

Technical Review
Remote Fan Installation

Andalex Resources, Inc.
Centennial Project
ACT/007/019

December 5, 1994

Paul Binders

OVERVIEW OF PROJECT

On September 12, 1994, the Division received a proposal from Andalex Resources to develop a fan portal in the Left Fork of Deadman Canyon. Additional information was received October 24 and 31, and November 10, 1994. The proposal includes a copy of the BLM right-of-way, a general description of vegetation in the area, and the results of an archaeological survey. The current mining and reclamation plan already includes wildlife information.

The Operator proposes upgrading part of an existing dirt road and constructing a new road for access to the Left-Hand Fork fan installation. The existing road begins at Carbon County Road 299 and will be upgraded for maintenance and emergency access. The new road will be a single lane dirt road approximately 15 feet wide and 4000 feet long. There will be at least three widened sections to allow passing. The grade ranges from 0% to 15%.

The pad is approximately 320 feet long, 170 feet wide and 50 feet high. Three portals and a fan will be installed on the pad. The pad consists of a cut section where the portals and fan will be installed and a fill section. Fill will be placed in the drainage below the portals. A 42" culvert will be placed in the drainage before the fill being placed.

Topsoil from the pad and road will be placed in a storage area west of the pad. A short ancillary road will be constructed from the existing road to the topsoil storage area.

ANALYSIS

R645-301-200

Soils

The Division received supplemental information on November 10, 1994 to the soil survey and topsoil salvage plan. With this additional information the plan is considered adequate with regard to topsoil salvage and protection.

Findings:

The commitment for the removal and segregation of topsoil from the surface

disturbance associated with the installation of the Left Fork Fan, as revised, is adequate to meet the minimum regulatory requirement for topsoil salvage.

R645-301-114 Right of Entry

Analysis:

The submittal includes a copy of a right-of-way grant/temporary use permit from the Bureau of Land Management. The right-of-way is for an access road 16 feet wide and 3000 feet long, a pad site 70 feet wide and 250 feet long, and two coal tunnels.

Andalex proposes to place its topsoil pile within the current permit area. The fan portal itself would also be in the current permit area; only two entries would be in the right-of-way.

The present mining and reclamation plan quotes the federal leases as saying, "The lessor. . . grants and leases to the lessee. . . the right to construct all works, buildings, structures, equipment, and appliances which may be necessary for the mining and preparation of the coal for market. . .".

Based on the information in the mining and reclamation plan and in this submittal, Andalex has secured necessary right of entry to use the portions of the road in the Left Fork of Deadman Canyon on Bureau of Land Management lands and to construct the fan portal and associated pad and topsoil pile. Page 3 of the revised mining and reclamation plan references this agreement.

A small portion of the access road at the intersection with the County road crosses State lands. The State owns the SW $\frac{1}{4}$ of Section 18, Township 13 S., Range 11 E. Interestingly, the Bureau of Land Management right-of-way includes the NE $\frac{1}{4}$ SW $\frac{1}{4}$ of Section 18 even though the land is apparently not under their control. Andalex needs to obtain right-of-entry for the portion of the road in Section 18 that is on State land.

Also in Section 18, Gladys Artman owns the SE $\frac{1}{4}$ NW $\frac{1}{4}$. The amendment includes no right-of-entry information for the portion of the road that crosses this land.

Requirements:

1. Andalex needs to obtain right-of-entry for the portion of the road in Section 18, Township 13 S., Range 11 E., that is on State and private land.

R645-301-115

Unsuitability Criteria

Analysis:

The material received in the submittal does not address this issue.

According to information from the Bureau of Land Management, the existing road is not considered a public road in either the county or BLM transportation plan, and the BLM does not spend money to maintain it. Therefore, the facilities proposed to be permitted are not within 100 feet of a public road.

Andalex is proposing that the access road be permitted as an ancillary road. The intersection of a permitted road with a public road is not considered mining and reclamation operations for which the Division needs to provide an opportunity for a public hearing. However, Andalex needs to discuss their proposed activities with Carbon County officials because there are potential safety and other factors that the County might want to consider. These issues are not within the scope of this regulation.

Findings:

Andalex does not need to include additional information in this section of the mining and reclamation plan to comply with this regulation.

R645-301-320

Vegetation and Wildlife Information

Analysis:

The submittal includes a soil survey report that includes general descriptions of the vegetation. Vegetation descriptions are correlated with range site categories. Range sites in the area include Upland Stony Loam (Pinyon-Juniper) of the Cabba family soils and the Datino soils, and Mountain Stony Loam (Oak) of the Brycan soils. Predominant species include Gambel oak, salina wild rye, big sage, low gray sage, Utah juniper, and pinyon. Vegetation in the Brycan soils areas is almost exclusively Gambel oak.

The soils and vegetation in this area are very similar to those in the main mine area. Because less than one acre will be disturbed and because the vegetation is similar to that in the Right Fork of Deadman Canyon, it is not necessary to establish a new reference area, and more detailed general vegetation information is not needed.

The current plan also includes wildlife information about this area. A golden eagle nest is in the cliffs above the proposed fan portal. This nest has been very productive in the past although it was not active in 1994.

The lower part of the access road is within critical deer winter range, and part of the proposed disturbance is in high priority elk winter range.

The Book Cliffs provide habitat for a candidate threatened or endangered species, canyon sweetvetch (*Hedysarum occidentale* var. *canone*). Although this species has no legal protection except under Bureau of Land Management regulations, it should be avoided if possible. It is understood that Andalex hired a person to survey for this plant and that it was not found, but this information needs to be in the mining and reclamation plan. Also needed with the report would be other information required by R645-301-130 for technical reporting.

