



*Comments due 10/22 to FS
in EA*

File Code: 1950

Date: September 22, 1998

*Flat Canyon
Skype*

*FEA for
EXPLORATION*

NOTICE AND REQUEST FOR COMMENTS

*ACT/003/005 #2
Copy Joe*

The Manti-La Sal National Forest and Bureau of Land Management (BLM) Price Field Office have prepared the enclosed environmental assessment (EA) for a proposal by Canyon Fuel Company to conduct exploratory drilling and seismic line investigations in the vicinity of Flat Canyon and upper Huntington Canyon for the purpose of coal exploration. The area of the proposal lies on National Forest System lands administered by the Manti-La Sal National Forest, Ferron-Price Ranger District (Sanpete and Emery Counties, Utah in Townships 13-14 South, Range 6 East, Salt Lake Meridian).

The preferred alternative for implementation is Alternative 2 (Proposed Action). Alternative 2 is detailed in the EA on pages 7 to 8. Alternative 2 would allow Canyon Fuel Company to conduct coal exploration activities by drilling 20 drill holes and conducting approximately 10 miles of surface seismic investigations within the Flat Canyon and upper Huntington Canyon areas. Access to the drill holes would be by existing Forest Roads, with some temporary road construction.

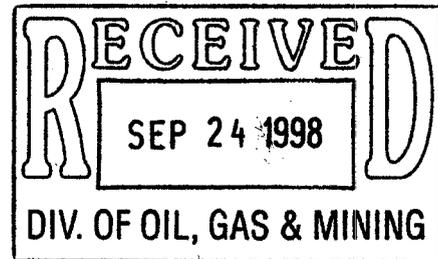
To implement Alternative 2: the Forest Service would consent to, and the BLM would approve, an 18-Hole Coal Exploration License and a 2-Hole Coal Exploration Plan; the Forest Service would approve a Geophysical Prospecting Permit for seismic lines on National Forest System lands; the BLM would approve activities on mixed estates where the mineral rights are in Federal ownership; and the Utah Division of Oil, Gas and Mining would approve activities where private or state surface and mineral estates are involved.

* (Per the requirements of 36 CFR 251, comments are invited on the preferred alternative until 4:30 p.m. on October 22, 1998. Comments¹ should be sent to the Supervisor's Office address on the letterhead. All received comments¹ will be considered in making a decision.)

Contact Jeff DeFreest or Aaron Howe at this office for additional information (435-637-2817).

Sincerely,

Janette Kaiser
JANETTE KAISER
Forest Supervisor



enclosure

¹ Comments received in response to this solicitation, including names and addresses, will be considered part of the public record and will be available for public inspection. Comments submitted anonymously will be accepted and considered; however, those who submit such comments will not have standing under 36 CFR 215. Additionally, pursuant to 7 CFR 1.27(d), any person may request that a submission be withheld from the public record by showing how the Freedom Of Information Act permits such confidentiality. Persons requesting such confidentiality should be aware that such confidentiality is granted in only very limited circumstances. The Forest will inform the requester of its decision regarding a request for confidentiality, and where the request is denied, the Forest will return the submission and notify the requester that the comments may be resubmitted with or without name and address.



Environmental Assessment
For
Canyon Fuels Company
Coal Exploration License and Plan
Flat Canyon and Upper Huntington Areas
Manti-La Sal National Forest
Ferron-Price Ranger District
Sanpete and Emery Counties, Utah

September 1998

Responsible Officials:

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CHAPTER 1 Purpose and Need

A. INTRODUCTION

This chapter presents the project proposal, the purpose and need for the proposal, the decisions to be made, public involvement efforts (scoping), and the resulting issue identification.

The Forest Service has received two proposals from Canyon Fuel Company to conduct drilling on lands where the Manti-La Sal National Forest is the surface management agency (Townships 13-14 South, Range 6 East, SLM). The first proposal is for a 2-hole coal exploration plan to be conducted on lands already under lease. The second proposal is for an 18-hole coal exploration license (CEL) and 4 seismic lines, on lands not yet under lease. The Forest Service is considering both of these proposals in this environmental assessment. The project location is shown in Appendix A.

2-Hole Coal Exploration Plan: In April 1997, Canyon Fuel Company initially submitted a coal exploration plan to the Bureau of Land Management (BLM) to drill 2 holes on their existing leasehold, in the upper Huntington drainage during the 1997 field season. The plan was forwarded to the Forest Service on April 16, 1997. The proposal was reviewed, and a decision made that an environmental assessment would be appropriate due to the scale of the project, and partially because of the complexity of road construction required for the access to the drill holes. At the request of the company, processing of the coal exploration plan was halted, pending the submission of their proposal for an 18-hole CEL for a proposed future lease so that both could be considered in a single analysis.

18-Hole Coal Exploration License: In December 1997, Canyon Fuel Company submitted an application for a CEL to the BLM consisting of 18 drill holes and 4 seismic lines for the Flat Canyon vicinity. The proposal was forwarded to the Forest Service in January 1998. The BLM has assigned the coal exploration license the number UTU-76864.

Though all of the activities proposed are within the administrative boundary of the Manti-La Sal National Forest, some of the drill holes fall on private inholdings, and some are of mixed estates (i.e. private surface with state or federal minerals ownership). Ownership within the project area is a mosaic of public and private lands. While this analysis will cover the entire project (20 drill holes and 4 seismic lines proposed), Forest Service consent/approval is limited to lands under Forest Service management.

- Seven drill holes and 2.5 miles of seismic line are planned on land with private surface and privately held coal reserves. Permitting of those holes will be the responsibility of the Utah Division of Oil, Gas and Mining (UDOGM).
- Two holes and 2 miles of seismic line are projected on private surface with Federal coal reserves, managed by the BLM.
- Eleven holes and 5.5 miles of seismic line are proposed on lands under the surface management authority of the Forest Service, where the mineral estate is managed by the BLM. On these drill holes, the Forest Service has consent authority to the BLM decision. Three of the holes on Forest Service lands are also under a Bureau of Reclamation (BOR) withdrawal for water development and therefore also require consent of the BOR to the BLM decision.

B. PROPOSED ACTION

The proposed action is for Canyon Fuel Company to drill up to 20 holes on National Forest System lands, using newly constructed temporary roads and existing roads for access, and to conduct 4 seismic lines of investigation in the vicinity of Upper Huntington Canyon and Flat Canyon for the purpose of coal exploration over the next two years. Development of the proposed action included economic considerations. A detailed description of the company's proposal is outlined in Chapter 2, under Alternative 2.

C. PURPOSE AND NEED

The general purpose and need for this project is to accomplish the following goal of the Forest Plan: "Provide appropriate opportunities for and manage activities related to locating, leasing, development, and production of mineral and energy resources." (Forest Plan, p. III-4).

The project-specific purpose and need of the proposed action is to permit exploration to evaluate the coal quality, thickness, elevation, extent, and other geologic constraints - prior to mining in the case of the 2-hole plan and for baseline data in the case of the CEL. The data collected in the CEL and seismic investigation will be used in the Lease-by-Application (LBA) process for the proposed Flat Canyon Tract.

This purpose and need allows the BLM to meet their responsibility to guarantee that all recoverable coal reserves are identified to achieve maximum economic recovery of coal. (BLM Staff Report is located in Project File)

D. DECISIONS TO BE MADE BY RESPONSIBLE OFFICIALS/AUTHORITY

The Forest Supervisor must decide whether to consent to, and the BLM State Director must decide whether or not to approve the drilling of the holes on lands involving complete Federal ownership (surface and mineral estates). Additionally, the Forest Supervisor must decide whether or not to approve the proposed seismic lines under a geophysical prospecting permit.

The BLM State Director must decide whether to approve drilling of lands with private surface and Federal mineral estate, and the UDOGM must decide whether to approve drilling of private lands with private (fee) mineral estate, and also on state owned lands if involved.

The pending decisions will conform to the overall guidance of the Manti-La Sal National Forest Plan (1986) and its Final Environmental Impact Statement (FEIS) and the FEIS for the BLM's San Rafael Proposed Resource Management Plan (1992). This environmental assessment tiers to the decisions from both EIS's which are available for review at the Ferron-Price Ranger District and the Manti-La Sal National Forest Offices and the BLM San Rafael/Price Resource Area and the Moab District Offices, respectively.

E. SCOPING

The solicitation of comments on a proposal is called scoping. The results of scoping help to identify concerns and issues about the project.

Internal scoping for this project included review by various Forest Service resource specialists (2/19/98, 2/24/98, 3/2/98, 3/12/98). External scoping consisted of notice in the Forest's *Schedule of Proposed Actions*, and by letter to a 75-person mailing list. Those individuals to whom letters were mailed included:

Federal, State, and local governmental or land management entities; environmental and interest groups or businesses; adjacent landowners; range permittees; and others known to be potentially interested or affected. Seven letters were received in response to external scoping. The entirety of these letters can be found in the Project Record.

General or supportive comments and comments outside the scope of this project are dismissed from further consideration in this document. The following two comments are outside the scope of this project:

Viability of Mining Statewide: The viability of mining Statewide is beyond the scope of this project. However, as indicated in the project's purpose and need, approval of this project would provide important information to the local mining infrastructure.

Direct Wildlife Mortality from Above Ground Powerlines: The concern about direct wildlife mortality from above ground powerlines is beyond the scope of this project. There are no above ground powerlines proposed as part of this project.

The results of scoping identified the following initial concerns.

- ***Concerns About Potential Impacts To Water Resources:***
Water quantity, quality, fisheries, wetlands/riparian habitat, and beaver habitat.
- ***Concerns About Potential Impacts To Wildlife Resources:***
Threatened and endangered species, sensitive species, elk and deer habitat effectiveness, elk and deer calving/fawning, raptor nesting, blue grouse, and migratory birds.
- ***Concerns About Potential Impacts To Recreational Opportunities And Use:***
National Forest System lands, Flat Canyon Campground, dispersed recreation at Boulger Reservoir, private lands, created access, and hunting conflicts.
- ***Concerns About Potential Impacts To Rangeland Use:***
Cattle, sheep, and rancher/herder.
- ***Concerns About the Application for Water-related Permits***
- ***Concerns About Potential Impacts To Cultural Resources***
- ***Concerns About Treatment Of Drill Cuttings***
- ***Concerns About Topsoil Treatment***
- ***Concerns About Site Reclamation/Revegetation***
- ***Concerns About Potential Impacts From Noxious Weeds***

F. ISSUES

Issues represent a synthesis of concerns expressed about the project. Issues set the scope of the project analysis. The scope of the project analysis includes the proposal, modifications to the proposal, alternatives to the proposal, and disclosure of potential effects.

The results of scoping were used to define the issues for this project. Issues were identified as either key or resolved. A key issue is one that requires an alternative to the proposal for potential resolution. It is appropriate to provide a full disclosure of anticipated effects related to a key issue. A resolved issue represents a concern resolved through minor modifications to the proposal, project design features, or management direction (i.e. laws, regulations, policies, Forest Plan Stipulations). Sometimes discussion of anticipated effects related to a resolved issue is warranted to assist the decisionmaker in making a reasoned and informed decision.

Key Issues

The following key issue was identified. It was used to develop alternative actions to the proposal. A full disclosure of anticipated related effects will be made in this document.

Water Resources: The proposal could potentially affect water resources (water quality, fisheries, wetlands/riparian habitat, and beaver habitat).

- Drill Sites 98-4-1 and 99-4-1: The original proposed access to these sites would have crossed Boulger Creek and raised water quality and fisheries concerns. The location of these two sites has since been modified to remove this concern and is now a part of Alternatives 2 and 3 (see "Alternatives Considered But Not Further Analyzed in Chapter 2).
- Drill Sites 97-22-1 and 97-27-1, Option 1: The original proposed access to these sites, Option 1, would have crossed upper Huntington Canyon Creek and raised concerns related to water quality, cutthroat trout spawning, recreation, and aesthetics. Access to these sites has since been changed to Option 2 to remove these concerns and is now a part of Alternative 2 (see "Alternative Descriptions" and "Alternatives Considered, But Not Further Analyzed in Chapter 2).
- Drill Sites 97-22-1 and 97-27-1, Option 2: Option 2 access to these two sites would include crossing a stream requiring culvert work and crossing wetland/riparian habitat associated with beaver activity. Alternative 3 was developed to respond to these concerns (see "Alternative Descriptions" and "Alternatives Considered, But Not Further Analyzed" in Chapter 2).

Potential effects to water resources will be assessed in relation to the miles of temporary roads, number of stream crossings required for access, the number of riparian/wetlands crossings required for access, and wetland/riparian acres directly and indirectly affected.

Resolved Issues

The following issues are resolved through project design features and management requirements. Further discussion of anticipated effects related to the following resolved issues is warranted to assist the decisionmaker in making a reasoned and informed decision. Referenced Stipulations are included as part of this project and can be found in Appendix B.

Wildlife Resources: The proposal could affect wildlife resources (threatened species, endangered species, sensitive species, elk and deer habitat effectiveness, raptor habitat (nesting), blue grouse habitat).

Threatened and Endangered Species - A Biological Assessment has been completed that discloses expected effects to those species suspected to occur within the project area. Additional project design and mitigation prohibit operations that may interfere with occurrences of such species or their critical habitat. Refer to Appendix C (Part 1) for disclosure of effects.

Sensitive Species - A Biological Evaluation has been completed describing those species that may be impacted by the project (see Chapters 3 and 4). Typically the area does not contain suitable habitat for most sensitive species or the overall disturbance to those species and their habitat that may occur in the area is negligible. The evaluation anticipates a "no impact" to

the viability of most sensitive plant and vertebrate species. A "may impact" was determined regarding the Northern Goshawk due to the possible disturbance of habitat. See Appendix C (Part 2) for the Summary of Conclusion of Effects regarding those species.

Elk and Deer Habitat Effectiveness - This issue is partially resolved through incorporation of Stipulations #12, 18, 29, 35, 42 and 44. Additionally, project design features prohibit public use of the temporary project roads. Further discussion of this issue will address current elk and deer use of the area, the extent and duration of activities, and potential changes in use during and after project implementation.

Blue Grouse Habitat - Blue grouse is a Forest Management Indicator Species. Overall there would be very limited impact to Blue Grouse. Aspen is the primary habitat that supports Blue Grouse in the area. The amount of Aspen disturbance is very low in comparison to the amount of available habitat surrounding the project area. Reclamation efforts would occur immediately after project completion. Any disturbed sites should become available to Blue Grouse the following spring.

Recreational Opportunities and Use: The proposal could affect recreational opportunities and use of National Forest System lands, Flat Canyon Campground, dispersed recreation at Boulger Reservoir, and private lands. This issue is resolved by the limited scope of potential impacts - both in size and duration. Further discussion of this issue will address current recreational use of the area, the extent and duration of activities, potential changes in recreational use during and after project implementation. The association to management emphasis, recreation visitor days, recreation opportunity spectrum, and visual quality objectives will also be addressed. Potential conflicts related to hunting use of the area will also be addressed in relation to this issue.

Rangeland Use: The proposal could disturb cattle and sheep and disrupt permitted grazing operations. This issue is resolved through incorporation of Stipulations #15, 16, 17, 18 and 42. Further discussion of this issue will include identification and extent of operations potentially affected, and potential impacts to cattle and sheep.

The following resolved issues are resolved through project design features and management requirements and do not warrant further discussion in this document. Referenced Stipulations are included as part of this project and can be found in Appendix B.

Application for Permits: The application and attainment of necessary permits would occur as required by law. This is incorporated through Stipulations #1, 2, 3, 11 and 45.

Cultural Resources: Field surveys support that there are no cultural resources present that would be potentially affected (Project File). Further concern about impacting cultural resources is resolved through incorporation of Stipulation #14.

Treatment of Drill Cuttings: Concerns about the treatment of drill cuttings is resolved through incorporation of the Stipulations #20 and 21.

Treatment of Topsoil: Concerns about the handling of topsoil is resolved through incorporation of Stipulations #19, 30 and 32.

Site Reclamation/Revegetation: Concerns about site reclamation is resolved through incorporation of Stipulation #3, 19, 26, 28, 30-37.

Noxious Weeds: Concern about an increase of noxious weeds is resolved through incorporation of Stipulations #27, 33, 36, 37 and 38.

Wildlife:

Elk and Deer Habitat (calving/fawning) - This issue is resolved through incorporation of Stipulations #12, 15, 18, 29 and 42. Additionally, project design features prohibit public use of the temporary project roads and prohibit work and construction from May 15th to July 15th (corresponding to the period of calving and fawning).

Increased Roadway Mortality - There are no recorded roadway mortality problems to wildlife as the result of this type of a project. Roadway mortality of wildlife as a result of this project is further not a concern because the volume of associated project traffic would be minimal and driving speeds on the project roads would be low due to the characteristics of a native surface travelway. This issue is further resolved through incorporation of Stipulations #15, 18, 35 and 48. The potential for roadway mortality to wildlife from non-project workers is removed through incorporation of Stipulations #15 and 35, and project design features prohibit public use of the temporary project roads.

Raptor Habitat (nesting) - This issue is resolved through incorporation of Stipulations #41 and 43. Additionally, surface occupancy must be pre-approved through incorporation of Stipulation #5 and project design features requiring nest surveys for requested use prior July 15th and prohibiting surface occupancy and operation within 1 mile of a threatened or endangered raptor nest and within 1/2 mile of other raptor nests during the nesting season (prior to July 15th).

Migratory Birds - Overall there would be very limited impact to Neotropical migratory birds. Forest fragmentation and forest edge decline is the primary habitat disturbance attributed to population declines. The amount of disturbance is very low to none within the habitats that support Neotropical birds. The alternatives that develop roads and drill pads would not increase fragmentation or reduce interior forest habitat because developments occur mostly within open travel corridors and open forested areas (approximately 20-50 individual trees may be removed from different sites throughout the project area).

Water Quantity: Concern about a reduction in water quantity is resolved through incorporation of Stipulations #23, 24 and 25.

CHAPTER 2 Description of Alternatives

A. INTRODUCTION

This chapter presents the alternatives considered for implementation, features common to action alternatives, alternatives considered but not further analyzed, and a comparative summary table of the alternatives considered for implementation responding to the identified issues.

A no action alternative and two action alternatives are considered in detail.

B. ALTERNATIVE DESCRIPTIONS

Alternative 1 - No Action

The Forest Service does not consent to the approval of the Coal Exploration License, 2-Hole Coal Exploration Plan, nor does the Forest Service approve the Geophysical Prospecting Permit (4 seismic lines). The BLM and UDOGM do not issue permits for the activities where the Forest Service is the surface management agency. The UDOGM could approve activities where private or state surface and mineral estates are involved.

Alternative 2 - Consent/Approval of Projects as Proposed

This alternative wholly responds to the purpose and need and addresses the Water Resource Issue.

Canyon Fuel Company proposes to conduct coal exploration activities by drilling 20 drill holes and approximately 10 miles of surface seismic investigations within the Flat Canyon and Upper Huntington Canyon areas. The project area map and drilling locations are contained in Appendix A. The access to drill holes would be by existing Forest Roads, with some new construction of temporary road.

The special access needs for drilling would require temporary road construction totaling 4.1 miles on forest, and pad sites would require between 1/4 to 1/2 acre each of disturbance.

The drilling would be accomplished with rotary and core drilling methods. Core drilling would be done only on that part of the hole near the projected minable coal horizons. Hole diameters would range from 3-1/4" to 9-5/8" in diameter. Drilling muds would be used in the process that may contain: water, soap, foam, bentonite, and other drilling polymers. Drilling fluids and cuttings would be contained on site in lined mud pits or portable containers. The pit would be fenced as appropriate to prevent wildlife and livestock from entering it. The pit would not be used for trash or other waste disposal.

The exploration and support equipment used in the drilling operation would include truck-mounted rotary and diamond core drilling machines, and support equipment such as a water truck for each drill rig, a pipe truck, D-8 size dozer, track-mounted backhoe, road grader, fuel truck, air compressor(s), electric generators, personnel trailer, electric and mechanical geophysical logging equipment, and four wheel drive pickup trucks for access by personnel.

Drill hole numbers 98-28-1, 98-33-2, 98-4-1, and 98-2-1 may be finished and utilized as water monitoring wells. If these holes prove out, as monitoring wells, they would be plugged and fully reclaimed after monitoring is discontinued. For these wells to remain after completion of the CEL, a special use permit issued by the Forest Service would be needed until they are either incorporated into a mine plan or properly plugged and abandoned. Monitoring well access would be by foot.

The majority of the seismic lines would be done on existing roads using truck mounted ("Thumper-Truck") seismic equipment for an energy source. Portable seismic equipment would be used on those portions of the line not accessible by road. Equipment would be hand carried or packed in on horses for the off-road work.

Seismic lines S-99-1, S-99-2, and half of S-98-1 would be along existing roads; the other half of S-98-1 and all of S-99-3 would utilize conventional shotholes for an energy source. Shotholes would be hand augered on 100 foot centers to a depth of 5-10 feet. One half pound of explosive would be used in each hole.

The Forest Service would consent to, and the BLM would approve the 18-Hole Coal Exploration License, as proposed with about 2.3 miles of temporary road access on Forest lands; the 2-Hole Coal Exploration Plan, as proposed with access via Trough Springs Ridge including 1.8 miles of temporary road access on Forest (total of 4.1 miles temporary road access). The Forest Service would approve the Geophysical Prospecting Permit for 4 seismic lines on Forest lands. The BLM would approve activities on mixed estates where the mineral rights are in Federal ownership, and the UDOGM would approve activities where private or state surface and mineral estates are involved. Forest Service stipulations would be applied from the Forest Plan, project design features, and monitoring would be applied as necessary to address issues and anticipated environmental effects.

Alternative 3 - Helicopter Access Requirement for 4 of the 20 Holes Proposed

This alternative wholly responds to the purpose and need and addresses the Water Resource Issue.

The Forest Service, as the surface management agency, would not allow road access for two of the holes proposed for the CEL (98-33-1, 98-33-2) and the two holes included in the Coal Exploration Plan (97-22-1, 97-27-1). Precluding temporary road construction to access holes 98-33-1 and 98-33-2 would avoid steep slopes where roading could have visual impacts, and would avoid the potential for indirect affects to Boulder Creek. Precluding temporary road construction to access holes 97-22-1 and 97-27-1 would avoid crossing a stream requiring culvert work prior to use and crossing a wetland/riparian, and would avoid the potential for indirect affects to Huntington Creek. The use of a helicopter transportable drill and associated equipment would be required to drill these holes.

This alternative would reduce the total temporary new road disturbance on the Forest from approximately 4.1 miles to 1.3 miles.

The consent and approval authorities, as well as the remainder of the proposed drill holes and seismic lines, would otherwise be the same as in Alternative 2.

C. FEATURES COMMON TO ACTION ALTERNATIVES 2 AND 3

The stipulations in Appendix B are an integral part of the action alternatives. These have been derived from the Forest Plan.

The following project design features are an integral part of the action alternatives.

- Prohibit public use of the temporary roads.
- Prohibit work and construction from May 15th to July 15th, for elk and deer calving and fawning.
- Require raptor nest surveys for requested use prior to July 15th.
- Prohibit surface occupancy and operation within 1 mile of a threatened or endangered raptor nest and within 1/2 mile of other raptor nests during the nesting season (prior to July 15th).
- Minimize the footprint of any stream crossing structures.
- Conduct an interdisciplinary Forest Service review of proposed stream crossing on the actual year of construction to assess exact location needs.
- Locate 98-28-1, 98-4-1 and 99-4-1 in such a way that the small channels are avoided and protected and place vehicles and equipment above the road to protect the riparian filter between the pad and the stream.
- Locate 98-28-1 in such a way that the spring on the northwest side is protected from disturbance.
- Identify in the field sections of road where the operator would simply drive across the land (i.e. dry sage flats) rather than construct road, in order to minimize reclamation needs and keep more land in forage production.
- Prohibit helicopter activity during the bald eagle fall/winter migration period, which begins November 1 of each year.

The following project specific monitoring is an integral part of the action alternatives

- Forest Service administration of the permit includes field visits (monitoring) to ensure terms and conditions are being met.
- Road reclamation required under Stipulation #35 would be monitored by the mine to ensure effective road closure (reclamation) to unauthorized uses.
- Reclamation standards described in Stipulation #36 would be monitored and addressed by the mine until achieved.

D. ALTERNATIVES CONSIDERED BUT NOT FURTHER ANALYZED

To resolve potential fishery concerns, the original proposal was modified by the mine. The original proposed access to sites 98-4-1 and 99-4-1, including stream crossings of Boulger Creek, was relocated to avoid crossing the stream. Additionally, the location of 98-28-1 was moved to the north side of Forest Development Road 228, to increase its distance from Swen's Creek. These modifications are reflected in Alternatives 2 and 3.

To resolve potential visual quality and fishery concerns, the original proposal was clarified by the mine. The clarification addressed their two options to access holes 97-22-1 and 97-27-1: Option 1 - Access from Huntington Canyon; Option 2 - Access from Trough Springs Ridge. Their Option 1, including crossing the Upper Huntington Drainage at the Kitchen, was dropped from further evaluation due to visual quality concerns as seen from the Eccles Canyon Scenic Byway and potential fishery concerns and associated recreational use.

E. COMPARISON SUMMARY OF ALTERNATIVES

Components of the Alternatives	Alternative 1	Alternative 2	Alternative 3
Number of Drill Pads on Forest Accessed by Road	0	11	7
Number of Drill Pads on Forest Accessed by Helicopter	0	0	4
Size of Individual Pads	0	1/4-1/2 acre	1/4-1/2 acre
Total Acreage of Pads	0	5.5	5.5
Miles of Temporary Roads	0	4.1	1.3
Total Disturbance of Temporary Roads	0	12 acres	4 acres
Miles of Seismic Line	0	5.5	5.5

Responsiveness to Purpose and Need	Alternative 1	Alternative 2	Alternative 3
Evaluation of Coal Reserve Characteristics Necessary for Lease Tract Delineation and Mine Planning	No	Yes	Yes

Key Issue: Water Resources	Alternative 1	Alternative 2	Alternative 3
Miles of Temporary Road	0	4.1	1.3
Stream Crossings	0	1	0
Riparian/Wetlands Crossing	0	1	0
Wetland/riparian acres directly affected	0	<1	0
Wetland/riparian acres indirectly affected	0	3	0

Resolved Issues	Alternative 1	Alternative 2	Alternative 3
Wildlife Resources			
T&E Species (Effect Determination)	No Effect	No Effect	No Effect
Sensitive Species (Impact Determination)			
Goshawk	No Impact	May Impact	May Impact
Other	No Impact	No Impact	No Impact
Deer/Elk Habitat Effectiveness			
Project Ineffective Acres	4,480	5,472	4,568
Percent of Project Area Ineffective	35	45	36
Duration of Operations	0	3 mos./yr.	3 mos./yr.
Blue Grouse (Effect Determination)	No Effect	No Effect	No Effect
Recreational Opportunities and Use			
Miles of Temporary Road	0	4.1	1.3
Duration of Operations	0	3 mos./yr.	3 mos./yr.
ROS (Change in Character)			
Rural	No Change	No Change	No Change
Roaded Natural	No Change	No Change	No Change
Semi-Primitive Motorized	No Change	May Change	May Change
Meet VQO - Retention	Yes	Yes	Yes
Meet VQO - Partial Retention	Yes	Yes	Yes
Sites with Potential Hunter-Access Conflicts	0	20	16
Rangeland Use			
Number of Permittees Affected	0	6	6
Number of Sheep-Months Reduced	0	15	9

Other Considerations	Alternative 1	Alternative 2	Alternative 3
Temporary Road Construction/Reclamation Costs	0	\$91,000	\$29,000
Helicopter Access Costs (four holes only)	0	0	\$748,020

CHAPTER 3

Description of Affected Environment

A. INTRODUCTION

This chapter summarizes the resources of the affected area, with emphasis on the issue topics.

This analysis tiers to the Manti-La Sal National Forest Land and Resource Management Plan (Forest Plan) and incorporates by reference the analysis disclosed in its Final Environmental Impact Statement and Record of Decision, 1986, as amended. Relevant Forest-wide and management area goals, direction, and standards from the Forest Plan are incorporated in this analysis and are further discussed in this chapter.

B. GEOGRAPHIC AREA

The project area is within three drainages of the Huntington watershed: Boulger Canyon, Swen's Canyon, and a small unnamed tributary north of Burnout Creek.

State Highway 264, a Scenic Byway between Highway 96 near Scofield Reservoir and Highway 31 near Fairview, passes through the project area. All or portions of the access routes to the drill holes and seismic line locations would take place on National Forest System roads. Those roads which provide access to private land are under Forest Service Road Use Permits or Special Use Permits. Fees are paid by the private landowners for use of these roads. Commercial or industrial users are required to obtain use permits, pay required fees, and or provide maintenance for road use as part of their operations. Performance bonds and/or upgrading of the roads may be required to maintain or repair the roads. The Forest Development Roads which could be affected are listed below.

Road Number	Road use and location
State Route # 264	State Highway between Highway 96 near Scofield Reservoir and Highway 31 near Fairview - oil highway.
Forest Dev. Road # 50018	Forest access road - Trough Springs Ridge Road - native surface.
Forest Dev. Road # 50056	Forest access road - Boulger Canyon - gravel to reservoir - remainder native surface.
Forest Dev. Road # 50225	Special Use Permit - Access to private land - Carol Dixon property and Gooseberry Estates - Gooseberry Creek and Upper Huntington Creek. Native surface.
Forest Dev. Road # 50228	Special Use Permit - Access to private land - Carol Dixon - Swen's Canyon. Native surface.
Forest Dev. Road # 50230	Special Use Permit - Private access to church camp - gravel surface. Little Swen's Canyon.

C. GEOLOGY/MINERALS

Upper Huntington Canyon is located in the Wasatch Plateau physiographic area. Elevations range from 9,680 feet along the ridge top to 8,575 feet along the Upper Huntington Canyon. The exploration area is underlain by sedimentary rocks of Cretaceous Age. Two major formations in the area are the Price River formation, which is underlain by the coal bearing Blackhawk formation. Strata in the area dip 2 to 10 degrees to the west-northwest. Several faults and igneous dikes also cut across the project area.

D. WATER RESOURCES (AND FISHERY)

The project area is within three drainages of the Huntington watershed: Boulger Canyon, Swen's Canyon, and a small unnamed tributary north of Burnout Creek. Boulger and Swen's Creeks currently support well-known populations of Yellowstone cutthroat and provide spawning habitats for fish from Electric Lake as well as providing easily accessible recreational stream fishing opportunities. A fish ladder was recently completed on Boulger Reservoir which facilitates fish access into headwater spawning areas. Drill holes 97-22-1 and 97-27-1 would be located upstream from this fish ladder on the bench above the floodplain.

Road 50228 is within the floodplain of Swen's Creek and Road 50056 is within the floodplain of Boulger Creek. The close alignment of these roads to the streams and poor drainage structures result in some sediment loading to both watercourses. Both watercourses also experience heavy dispersed recreation use, especially during hunting seasons. This dispersed recreation can impact the water resource. The Forest is pursuing reducing road, access, and dispersed recreation effects independently of this project.

The small unnamed tributary in upper Huntington is impounded by two notable beaver dams. The uppermost pond lies in close proximity (less than 50 meters) to drill hole 97-22-1. It is unlikely that this small drainage supports fish, since there is a steep reach at the confluence with Huntington Creek that is likely to be a barrier to fish passage.

Streams and wetlands throughout the project area support cold water aquatic communities typical of the post-settlement Intermountain West; including Yellowstone cutthroat trout, cutthroat trout hybrids (possibly including Colorado River cutthroat genes), and sculpins. All of these streams are tributary to Electric Lake, a reservoir which supports the only certified disease-free population of Yellowstone cutthroat trout in the State. Eggs from this population are reared in hatcheries and used for stocking programs throughout Utah. Protection of habitat quality in the reservoir and its tributaries is a high priority for the Forest and the State Division of Wildlife Resources.

E. WILDLIFE RESOURCES

Elk and Deer

The elk herd (about 700+ found within the project area are part of a larger Manti elk herd having population estimates of about 11,000). The 700+ herd (we will refer to as the Trough Springs Ridge herd) generally utilize summer/spring habitat from upper Fish Creek (north) to Nuckwoodward Canyon (south) to upper Huntington Canyon/Flat Canyon area (west) to Castle Valley Ridge (east). The deer found in the project area are also part of a greater Manti herd. Deer found here are not as prevalent as the elk. Deer and elk inhabiting the project area are very important ecologically and economically. The Manti-La Sal National Forest designates deer and elk as Management Indicator Species (MIS). MIS is defined as a select group of species which can indicate change in habitat resulting from activities on the Forest (Forest Plan, p. II-31).

The project area is a very popular hunting site. Economically, deer and elk within the project area provide great hunting and viewing opportunities for many recreationists throughout the State of Utah.

Within the project area, deer and elk habitat is probably most influenced by the existence of roads which results in high human use and disturbance. Where not associated with roads, the project area contains the basic habitat elements needed by deer and elk for survival. Within the mid-elevation steep slopes and gentle benches (canyon areas), aspen patches with water (springs, seeps, beaver ponds, mountain streams), aspen with mixed-conifer, pure conifer, and open meadows can be found intermixed throughout the project area. Deer and elk use these vegetation types in late spring, summer, and fall. Recent surveys (spring/summer 1998) have resulted in findings of deer and elk occupying these habitats. Survey observations have found

that slash, downed logs and other woody material (at forest edges) are important to adult deer and elk as well as their young for cover and hiding security sites. Here the young spend time during the first few weeks of life in the seclusion and safety of these forested patches. This normally lasts from 10 days to 3 weeks for elk (Thomas and Toweill, 1982). As the summer/fall progresses elk and deer continue to inhabit the area feeding and nurturing until hunting season and winter snow begins to disturb their daily routine. The Forest Plan describes the optimum security habitat needed for the normal daily range as 25 percent of all ranges used by elk throughout a typical year. Based on aerial photo analysis and Forest Service habitat type maps, the described seasonal range area provides more than the desired 25 percent security habitat.

The project area is surrounded by many Forest Development Roads (FDR's) and adjacent private land roads, including Special Use Permit roads (i.e. Cunningham Road for private land timber harvesting). Some of the currently heavily used roads include: Trough Springs Ridge Road (FDR 50018), Utah State Highway 264, Little Swen's Road (FDR 50230), Swen's Canyon (FDR 50228), Boulder Canyon Road (FDR 50056), Electric Lake Boat Ramp Road (FDR 50222), and the Kitchen (FDR 50225). Summer home construction and logging of private lands are also occurring in the vicinity.

Elk tend to avoid areas adjacent to roads having vehicle traffic, and spend more time in areas of dense cover. Studies indicate big-game avoidance of used roads has been from one-fourth mile to one-half mile from open roads (Lyon, 1979). Because of the potential disturbance to deer and elk, the open roadway and adjacent area up to one-fourth mile away is considered ineffective habitat for analysis purposes.

Past actions and roads on private and public lands have reduced the effectiveness of security habitat. Deer and elk avoid Trough Springs Ridge Road when the gate is opened, typically about July through October. Enough traffic currently travels this road to reduce the effectiveness of the adjacent habitat the entire period (the same can be assumed with the other developed roads within the project area).

Approximately 4,480 acres of potential security habitat within the project area is ineffective - 9,600 acres of the 12,800 acre project area remains effective. Generally, it is during the recreational holiday weekends and the hunting season when road utilization and general disturbance of the wildlife is increased.

Blue Grouse

Blue grouse is another Forest Management Indicator Species found within the project area. The area provides many acres of habitat needed to support blue grouse year-round. The most important habitat component is Aspen. Aspen provides winter food, summer food and brooding areas. Dominant understory vegetation within the aspen habitat type that supports blue grouse include snowberry, brome grass, and a variety of forbs. During the breeding season, dense understory within aspen is essential. Insects are abundant and cover and security is available for nesting (UDWR, 1978). Forage and breeding habitat is a concern within the project area. Roads are highly concentrated within the project area (Forest Service managed roads and privately managed roads). Private land development (cabins, timber harvesting, road building, etc.) continues to increase within the aspen vegetation habitats. Noxious weeds are spreading and conifer stands are invading aspen stands.

Forest Service Sensitive Species

Regulatory Framework

Although not required under the Endangered Species Act, it is Forest Service policy to analyze potential impacts to Proposed and Sensitive Species (Forest Service Manual (FSM) 2670.31-32). Proposed species are those that are proposed by the U.S. Fish and Wildlife Service to be listed as Threatened or Endangered.

Sensitive Species are those identified by the Forest Service Regional Forester as, "those species for which population viability is a concern, as evidenced by significant current or predicted downward trends in population numbers or density" or "significant current or predicted downward trends in habitat capability that would reduce a species' existing distribution" (FSM 2670.5).

Plant Species

There are seven sensitive plant species known or suspected to occur on the Manti Division. Those species include: Creutzfeldt-flower (Cryptantha creutzfeldii), