MAY 10 1991

DIVISION OF  
OIL GAS & MINING

RE: Incidental Boundary Change, Cyprus-Plateau Mining Company, Star Point Mine, ACT/007/006-91D, Folder #2, Carbon County, Utah

Dear Lowell:

We have reviewed the the incidental boundary change submitted by Cyprus-Plateau Mining Company to add the modified portion of Federal Coal Lease UTU-64263 to the approved permit area for the Star Point Mine.

Please reference our letter to your office, dated March 22, 1991. In this letter we stated that the Forest Service and Bureau of Land Management (BLM) were processing a lease modification for the subject lands and that we could not evaluate the proposed incidental boundary change until the lease modification evaluation was completed.

The Forest Service consented to the modification of UTU-64263 on April 30 and the Bureau of Land Management made a decision to approve the modification on May 8, 1991. A copy of the Combined BLM/Forest Service Finding of No Significant Impact/Decision Notice/Rationale and referenced Environmental Assessment are enclosed. The lease modification, once issued by BLM, will provide Cyprus-Plateau Mining Company the right to mine the Federal coal contained therein.

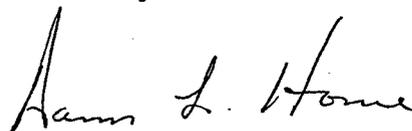
During the process of evaluating the lease modification proposal we also conducted an evaluation of the incidental boundary change. One specific concern which has not already been addressed in the approved mining and reclamation plan was identified. This concern is the potential for large quantities of water to be encountered as the mine workings advance to the west through the Pleasant Valley fault system and the potential for dewatering of faults which act as conduits for ground water flow. To the south of the Star Point Mine, several springs, thought to be associated with the fault system, have been developed as culinary water sources. In order to minimize the potential for large quantities of water to be released into the mine workings and to avoid the associated impacts of dewatering the faults, some special measures will be required. The operator will be required to conduct horizontal drilling ahead of the advance of workings to the west into the incidental boundary change/lease modification area. The drilling must be conducted in coordination with the authorized

officer of the BLM and must be designed to detect significant flows of ground water well in advance of the mine workings. If significant water is encountered, the operator must cease the advance of mine workings, in accordance with the authorized officer of the BLM, and notify the regulatory authority of the Utah Division of Oil, Gas and Mining. Further advance of the mine workings into the wet area will not be authorized unless the operator can demonstrate that significant impacts will not occur.

Forest Service consent to the incidental boundary change is contingent upon issuance of the actual lease modification by BLM and the operator committing to the above provision in the Mining and Reclamation Plan (MRP) for all operations on National Forest System lands which have the potential to encounter and dewater faults within and adjacent to the Pleasant Valley fault system.

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

Sincerely,



for  
GEORGE A. MORRIS  
Forest Supervisor

Enclosures

cc:  
Richard Holbrook  
Gene Nodine

COMBINED BUREAU OF LAND MANAGEMENT/FOREST SERVICE  
FINDING OF NO SIGNIFICANT IMPACT/DECISION NOTICE/RATIONALE

CYPRUS WESTERN COAL COMPANY  
APPLICATION FOR MODIFICATION OF FEDERAL COAL LEASE UTU-64263

USDA FOREST SERVICE  
PRICE RANGER DISTRICT, MANTI-LA SAL NATIONAL FOREST  
INTERMOUNTAIN REGION  
USDI BUREAU OF LAND MANAGEMENT, MOAB DISTRICT  
UTAH STATE OFFICE

EMERY COUNTY, UTAH

Cyprus Western Coal Company submitted an application to modify Federal Coal Lease UTU-64263 to the Utah State Office of the Bureau of Land Management (BLM) on January 14, 1991. The proposed lease modification would add 50 acres to the southwest corner of Federal Coal Lease UTU-64263. The maps attached to this document (Attachments 1 and 2) show the location of Federal Coal Lease UTU-64263 and the proposed lease modification area. Lease UTU-64263 and the proposed lease modification lie entirely on lands administered by the Price Ranger District of the Manti-La Sal National Forest with Federal coal administered by the Moab District of the BLM, State of Utah.

The legal description of the proposed modification is as follows:

T. 15 S., R. 7 E., SLM, Emery County, Utah  
Sec. 15: E1/2E1/2SE1/4,  
Sec. 22: E1/2E1/2NE1/4NE1/4,  
Containing 50 acres

Cyprus Western Coal Company is the lessee of record for Federal Coal Lease UTU-64263. Cyprus Plateau Coal Company, a wholly owned subsidiary of Cyprus Western Coal Company, is the operator of the Star Point Mine which would include the proposed modification. The mine surface facilities are on fee surface/fee coal within the boundaries of the Manti-La Sal National Forest, approximately 17 miles southwest of Price, Utah.

The purpose of the lease modification is to incorporate coal reserves which lie between the western boundary of Federal Coal Lease U-13097 and a fault system along the western margin of the Pleasant Valley Fault Zone into Federal Coal Lease UTU-64263 for mining. It would allow Cyprus Plateau Coal Company to mine an additional 81,000 tons of recoverable coal reserves which would otherwise be isolated and bypassed becoming irretrievable. The coal reserves would be mined by extending the existing mine workings in Federal Coal Lease U-13097 to the west into the modification area.

The proposed action is subject to the following authorities: Mineral Leasing Act of 1920 as amended; Federal Coal Leasing Amendments Act of 1976 (FCLAA); Federal Land Policy and Management Act of 1976 (FLPMA); Surface Mining Control and Reclamation Act of 1977 (SMCRA); Multiple-Use Sustained Yield Act of 1960; National Forest Management Act of 1976 (NFMA); National Environmental Policy Act of 1969 (NEPA); and Federal Regulations 43 CFR 3400. Development of the

lease is subject to Federal Regulations 30 CFR 700 to End (SMCRA Regulations) and the State of Utah Coal Mining and Reclamation Regulatory Program. As the surface management agency for the modification, the USDA Forest Service was the lead in conducting the environmental analysis of the proposal in accordance with the National Environmental Policy Act of 1969. The USDI, Bureau of Land Management is the responsible agency for management of Federal coal under the Mineral Leasing Act of 1920, as amended, and has therefore participated in the analysis as a joint agency.

Project scoping was initiated on March 26, 1991. News releases explaining the proposal and requesting comments were published in local newspapers. Letters were sent to identified interested publics, requesting comments, on March 27, 1991. A list of identified interested publics is contained in the project file. Two letters were received. The Southeastern Utah Association of Local Governments responded in support of retrieving the potentially isolated coal. The Utah Division of Wildlife Resources responded that they are concerned about the potential impacts of subsidence on wildlife habitat. Copies of the letters are available for review in the project file.

The ID team reviewed the EA prepared for leasing of Federal Coal Lease UTU-64263 entitled Environmental Assessment, Cyprus-Plateau Mining Corporation Coal Lease Application UTU-64263, Castle Valley Ridge Tract, 1989. The ID team determined that the environmental and human setting is the same and no new issues (not already identified in the referenced EA) were identified during project scoping. The issues discussed in the project scoping response letters are adequately addressed in the EA. It was, therefore, determined that the environmental conditions and affects of the lease modification are adequately addressed in the referenced EA.

The potential for underground coal mining to encounter ground water and impact water quality and quantity was identified in the referenced EA (Section I.D.1., pages 5 and 6). Recent data indicate that mining up to the faults associated with the Pleasant Valley Fault system could intercept large quantities of ground water which could flow into the mine workings and would need to be discharged to the surface. In order to prevent associated impacts, it has been identified that it will be necessary for the lessee/mining operator to drill horizontal holes in the coal seam, in coordination with the authorized officer (BLM), to determine how much water will be encountered during the advance of development workings. If significant water is encountered, it will be necessary for the operator to cease the advancement, in accordance with the authorized officer (BLM), and notify the regulatory authority (Utah Division of Oil, Gas and Mining). At that point in time it will be determined if further advance toward the fault will be approved. The operator will be required to commit to this provision in the Mining and Reclamation Plan before the Forest Service will consent to approval of the permit to mine in the modification area.

The modification area has been determined to be available for further consideration for coal leasing, subject to site-specific analysis, under the Manti-La Sal National Forest Land and Resource Management Plan (LRMP) and Final

Environmental Impact Statement (FEIS). The Coal Lease Unsuitability Criteria (43 CFR 3461) were applied to the original lease and it was determined through the site-specific analysis that the lands were suitable for leasing. Since the modification does not involve any additional concerns or resources not already considered in the unsuitability criteria, it was determined that the modification area is also suitable.

The Bureau of Land Management lease decision and Forest Service consent decision are to modify Federal Coal Lease UTU-64263 as proposed by Cyprus Western Coal Company. This alternative corresponds with Alternative 2, Offer the Tract for Leasing with Application of Management Requirements, discussed in the referenced EA. As discussed in the referenced EA, this decision includes addition of the lease stipulations (Attachment 3). This alternative best meets the management objectives of the Bureau of Land Management and Forest Service as outlined in the LRMP and the needs of the general public.

It has been determined by the undersigned officials that the proposal is not a major Federal Action that would significantly affect the quality of the human environment; therefore, an Environmental Impact Statement is not needed. This determination was made based on the following considerations:

1. No significant public issues or conflicts were identified during project scoping, which involved public notices of the proposal and a public comment period.
2. The anticipated adverse effects of the proposal can be effectively mitigated by special lease stipulations and proper implementation of the SMCRA Regulations (30 CFR 700 to End) and the State of Utah Coal Mining and Reclamation Regulatory Program.
3. The leasing action and anticipated lease development should have no adverse affect to cultural or significant paleontological resources, floodplains or Threatened, Endangered or Sensitive plant and animal species. Lease stipulations, the SMCRA Regulations (30 CFR 700 to End) and the State of Utah Mining and Reclamation Regulatory Program provide for adequate protection of such resources.
4. There will be no adverse impacts to prime or unique rangelands, farmlands, or timberlands; alluvial valley floors; or wetlands.
5. The proposed action is consistent with objectives and direction of the Manti-La Sal National Forest Land and Resource Plan, 1986.

The Bureau of Land Management leasing decision is subject to appeal to the Interior Board of Land Appeals. The Forest Service consent decision is subject to administrative review in accordance with Federal Regulations 36 CFR 217 and 36 CFR 251, subpart C, in the case of decisions regarding written instruments authorizing occupancy and use of National Forest System lands. If you qualify under 251, you can elect which process to use for obtaining review of the decision, but in so doing you thereby forfeit all right to appeal the same decision under the other review process. Any appeal of this decision must include the information required by 36 CFR 217.9 or 36 CFR 251.90, "Content of Notice of Appeal," including the reasons for appeal. Two (2) copies of the Notice of Appeal must be filed with the Chief, USDA Forest Service, P.O. Box

96090, Washington DC 20090-6090, within 45 days of the date of publication in the Ogden Standard Examiner for appeals under 36 CFR 217 or within 45 days of the date of this decision for appeals under 36 CFR 251. This decision may be implemented within 7 days after the legal notice of the decision is published in the Ogden Standard Examiner.

Compliance with the terms and conditions of the lease and other administrative actions associated with the lease contained in Federal Regulations 43 CFR 3400 are the responsibility of the Bureau of Land Management. As required under the Federal Coal Leasing Amendments Act of 1976 and the above regulations, actions pursuant to the lease which could affect surface resources require consultation and consent of the Forest Service.

The lease modification will be issued non-competitively in accordance with the procedures set forth in 43 CFR 3432.

Consent by:  
for

Robert J. Reynolds  
GRAY F. REYNOLDS, Regional Forester  
USDA Forest Service, Intermountain Region  
Federal Building  
324 25th Street  
Ogden, Utah 84401

Date: April 30, 1991

Approved by:

James M. Parker  
JAMES M. PARKER, Utah State Director  
Bureau of Land Management  
Utah State Office  
324 South State, Suite 301  
Salt Lake City, Utah 84111-2303

Date: May 8, 1991

United States  
Department of  
Agriculture

Forest  
Service

Manti-La Sal  
National Forest

*mine file Pan*  
Price Ranger District  
599 West Price River Dr.  
Price, Utah 84501

*UB 007-005*  
*#2*

Reply to: 2820

Date: March 27, 1991

Lowell Braxton  
Utah Department of Natural Resources  
Division of Oil, Gas and Mining  
355 West North Temple  
3 Traid Center, Suite 350  
Salt Lake City, Utah 84180-1203

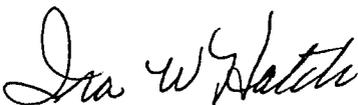
Dear Lowell:

The Manti-La Sal National Forest is currently evaluating an application filed by Cyprus-Plateau Mining Corporation (Cyprus) with the Bureau of Land Management (BLM) to modify their existing Federal Coal Lease UTU-64263 by adding 50 acres of adjacent unleased lands. The proposed 50 acre tract lies just east of Wild Cattle Hollow on Gentry Mountain about 17 miles WSW of Price in Emery County, Utah. The surface of the subject lands are managed by the Price Ranger District of the Manti-La Sal National Forest. The lands have been determined to be suitable for leasing pursuant to the Forest's Land Management Plan.

The lease modification would allow Cyprus to mine an additional 173,000 tons of in-place coal that would otherwise be bypassed and irretrievably lost. No surface facilities are planned for the subject lands as Cyprus would utilize existing portal facilities associated with the Starpoint Mines.

Please review the attached scoping document and map. Further information can be obtained from this office at the above address or by calling (801) 637-2817. Public comments on the proposal will be accepted at this office until April 12, 1991.

Sincerely,



IRA W. HATCH  
District Ranger

Enclosure

**RECEIVED**

MAR 29 1991

DIVISION OF  
OIL GAS & MINING

MANTI-LA SAL NATIONAL FOREST  
PROJECT SCOPING DOCUMENT / ENVIRONMENTAL ASSESSMENT

DATE: 03/27/91

DISTRICT NAME: Price

FILE CODE: 2820

1. PROJECT NAME: Modification to Federal Coal Lease UTU-64263 (CVR)
2. RESPONSIBLE OFFICIAL: Gray Reynolds, Regional Forester
3. PROPOSAL: Cyprus-Plateau Mining Corporation (Cyprus) has submitted an application to the BLM to modify Federal Coal Lease UTU-64263 by approximately 50 acres to allow mining of approximately 173,000 tons of inplace Federal coal reserves which would be bypassed. Cyprus projects mining in the area of the modification to occur in May of 1991. The subject modification area is located about 17 miles WSW of Price on Gentry Ridge in Emery County, Utah (see attached map).
4. TIERING AND REFERENCING OPPORTUNITIES: Manti-La Sal National Forest Land And Resource Management Plan and FEIS, 1986; EA, FONSI/DN Coal Lease Application UTU-64263 (CVR), 7/89; EA for Modification of Federal Coal Lease U-13097, 8/83; EA Readjustment of Federal Coal Lease SL-031286, 6/83; EA Modification of Federal Coal Lease SL-031286, 9/82; Tract Delineation Review Report, Leasing By Application UTU-64263, 2/89; Situation Statement, Castle Valley Ridge Tract, 3/80; EA Proposed Coal Exploration Drilling, CVR and Gentry Mountain, Getty Mineral Resources Company, 9/81; Site-specific Analysis, Castle Valley Ridge Proposed Coal Lease Tract, 5/82; Lindskov, K.L., 1986. Potential Effects of Anticipated Coal Mining on Salinity of the Price, San Rafael, and Green Rivers, Utah, U.S. Geological Survey, Water-Resources Investigations Report 86-4019; Seiler, R.L. and Baskin, R.L., 1988, Hydrology of Alkalai and Castle Valley Ridge Coal Lease Tracts, Central Utah, and Potential Effects of Coal Mining, U.S. Geological Survey, Water-Resources Investigations Report 87-4186; Star Point Mines, Mining and Reclamation Plan, Plateau Mining Company, 9/86.
5. OTHER AGENCIES OR PUBLICS INVOLVED: BLM (Approving and Cooperating Agency) and OSM (Cooperating Agency). News releases regarding this modification will be submitted to the Sun Advocate and the Emery County Progress. Letters will be sent to identified interested publics inviting comment on the proposal.
6. EFFECTS ON THE ENVIRONMENT: Effects to the environment would not occur as a result of issuance of the modification, but could result from mining-induced subsidence as described in the analysis in the EA for the Castle Valley Ridge Coal Lease Tract UTU-64263.
7. ISSUES: a) Public issues - none have been identified to date. b) The Forest Service Interdisciplinary Team evaluated the proposal and identified the same issues described in the EA for the CVR Coal Lease Tract which are

area resources such as visuals, surface and ground water, soils, land uses, vegetation, wildlife, and livestock. 1. Subsidence caused by underground mining could adversely affect surface and ground water, visual resources, land uses, soils, vegetation, wildlife, and livestock. No new issues have been identified for this proposal.

- 8. SUGGESTED ALTERNATIVES: 1) No Action - waive the right to recommend approval to modify Federal Coal Lease UTU-64263. 2) Proposed Action - recommend that the modification be approved with the application of Forest Service Special Stipulations from Appendix B of the Forest Plan.
- 9. ANALYSIS AND DECISION CRITERIA: The analysis for this proposal is adequately documented in the EA for the Castle Valley Ridge Coal Lease Tract (UTU-64263). Management decisions and guidelines as defined in the Forest Plan and FEIS identify the decision criteria.

10. ANALYSIS SKILLS:

SPECIALTY	SPECIALIST	ROLE (team leader, team member consultant, other)
Geology	Walt Nowak	Team Leader
District Ranger	Ira Hatch	Team Member
Hydrology	Dennis Kelly	Consultant
T&E/Wildlife	Rod Player	Consultant
OSM Representative	Floyd McMullen	Consultant

11. SCHEDULE:

- a. Functional Status Report: \_\_\_/\_\_\_/\_\_\_
- b. Initial Meeting: 03/07/91
- c. Field Review: \_\_\_/\_\_\_/\_\_\_
- d. ID Team Meeting: 03/11/91
- e. ID Team Review S. D.: 03/27/91
- f. Review Draft Meeting: \_\_\_/\_\_\_/\_\_\_
- g. EA Final: 07/13/89
- h. DFR Decision Notice: \_\_\_/\_\_\_/\_\_\_
- i. R. O. Decision Notice: 04/91
- j. Project Implementation: 05/91

12. RANGER DECISION:

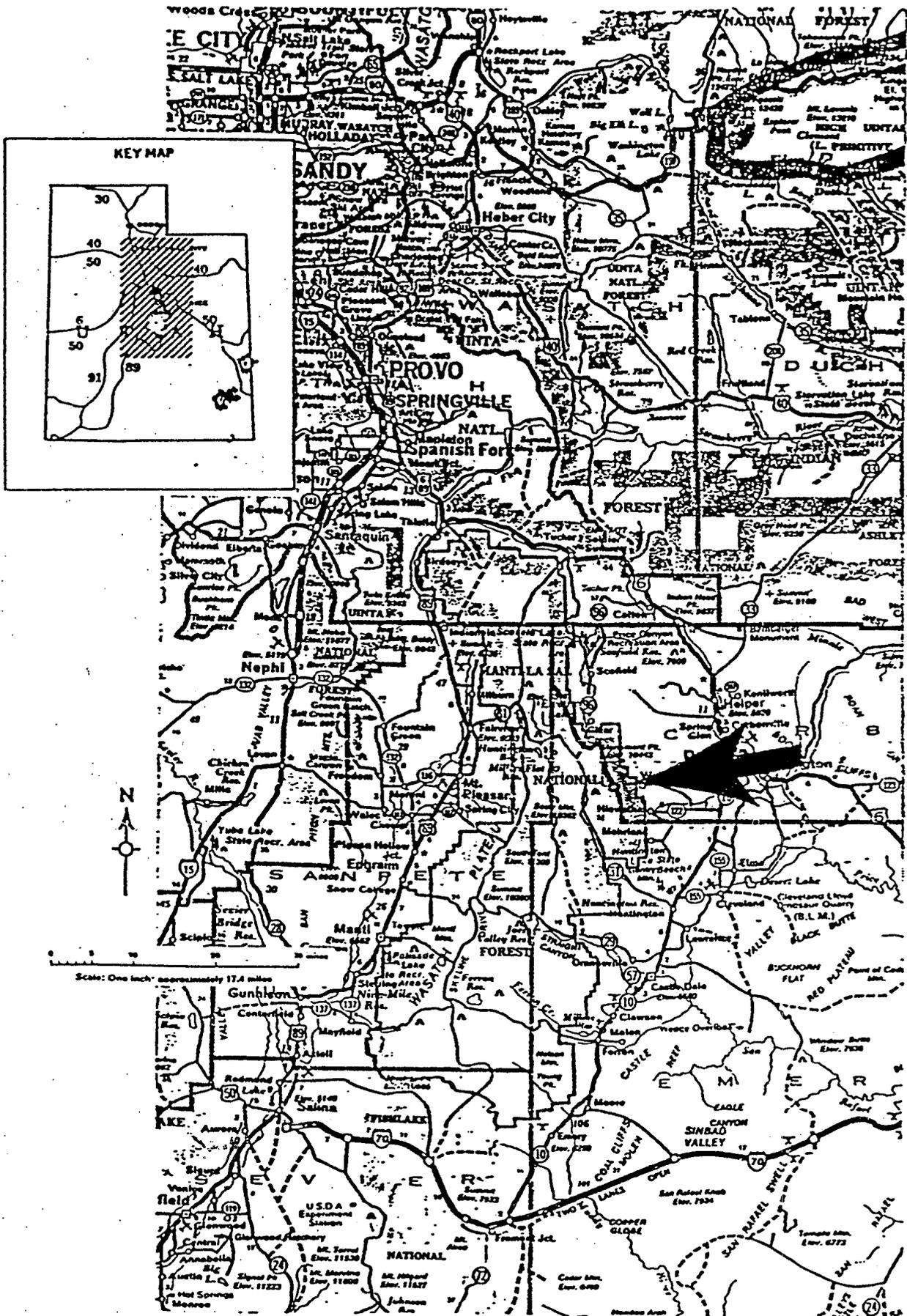
- Requires further assessment: \_\_\_\_\_
- Requires no further assessment:   ✓
- Categorical Exclusion: \_\_\_\_\_

Ira W Hatch  
District Ranger

3/27/91  
Date

GENERAL LOCATION OF PROJECT

UTU-64263



MAP 1

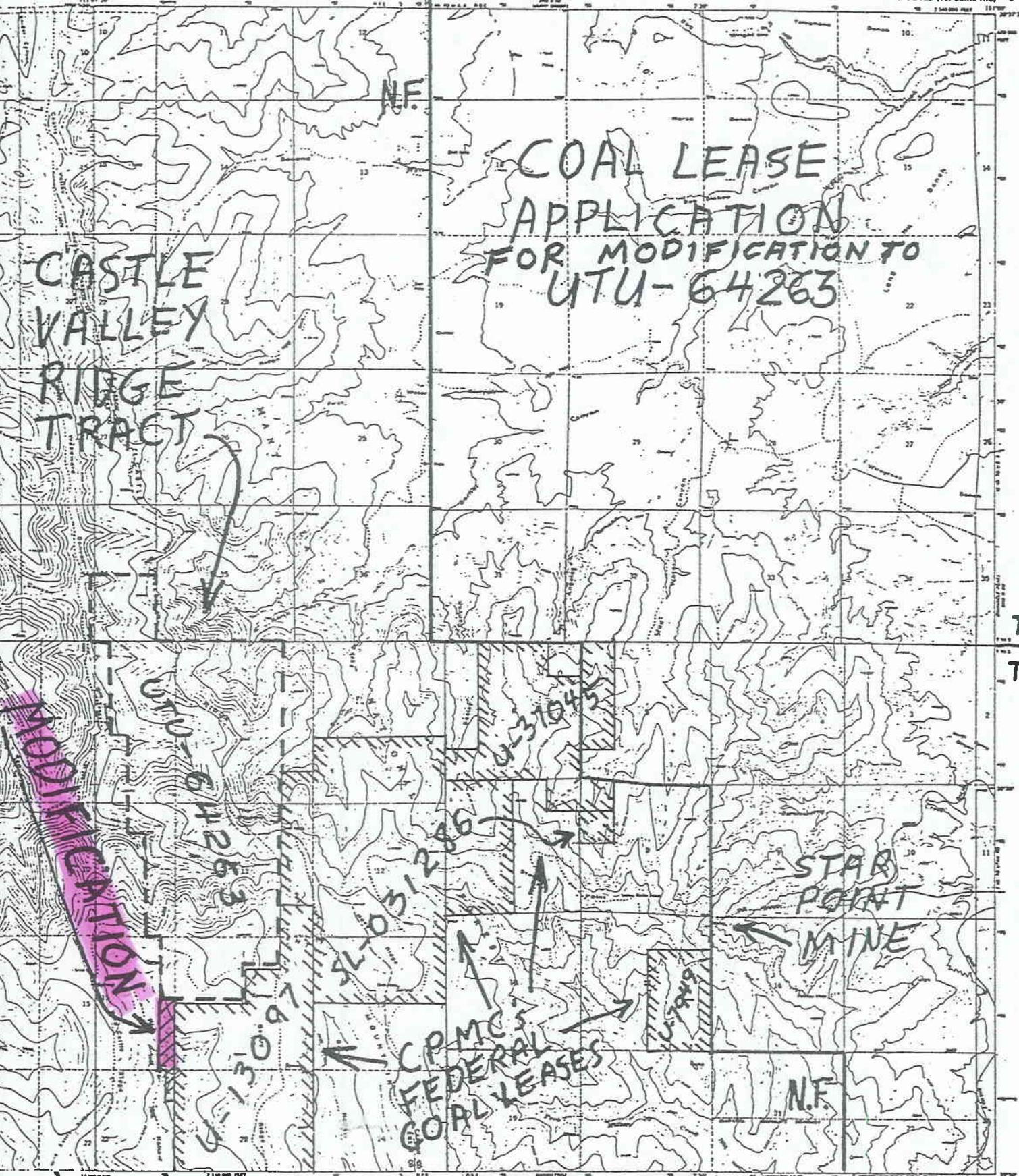
UNITED STATES  
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY



RTE R8E

STATE OF UTAH  
UTAH GEOLOGICAL AND MINERAL SURVEY

WATTIS QUADRANGLE 4  
UTAH  
7.5 MINUTE SERIES (TOPOGRAPHIC)



T14

T15

Mapped, edited, and published by the Geological Survey  
Scale to 1:24,000, 1:48,000, and 1:96,000  
Topography by photogrammetric methods from aerial photographs  
taken 1958. First edition 1970. Map series 1970  
Projection and 50,000-foot grid base. UTM  
Horizontal datum, Alaska Alaskan datum point  
1985.000 (National datum) and base  
line 12. UTM zone 12. 1977 North American datum.  
This map is available in microfilm and microfiche editions.  
This map is available in microfilm and microfiche editions.  
This map is available in microfilm and microfiche editions.



ROAD CLASSIFICATION	
Primary highway	Light duty road, Road or
Secondary highway	Improved surface
Unimproved highway	Unimproved surface
Interstate Road	U.S. Route
	State Route



MANTI-LA SALLE NF

NOV 14 1988

report: ML-89-0492

Manti-LaSal NF

CULTURAL RESOURCE RESPONSE  
TO  
CYPRUS-PLATEAU MINING CO.  
COAL LEASE APPLICATION  
UTU-64263

CR

D-3

Cyprus-Plateau Mining Company has filed a coal lease application (UTU-64263) for 1826 acres in the Gentry Mountain area near "The Steeps". The tract is at elevations of about 8800 feet to over 10,000 feet. This application covers Forest Service system lands on the Price Ranger District of the Manti-LaSal National Forest. This proposal is in portions of sections 2, 3, 10, 11, 14, and 15 of Township 15 South, Range 7 East.

Generally speaking, coal leases have been required to be covered by at least a 10% sample survey for cultural resources for the initial lease itself, with 100% surveys later required for specific impact areas, such as mine portals, road construction, etc. To complete this requirement for the lease itself, a Class I inventory (literature search) is to be conducted, and, if necessary, a Class II inventory (survey sample) completed to the extent that at least 10% of the area has been searched for cultural resources.

In the area of the proposed coal lease, there is at present on record three cultural resource survey efforts conducted within the area itself, with others having been completed nearby (one just adjacent to the southeast corner of the lease proposal). One survey covered a block of 160 acres in the center of the lease area, and the other two surveys consisted of seismic lines and access roads north of this block (see map).

These survey projects found only two isolated artifacts, each being individual flakes with no evidence of use as scrapers or other tools. The survey that was conducted to the southeast (just adjacent to the lease proposal), also 160 acres, found two archeological sites and three isolated artifacts. The sites were lithic scatters (locations of stone flaking activity) with limited informational content. Two of the isolated artifacts were flakes, while the third was a projectile point with probable Archaic time period connotations (several thousand years B.C.).

The nature of the cultural resources found indicates that the area was used very lightly in prehistoric times, and mostly for flaking, although the projectile point indicates some limited hunting activities.

The coal lease proposal area is in very steep terrain, with the exception of the slightly flat southern portion, which is at very high elevations (basically 9600 feet to 10,100 feet). It is important to note that immediately to the east of this location is the previously surveyed area outside of the proposed lease that found the two lithic scatters and three isolated artifacts at only slightly lower elevations. Therefore, we can expect when surveys are completed

in this southern sector of the proposed lease that we will have found a few more lithic scatters and possibly one or two more projectile points. Other than this area, it is expected that only a few more isolated flakes will be found at the extreme north part of the lease area, on the flatter narrow top where Castle Valley Ridge ends.

The 184 acres surveyed so far constitutes 10.1% of the total proposed lease acreage, and is an adequate sample for assessing the initial patterns found in the cultural resources within the area. This is at this time a sufficient sampling completed to give us a good overall picture of the potential for cultural resources in the area, as far as leasing itself goes. (Surface disturbing projects will have to be addressed separately.)

On the basis of the findings so far, it can be projected that cultural resource concerns will probably be very minimal in complexity, and that mitigation in the event of future proposed surface-disturbing projects will also be very minimal in difficulty.

At the present time, there seems to be no further cultural resource field work needed to be done to complete this portion of the review of the proposed Cyprus-Plateau Mining Company coal lease application (UTU-64263). The three survey reports covering the activities within this lease area have previously been reviewed by the State Historic Preservation Officer (SHPO) of Utah.

#### REFERENCES

Nickens and Associates

1983 [title and author not available at this time...will be supplied later]

Weder, Dennis

1981a "Cultural Resource Inventory of Proposed Coal Exploration Drill Holes and an Access Road in the Castle Valley Ridge Locality of Emery and Carbon Counties, Utah". Archeological-Environmental Research Corporation, Salt Lake City, Utah.

1981b "Cultural Resource Inventory of Proposed Seismic Lines and Noise Test Lines in the Gentry Mountain and Castle Valley Ridge Localities of Emery and Carbon Counties, Utah". Archeological-Environmental Research Corporation, Salt Lake City, Utah.



Les Wikle  
District Archeologist

10 November 1988