Requirements:

1. The plan needs to include information about whether canyon sweetvetch (*Hedysarum occidentale* var. *canone*) occurs in the area of the proposed disturbance.

R645-301-330

Operation Plan

Analysis:

In this section, the proposal includes a statement that the road through the Left and Right Forks of Deadman Canyon will be left permanently after reclamation.

The current mining and reclamation plan contains a wildlife report from the Division of Wildlife Resources that includes some wildlife protection recommendations. Among these are statements that deer and elk winter ranges need to be protected from man's disturbance when the animals are present. The report also says that active golden eagle nests are extremely sensitive to man's disturbance within a one-half kilometer radius between April 15 and July 15.

The Bureau of Land Management right-of-way contains stipulations that are more specific and in line with current recommendations. Andalex should commit to follow the requirements of these stipulations. They are:

1. Andalex needs to commit to no construction activities within one-half mile of

the golden eagle nest during the nesting season, February 15 to July 15. In places that are both within line-of-sight and one-half mile of the nest, there should also be no new road construction.

2. There should be no construction activities from December 1 to April 15 to minimize disturbance to wintering elk and deer. If it is necessary to do construction during this period, some flexibility may be allowed but would need to be coordinated with the Bureau of Land Management, the State Division of Wildlife Resources, and the Division.
3. Except for snow removal, all routine maintenance should be done from within the mine from December 1 to July 1.

Bill Bates of the Division of Wildlife Resources said in a telephone conversation October 31, 1994, that most deer have already moved to lower elevations this year. Therefore, although Andalex must not disturb the site after December 1, deer and elk may already be in the area. It is important that construction be completed as soon as possible and that employees not harass any animals.

Assuming that canyon sweetvetch was not found in the survey discussed above, the commitments discussed above and those already in the plan should be adequate to protect important biological resources.

The current mining and reclamation plan does not include an interim revegetation plan. Every reference to revegetation under R645-301-330 appears to apply to final reclamation. The plan needs to show how vegetation will be established for interim stabilization of disturbed areas to minimize surface erosion. This may include all or part of the plan for final reclamation.

It is recommended that Andalex use the final reclamation seed mixture shown on page 80 and the planting mixture shown on page 76 of the mining and reclamation plan for interim revegetation. The fan portal will not be visited regularly from the surface; therefore, any revegetated area will provide wildlife habitat while the fan is in place.

Requirements:

Andalex needs to make the following commitments:

1. Andalex needs to commit to no construction activities within one-half mile of the golden eagle nest during the nesting season, February 15 to July 15. In places that are both within line-of-sight and one-half mile of the nest, there

should also be no new road construction.

2. There should be no construction activities from December 1 to April 15 to minimize disturbance to wintering elk and deer. If it is necessary to do construction during this period, some flexibility may be allowed but would need to be coordinated with the Bureau of Land Management, the State Division of Wildlife Resources, and the Division.
3. Except for snow removal, all routine maintenance should be done from within the mine from December 1 to July 1.

Even if construction is completed before December 1, it is important that employees not harass any deer or elk that have already moved into winter range.

The mining and reclamation plan needs to contain a plan for interim revegetation.

R645-301-340

Reclamation Plan

Analysis:

The proposal includes no new plans under this regulation.

The current mining and reclamation plan (new-reformatted) shows two seeding/planting mixtures. Either of these could be used for the fan portal area, but the plan needs to specify which will be used and what transplants will be planted. It is recommended that Andalex use the seed/planting mixture on page 80 with the transplants only used within about twenty feet of the drainage.

In 1994, Andalex attempted to transplant several shrubs on the topsoil pile near the Apex Mine. Vegetation is already established on this topsoil pile, but there are few shrubs. Most or all of the transplants died. Rather than trying to transplant more shrubs onto the Apex Mine topsoil pile, Andalex should try to show that shrubs can be successfully established by planting them on the fan portal topsoil pile. The pile should be left in a roughened condition and seeded with the seed mixture on page 80 this fall. In the spring, Andalex should plant shrubs from the list shown on page 74. These species would not be used in final reclamation at the fan portal if Andalex uses the recommendations given above, but using them on the topsoil pile would give some indication as to whether they can be successfully transplanted at the main mine site.

The amendment says on page 61, section R645-301-310, that the drainage area reference area is the most adaptable to the left fork fan installation. This reference area is appropriate for judging revegetation success for the fan portal area.

Requirements:

1. The plan needs to specify which seed/planting mixtures will be used for revegetation of the fan portal area. Andalex needs to try planting a shrub mixture on the fan portal topsoil pile as a field trial to see if shrubs can be successfully reestablished.

R645-301-411

Land Use Environmental Description

Analysis:

The proposal includes the findings of an archaeological survey performed on September 21, 1994. The investigators only checked the proposed pad and new access road areas, but the existing access road was checked in a survey done in 1986 by Senco-Phoenix. No sites were found in either survey. The Division should recommend a cultural clearance to the State Historic Preservation Officer.

Premining land uses include wildlife, limited grazing, and recreation

No new postmining land use information is presented for the fan portal area. The mining and reclamation plan says that postmining land uses will be the same as premining uses.

According to Section R645-301-330, the road in the Left Fork of Deadman Canyon will be left permanently after reclamation. The mining and reclamation plan says that Andalex will reestablish the terrain to as nearly the original as practical.

Because the road was present prior to any mining, Andalex should be allowed to leave it after mining operations have ended. Keeping with the commitment in the plan, the terrain along the road will need to be reestablished to as nearly the original as practical.

Findings:

Andalex has supplied information and included commitments in the mining and reclamation plan adequate to satisfy the requirements of this regulation. The Division needs

to obtain a clearance from the State Historic Preservation Officer. There is no reason to believe the clearance will not be given.

R645-301-500 Engineering

Reclamation costs for the project area estimated by the Operator to be \$7,540. The current reclamation bond is for \$1,080,000.

R645-301-534.130 says that all roads must have, at a minimum, a static safety factor of 1.3 for all embankments. The Operator says that all road embankments will have safety factors of 1.3 or greater. There are no stability studies in the PAP nor reference to the MRP that shows the slopes are stable.

The Operator has failed to mention what the safety factor for the pad will be. Nor does he describe how the fill will be placed. At a minimum the slopes of the pad must have a static safety factor of 1.3 and the lifts should be 4 feet thick or less.

The Operator did not address how reclamation of the pad will be accomplished, nor did he provide any maps that showed the reclaimed area. (R645-301-540 through R645-301-542.)

Requirements:

1. The Operator must demonstrate that all road embankments have a minimum static safety factor of 1.3.
2. The Operator must describe how the pad will be constructed. That description must include how the lifts will be placed and their maximum thickness. Static safety factor for both the cut and fill slopes must be shown to be at a minimum 1.3.
3. The Operator must supply a reclamation plan for how the pad area will be reclaimed. The reclamation plan must include maps showing the reclaimed surfaces.

HYDROLOGIC INFORMATION

Regulatory Reference: R645-301-722.500, 731.100, 731.600, 732.400, 742, 742.110, 742.300, 742.313, 742.320, 742.400, 751, 752, 760, 762

Analysis:

Construction of the fan portal and pad area in Left-Hand Fork of Deadman Canyon will require road improvements to an existing trail. The Bureau of Land Management (BLM) right of way application shows that the road will be graded from the existing county road to the fan portal pad. The purpose of the right-of-way is construction and maintenance access to the fan facility. Andalex has included two culverts into the design of the road and a series of water bars to rout water off of the road. The first culvert, located in the main canyon, is near the junction of the new road and the county road. The second is located below the pad fill, and is called the Upper Canyon Culvert. Andalex has included calculations and designs for the culverts. Portions of the road and the pad, and the entire topsoil pile are shown to be located within 100 feet of the stream channel.

Sediment control is shown on a Plate LF-1, Aberdeen Mine Left-Hand Fork Fan Installation Sedimentation/Drainage Control, as silt fence and/or straw dike along the base of the pad fill. Berms and a ditch will route flow from the upper portions of the pad to the sediment control measure. Top soil will be placed up canyon from the pad and will be encompassed by a berm.

Findings:

Andalex proposes to build a road and pad within 100 feet of the Left-Hand Fork stream channel. The drainage area for this reach is greater than one square mile, so, by regulation, this is an intermittent stream. No stream alteration permit is required by the Utah Division of Water Rights because it is not by their definition a an intermittent or perennial stream. However, by the Utah coal mining rules it is an intermittent stream so all regulation regarding that definition, including stream buffer zones should be addressed to comply with R645-301-731.600, 732.400, and 742.320.

The use of alternate sediment control measures is allowable by the regulations. A diversion is shown on the map to help route flow to the sediment control, but there were no designs included for this diversion. Miscellaneous diversions should be designed to convey the 2-year, 10-hour storm event for miscellaneous flows (R645-301-742.333). Andalex has not included plans for sediment control in the construction stages of the pad and road and in the reclamation stages of these facilities. It is assumed that sediment control on the topsoil pile is a retention berm, but no design for such berm was included. The map shows a berm

around the pad area but no designs or mention for sediment control on the pad.

Drainage control for the road includes two culverts which route the main channel under the road. Andalex has designed water bars to route the smaller drainages across the road. There is no reclamation times schedule or reclamation sediment control plans for the pad area, road, and culverts. Andalex should submit these plans in accordance with R645-301-542-600, 742.313, and 764.

Requirements:

1. Andalex must address activity within the stream buffer zone and reclamation. They must commit to do work within the stream buffer zone only in periods of no flow. Andalex should submit reclamation plans in accordance with R645-301-542-600, 742.313, and 764. They must submit sufficient information and designs on miscellaneous diversions and berms on the pad and top soil pile. Andalex must submit these design and pages, or revised pages, to be inserted into the text of the MRP addressing the proposed activity.

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TOWER RESOURCES, INC.
CENTENNIAL PROJECT

TECHNICAL ANALYSIS

Tower Resources is a corporation organized and existing under the laws of Delaware and qualified to do business in Utah. The Centennial Project involves both fee and federal coal leases. The project is located approximately 10 miles north, northeast of Price, Utah, in Carbon County, Township 13 South, Range 11 East. The property contains approximately 2,240 acres. Two hundred acres is fee surface and coal leased from the Zions Security Corporation. The remaining 2,040 acres is federal lease. This property includes Deadman Canyon, Starpoint Canyon and Straight Canyon with coal outcropping along the cliffs between 7,000 and 7,700 feet elevation. The topography is very rugged, the Book Cliffs being dissected by box canyons created by ephemeral streams. Large sandstone boulders eroded from the cliffs are scattered along the sides of the canyon. The land is undeveloped, used primarily for grazing. There are no perennial streams or bodies of water on the property.

Historically, coal mining has been the only industry in the permit area and there are several abandoned mines located on the property.

Estimated coal reserves in the three beds of a mineable thickness totals 50 million tons, with recoverable coal estimated at 29 million tons. Production schedules project an increase from 200,000 tons the first year to full production of about 1,200,000 tons in the fourth and fifth years. At this rate, the life of the mine is estimated to be about 30 years, with theoretical life of about 40 years due to the existence of additional unleased federal coal economically accessible only through Tower's operation.

The initial mining method being employed is pillar development utilizing one continuous miner section of equipment with final pillar extraction planned. An additional five mining units will be added according to production schedule, with mining development occurring simultaneously in each of the three seams. Longwall mining may be introduced later if conditions prove acceptable; however, the basic overall mine plan will not be changed.

Tower Resources is currently operating the Pinnacle Mine which began on October 3, 1980. The Pinnacle Mine is located and operating on Zions fee lease. The mine plans call for advancement of operations onto federal leases contained within the proposed mine plan area and the simultaneous operation of a mine in each of three mineable coal seams present; the lower Sunnyside Seam, the Gilson Seam and the Aberdeen Seam, current mining activities occurring in the Gilson Seam. The coal is classified as high volatile B bituminous in both the lower Sunnyside and Gilson seams and as high volatile A bituminous in the Aberdeen Seam.

The Mining and Reclamation Plan for the Pinnacle Mine was given final approval on September 5, 1980, under the interim program. The submittal for the remaining part of the Centennial Project was received by the Division on January 19, 1981. This submittal has since been modified and addendums supplemented. The application was deemed complete on September 28, 1981.

Existing Environment and Operations

The permit area is in the Book Cliffs which is the major physiographic feature in the region. The Cliffs rise from a base at approximately 5,500 feet in elevation to over 8,500 feet. Numerous canyons dissect the Book Cliffs. The permit area exhibits extreme topographic relief and is mountainous with steep cliffs and deeply incised drainages.

Mountain brush, desert shrub, pinyon-juniper woodland, sagebrush-grass, conifer-aspen and minor stream side vegetative types cover the total mine plan area. Most of the area is covered by a mountain brush type while the pinyon-juniper woodland type is predominant in the mine mouth area as well as the access routes and utility corridors. There have been no known threatened or endangered species observed in the lease area.

There are no perennial streams or bodies of water on the property. The reader is referred to a final draft Environmental Statement, Site Specific Analysis, Part 2, prepared by the Department of the Interior, 1979.

Summary of Compliance

817.11 Signs & Markers

Applicant's Proposal

Signs used on permit area are of a uniform design, placed to be easily seen, made of durable material and conform to local laws and regulations.

Identification signs showing the company name, business address, telephone number and the identification number of the current regulatory program permit authorizing the underground mining activities have been placed at all access points to the permit area.

The perimeters of all areas affected by surface operations will be clearly marked.

There are no perennial streams or a stream with a biological community on the permit area, therefore, no buffer zone markers will be necessary.

No surface blasting will be conducted by the applicant with the exception of highwall construction. When blasting does occur, signs and flagging will be posted as required under UMC 817.11(e)(f).

Compliance

Applicant will comply with this section.

817.13-.15 Casing and Sealing of Exposed Underground Openings

Applicant's Proposal

All exploratory drill holes were cemented above and below the coal seams for a minimum of 20 feet, including a concrete surface plug. The remainder of the hole is filled with drill cuttings. In the case of a shallow hole, the entire length is cemented.

Water wells have been cased with steel casing and will be maintained. After mining is completed, casings will be removed when possible and holes sealed as above.

Portal seals will be constructed of solid concrete blocks with mortared joints, double walled construction. The seals will be located far enough back from the surface so that reclamation efforts will not have an adverse effect on the seals. An illustration of proposed portal seals is shown in 9-10-81 plans.

Stipulations

None.

Compliance

Applicant complies with sections 817.13-.15.

817.21-.25 Topsoil

Applicant's Proposal

Topsoil has been removed from approximately five acres and includes poorly developed soils. Using dozer and front end loaders, the soil was scraped from the surface and dumped at a site on facility location. The topsoil storage area is shown on Plate VII of the MRP. The topsoil was removed as a separate operation from areas to be disturbed by surface installations such as roads and areas upon which support facilities are sited. Topsoil has been segregated, stockpiled and protected from wind and water erosion and contaminants through revegetation. Disturbed areas no longer required for the conduct of mining operations have been graded and revegetated. Once the topsoil was removed, the canyon bottom was leveled and culverts installed to prepare the area for building construction.

Upon reclamation, topsoil will be hauled to the area by end dump trucks, piled and spread using a grader. Where possible, soil will be distributed along the contour. The thickness of the re-established soil will be consistent with soils in the vicinity and will be sufficient to support the vegetation equal to or superior to premining history. No topsoil substitute has been proposed. If additional topsoil is needed, it will be hauled into the minesite.

A letter from Theron B. Hutchings, Utah State Soil Scientist, indicating a negative determination of Prime Farmland has been provided.

817.21-.25 Topsoil (continued)

Stipulations

817.22 Applicant must provide to the Regulatory Authority within 60 days of permit approval prior to disturbance of area the methods to be used for topsoil removal, the depth of topsoil to be removed and the volume of topsoil and subsoil to be removed.

Before applicant uses any substitute material as a topsoil, adequate chemical and physical analyses proving suitability must be performed on the proposed soil material and data submitted and approved by to the Division.

817.23 Applicant must submit to the Division within 60 days of permit approval and prior to disturbance of area plans for storage and protection of topsoil removed from future disturbances. If possible, the length of storage for each topsoil should be included.

817.25 Applicant must submit to the Division topsoil analyses data providing information on the pH, soil content of N, P, K and trace elements prior to topsoil redistribution.

Compliance

Applicant will comply with these sections when these stipulations are met.

817.41-.57 Hydrologic Balance

Applicant's Proposal

Tower Resources' Centennial Project will be comprised of three mines located closely together in Deadman Canyon. The Pinnacle Mine is presently in operation mining the Gilson Seam. The other two mines will be the Apex Mine in the lower Sunnyside Seam and the Aberdeen in the A Seam. The Centennial Project is to be located in the Right Fork of Deadman Canyon. This is an ephemeral drainage flowing in response to direct runoff and eventually reaching the Price River some 12 miles to the south. The projected minesite will have a disturbed area of 24.25 acres and an undisturbed watershed area of 805.50 acres. Surface runoff from the disturbed area is controlled by five separate sedimentation ponds. The Pinnacle Mine is controlled by Ponds A and B. The Apex and Aberdeen mines will be controlled by ponds C, D and E. Berms will be placed on the lower edge of all disturbed areas to prevent runoff from reaching natural drainages before it has passed through the sedimentation ponds. The main canyon undisturbed drainage will be routed through a 42-inch culvert located beneath the minesite. The location of all diversion structures and sedimentation ponds are included in MRP--Plate I.

Diversion and Conveyance of Overland Flow

The major undisturbed drainage in the minesite area will be routed under the site through large culverts. All culvert diversions are designed to carry the runoff from a 50-year, 24-hour precipitation event in the area. The actual culvert sizes Tower Resources will use are sufficient to carry the runoff from a 100-year, 24-hour storm in Price, Utah. Culverts will be placed

817.41-.57 Hydrologic Balance (continued)

to drain on a minimum slope of 0.0556 percent (1 foot/18 feet). Each culvert will be fitted with a trash rack at the inlet to help prevent plugging and will discharge onto a protected surface (i.e., riprap, conveyor belting, flexible downspouts, etc.) to prevent scouring and erosion. The use of energy dissipators will be employed as necessary to reduce velocities and prevent erosion from culvert discharges. Culverts shall be inspected regularly and cleaned as necessary to provide for passage of designed flows. Inlets and outlets shall be maintained so as to prevent plugging or undue restriction of water flow.

Diversion ditch locations and direction of flow are shown in MRP--Plate I. A diversion ditch typical sheet is included in MRP--Appendix P. All diversion ditches are designed to carry the runoff from a 100-year, 24-hour precipitation event in the area. Diversions along the upslope side of the road will be as per specifications on the haul road design. All diversions will be maintained so as to pass the volumes of water for which they were designed. Sloughage will be cleaned out along with regular road maintenance procedures and any blockage will be removed as soon as practical after occurrence. Velocities will be controlled as needed to prevent excessive scouring.

All diversions are temporary and will be removed upon final reclamation.

Sedimentation Ponds

The proposed sedimentation ponds have been designed to fully contain the expected runoff and sediment load from a 10-year, 24-hour precipitation event in the area. In addition, each pond has an overflow capacity in excess of that required for a 25-year, 6-hour event. Each pond has been designed and will be constructed under the supervision of a qualified, registered professional engineer. All pond structures will be regularly inspected by a licensed individual as required by law. Measuring devices will be installed to determine when the ponds have filled with sediment to the clean out level. Ponds will be cleaned at a minimum when sediment load reaches 20 percent of pond volume. Sediment removed shall be disposed of at the Carbon County Sanitary landfill. Carbon County has consented in writing to this action (MRP--Appendix M). Water monitoring stations will be established at the outlet of the ponds. Sample parameters and frequencies shall be as per specifications of the NPDES permit.

Sedimentation ponds will be constructed with principal spillways three feet below and emergency spillways two feet below the top of the embankments. The top width of the embankment shall not be less than $(H + 35)/5$; H is the height of the embankment. The embankment upstream and downstream side slopes will not be steeper than 2.0 h:lv. Native material will be used for embankments where practical. Fill will be placed in lifts not to exceed 15 inches and compacted prior to placement of the next lift. Compaction of all fill material for embankment slopes shall be at least 95 percent. Riprap will consist of substantial (non-slacking) rock material of six inches or greater size. The top and external slopes of the embankment shall be planted with an approved seed mix to prevent erosion and promote stability.

817.41-.57 Hydrologic Balance (continued)

Prior to construction, the areas of pond construction shall be examined for topsoil, and if present in removable quantities, such soil shall be removed separately and stored in an approved topsoil storage location.

Stipulations

817.43(f)(1) Channel linings shall be incorporated should the flow velocity in the diversion ditch exceed five fps. Riprap used for linings (excluding sand and gravel) shall comply with the requirements of Section 817.72(b)(1)(iv).

Compliance

Applicant will comply with these sections when these stipulations are met.

817.59 Coal Recovery

Applicant's Proposal

Room and pillar design will be employed with development extraction estimated at 35 percent of the reserve. Once development is completed, pillar extraction will commence. Final pillar extraction will result in a total recovery rate of approximately 65 percent. Development work will be done by a continuous miner unit.

The longwall mining method will be looked at during initial mine development and production. Longwall mining would be installed should any seams prove adaptable to longwall mining.

There are three economic seams present on the property and mining plans are based on simultaneously operating a mine in each seam. Plates V-R, VI-R, and VII-R show the mine plans of underground workings.

Stipulations

None.

817.59 Coal Recovery (continued)

Compliance

Applicant complies with Section 817.59.

817.61-.68 Explosives

Applicant's Proposal

All blasting performed underground will conform to both State and Federal regulations governing explosives and blasting in underground coal mines.

All blasting operations will be conducted by persons who possess a valid certificate as required by Title 30 of the Code of Federal Regulations.

Surface blasting, consisting of highwall preparation for portal facilities, would be done in compliance with Chapter VIII, 817.61-.68 of Title 30 of the Code of Federal Regulations.

Explosives are stored in the area shown on the Surface Facilities Map (8-31-81). The magazine is a small concrete block structure.

Stipulation

The location of the explosive magazine shall comply with regulations regarding distances from power lines, fuel tanks, storage areas or other possible sources of fire.

Compliance

Applicant will comply with these sections when this stipulation is met.

817.71-.74 Disposal of Underground Development Waste and Excess Spoil

Applicant's Proposal

Rock waste which is developed will consist of roof rock shot down in the construction of ventilation overcasts. This rock will be sloped away from the outside of the overcast and placed in such a manner to prevent sterilization of any coal reserve. The applicant's mine has no faults nor are any anticipated. In the unlikely event that a rock problem (a fault) is encountered, the applicant will consult with USGS to determine the best underground storage for the waste. Storage of waste would most likely be in every other cross-cut to maintain access to the pillars for final extraction. (Add. C-D p.3)

Stipulation

In the event a rock waste problem is encountered, the applicant shall consult with regulatory agencies concerning disposal areas.

817.71-.74 Disposal of Underground Development Waste and Excess Spoil
(continued)

Compliance

Applicant will comply with these sections when this stipulation is met.

817.81-.83 Coal Processing Waste Banks

Applicant's Proposal

At the present time, there will be no coal processing waste. All raw coal is hauled from the area. If, in the future, it is decided that a processing facility is to be incorporated, waste or reject will be taken to an approved refuse disposal site. There will be no return of waste to underground workings (pages 30-39).

Compliance

Applicant complies with sections 817.81-.83.

817.89 Disposal of Noncoal Waste

Applicant's Proposal

All combustible material will be collected in trash containers and disposed of at the county landfill. Oil and grease generated at the minesite will be stored in barrels in an area covered by the applicant's SSCP plan and disposed of at the landfill.

Approval from Carbon County granting permission to dispose at the county landfill is included in MRP as Appendix M.

Compliance

Applicant will comply with this section.

817.95 Air Resources Protection

Applicant's Proposal

Fugitive dust control measures have been planned for access road dust and exhaust mine dust. The following control methods will be implemented at the mine: water spray systems, chemical stabilization and enclosure of coal conveyor systems.

Emission estimates are included (Exhibit III-E) in the form of an emission inventory. This inventory has been reviewed and approved by the Utah Bureau of Air Quality and the EPA.

At the present, no air quality monitoring program is proposed.

Stipulations

817.95(b) Applicant shall implement the following additional fugitive dust control measures:

- (5) Restricting vehicle speed.
- (6) Stabilization of the surface of areas adjoining roads.
- (7) Restricting the travel of unauthorized vehicles.

817.95(c) Applicant shall implement a water spray program during operations involving topsoil removal and stockpiling.

Compliance

Application will comply with this section when these stipulations are met.

817.97 Fish and Wildlife

Applicant's Proposal

The mine plan area is located in the West Tavaputs Plateau, an area which supports about 360 vertebrate species of wildlife. The main game species in the mine plan area are mule deer, mountain lion, black bear, elk and cottontail rabbits, with mule deer being the most important wildlife resource in the area. No known threatened or endangered species have been found on or near the lease area. Two golden eagle nests have been found within the lease area, but neither are in areas currently proposed for disturbance. There are no aquatic habitats in the mine plan area.

817.97 Fish and Wildlife (continued)

The entire area is high priority winter range for mule deer and elk. Tower Resources has committed to make every possible effort to minimize disturbance to wildlife habitat and to enhance habitat during reclamation. However, the applicant has not made a firm commitment to species, density and grouping of the shrubs that will be used for enhancement. Riparian habitats along the banks of ephemeral streams have been and will be disturbed by mining activity. Tower Resources has committed to restore these areas and has submitted a revegetation seed mix recommended by the BLM. The existing transmission line has been determined to be raptor-proof by the Utah Division of Wildlife Resources. Transmission lines to proposed facilities will be constructed according to the same specifications and pole design.

Stipulation

817.97(d)(9) Within 180 days of permit approval, the applicant must submit to the Division of Oil, Gas, and Mining and the Office of Surface Mining (OSM) for approval, a plan detailing species of shrub seedlings to be planted for wildlife enhancement, including density, diversity, and groupings of plantings for wildlife.

Applicant will comply with this section when this stipulation is met.

817.99 Slides

The applicant has included no information on the possibility of slide damage at the minesite.

Compliance

Applicant will comply with this section.

817.100 Contemporaneous Reclamation

All disturbed areas no longer required for the conduct of mining operations were immediately revegetated. In the future, any area no longer required for operations will also be immediately reclaimed and revegetated (Page 46, Volume I, MRP).

817.100 Contemporaneous Reclamation (continued)

Stipulations

None.

Compliance

Applicant complies with section 817.100

817.101-.106 Backfilling and Grading

Applicant's Proposal

All disturbed surface areas will be backfilled and graded in accordance with the reclamation time-table--Chapter III, Part E. All areas will be graded and restored to a contour approximate to the original contour--capable of supporting the approved postmining land-use (Section III-E, 3.4). Final reclamation contours are indicated on Plates V and II.

There will be no acid or toxic-forming materials deposited or stored in the mine area (Section III-B,10.3)

Stipulation

817.101(b)(5)(iii) Applicant shall reduce all highwalls to achieve a minimum static safety factor of 1.3 after reclamation.

Compliance

Applicant will comply with this section when this stipulation is met.

817.111-.117 Revegetation

Applicant's Proposal

Tower Resources, Inc., chose to use the range site method in collecting baseline vegetation data. This method has been tentatively approved by the Office of Surface Mining (OSM) "as an alternative standard for measuring revegetation success" pending assurance by Division of Oil, Gas and Mining that the technical guides relied upon "in measuring success and the techniques actually utilized are ones acceptable to Office of Surface Mining" (letter from Office of Surface Mining to Division of Oil, Gas and Mining, September 4, 1981).

Two range sites occur in potential disturbed areas, with areas of an additional site making up less than 1/10 of an acre in total area.

817.111 - .117 Revegetation (continued)

The mountain stony loam (oak) type occurs on alluvial fans at an elevation around 2,165 m (7,100 ft). Slopes are 15 to 25 percent and east facing. Average annual precipitation is 30 to 41 cm (12 to 16 inches). Dominant plant vegetative cover averages 58 percent, with a total annual production of 785 pounds per acre, air dry. There are 2,530 individuals of woody species per acre.

The upland stony loam (pinyon-juniper) woodland type occurs on alluvial fans and steep mountain slopes at elevations ranging from 2,160 to 2,225 m (7,100 to 7,300 ft). Slopes are 15 to 65 percent and east, south and north facing. Average annual precipitation is from 30 to 41 cm (12 to 16 inches). Total vegetative cover averages 20 percent, with 1,252 pounds per acre total annual production, air dry. Density of woody species is 716 individuals per acre.

The applicant has indicated that temporary contemporaneous reclamation and seeding will be done following completion of construction in a season that gives promise of optimum conditions for establishment of vegetation, normally late fall. Final reclamation will begin after mining activities cease and surface structures are removed. The applicant has submitted a revegetation plan, including recommendations from the Bureau of Land Management (surface owner) for a revegetation seeding mix and plans for seeding, mulching and fencing revegetated areas. (MRP pages 92-93).

Stipulation

780.81 (b)(5) Within 180 days of permit approval, the applicant must submit to the Division of Oil, Gas and Mining and the Office of Surface Mining (OSM) and BLM for approval, a specific revegetation plan, detailing species and amount (in pure live seed) to be used, seeding methods and seedbed preparation, mulching and weed control techniques, management practices and monitoring programs to be used in revegetation. This plan shall be submitted to the Regulatory Authority for approval before permanent revegetation begins and must provide for establishment of a permanent, effective and diverse cover.

Applicant will comply with these sections when this stipulation is met.

817.121 - .126 Subsidence

Applicant's Proposal

There are no structures or perennial streams on the land to be undermined.

Tower plans for 12 subsidence monitoring stations to be established, eventually, as mining progresses. Each station will be set up prior to removal of any pillars near a particular station. These stations will be set up for easy monitoring from an established survey point making it possible to detect both vertical and horizontal movement. The stations will be set up on a grid system over and outside the permit area.

817.121-.126 Subsidence (continued)

Stipulation

Surface owners should be notified six months prior to mining under their property. The notification should include:

1. Identification of specific areas in which mining will take place.
2. Dates of the underground operations that could cause subsidence.
3. Measures to be taken to prevent or control adverse surface effects, if any occur

Compliance

Applicant will comply with these sections when this stipulation is met.

817.131 Cessation of Operations: Temporary

The applicant has not addressed this section.

Stipulation

The applicant must address this section, and comply with this regulation should temporary abandonment take place.

Compliance

Applicant will comply with this section when this stipulation is met.

817.133 Postmining Land-Use

Upon completion of Tower Resources' mining operation, the land will continue to be used for grazing and hunting. The limited resources, both physical and scenic will dictate no further change in the land status. All disturbed areas shall be restored in a timely manner to conditions that are capable of supporting the uses which they were capable of supporting before any mining.

Stipulations

None.

Compliance

Applicant complies with section 817.133

817.150 - .180 Roads/Transportation Facilities

Applicant's Proposal

The access/haul road to the minesite was an existing county road and has been upgraded with new surface gravel, culverts and drainage ditches. The applicant has submitted a letter from Carbon County granting permission to use the road and acknowledgment from the county that mining activities will be taking place within 100 feet of said road (Appendix M).

The grade of this road ranges from less than one percent to approximately five percent in the canyon areas. The road never exceeds ten percent grade (see Profile of Access Road, August 26, 1981). Cut slopes are designed to be 1.5 horizontal to 1.0 vertical. A diversion ditch will be constructed running parallel to the road opposite the cut slope. The road surface is sloped three percent toward the ditch.

The road will be constantly maintained and all repairs done in a timely manner. The gravel surface is chemically treated with a magnesium chloride solution to control dust.

Upon completion of mining, the road will be graded and the terrain re-established as near as possible to the original contour.

Compliance

Applicant complies with section 817.150 - .180

817.181 Support Facilities and Utility Installations

Applicants' Proposal

Surface facilities for the Pinnacle Mine have been constructed (May 1980 - February 1981) with minor modifications presently being approved. The existing facilities are shown on Plate I and listed in MRP III-B-1. Additional support facilities to be constructed for the remaining mines are shown on Plate I. Previous construction and any future construction has been or will be located and carried out so as to prevent and control erosion, siltation, water pollution, and prevent damage to wildlife and related environmental values.

Compliance

Applicant will comply with this section.

Cultural Resources
(Pinnacle) Tower Resources, Inc.
TEA

Part A. Description of Existing Environment

Two cultural resources surveys have been conducted over portions of the (Pinnacle) Tower Resources Mine Plan area. The first survey (Walker 1976) was conducted over approximately the northern one-half of the canyon bottom of the Right Fork of Deadman Canyon. During these investigations two historic mines were apparently observed but not recorded. These mines were later recorded adequately by the Hawkins and Seward 1980 investigations which surveyed approximately the southern one-half of the canyon bottom of the Right Fork of Deadman Canyon. These two mines are the Zion Mine (42Cb178) and the Rio Grande Mine (42Cb178). The Zion Mine was a coal mine which was active from 1925 to 1948.

The Rio Grande mine was also a coal mine and was active for a short period of time from 1940 to 1956.

Neither site is considered to be eligible for listing in the National Register of Historic Places. The significance of these mines is contained in the spatial arrangement of their surface structures and in the building construction styles employed there. These aspects have been documented.

Part B. Description of Applicant's Proposal

The applicant has caused to be identified and described the cultural resources located within the canyon bottom of the Right Fork of Deadman Canyon where all surface disturbing activities have or will take place. The company has not however, considered the potential adverse effects of subsidence on any other cultural resources which may be located outside of the canyon bottom.

The applicant has not provided measures to be used to minimize or prevent impacts to the two mine sites as they are not considered to be significant/eligible.

Part C. Evaluation of Compliance

As previously described under Part A, two cultural resources surveys were conducted which located, identified and evaluated the significance of all cultural resources located. However, further research is necessary to completely document both sites. In accordance with Section 106 of the Historic Preservation Act of 1966 and the Advisory Council's "Procedures for the Protection of Historic and Cultural Properties" (36 CFR Part 800) OSM has consulted with the Utah State Historic Preservation Officer and sought a determination of "No Effect." The SHPO has not responded as yet, however, a response is forthcoming. Discussions with the SHPO staff indicate that they are in agreement with OSM opinion that the two sites are not eligible and thus a "No Effect" determination is appropriate. As soon as OSM receives this documentation OSM will be in compliance. Tower Resources will be in compliance if they adhere to the proposed stipulations (See Section F).

Part D. Revisions to Applicant's Proposal (None)

Part E. Reevaluation of Compliance (None)

Part F. Proposed Special Stipulations

1. If during the course of mining operations previously unidentified cultural resources are discovered the applicant shall ensure that the site(s) is not disturbed and shall notify the regulatory authority. The operator shall ensure that the resource(s) is properly evaluated in terms of National Register Eligibility (36 CFR 60.6). Should a resource be found eligible for listing in consultation with the regulatory authority, the land managing agency (if the site is located on Federal lands) and the SHPO, the operator shall confer with and obtain the approval of these agencies concerning the development and implementation of mitigation measures.

Justification: To ensure (pursuant to 36 CFR 800.7) that sites are not inadvertently destroyed.

2. Within 90 days of acceptance of approval, the company will submit to the regulatory authority and the Utah State Historic Preservation Officer, the completed research documentation on the Zion and Rio Grande Mines which should document the function of the structures located at these mines. This research can be submitted as a brief addendum to the existing site forms.

Justification:

To insure that the two sites have been completely and accurately recorded because of their eminent destruction.

Part G. Summary of Compliance

If the company complies with the proposed special stipulations the company will be in compliance with the regulations and OSM will be in compliance with pertinent cultural resources legislation. OSM will have fulfilled its responsibility under the Executive Order 11593, the National Historic Preservation Act of 1966 and the Advisory Council's "Procedures for the Protection of Historic and Cultural Properties" (36 CFR Part 800).

Part H. Proposed Departmental Action**Approve Plan With Proposed Stipulations**

There are no sites within the area of direct impact (canyon bottom) which are listed on eligible for listing in the National Register of Historic Places. Thus the adverse impact resulting from their destruction is not "significant" as to require mitigation.

Part I. Residual Impacts of Proposed Departmental Action

Both sites within the canyon bottom area will be completely destroyed. Although these sites do not meet the criteria for nomination to the National Register they may be valued by the local residents and it is possible that local museums or historical groups may be interested in the sites for obtaining "salvageable" items of historical interest. These sites may in the future have been deemed "significant" even though not presently considered so. Sites which are not mitigated or avoided will be permanently lost. Cultural resources are a nonrenewable resource, and once lost there is an irretrievable loss of scientific information.

Part J. Alternatives to the Proposed Action

Prohibit mining of the areas where the sites exist. However, this does not appear to be reasonable or feasible.

References Cited

Hawkins, Bruce and Gregory L. Seward

1980 An Archaeological Survey of Portions of Fiasco Canyon, Starpoint Canyon and Straight Canyon near Price, Utah. Unpublished ms., prepared for Tower Resources - Amca Coal Company. Available from the Utah Division of State History, Salt Lake City, Utah.

Walker, J. Terry

1976 Archaeological Reconnaissance in Deadman Canyon, Carbon County, Utah. Unpublished ms., prepared for Centennial Development Company. Available from the Department of Anthropology and Archaeology, Brigham Young University, Provo, Utah.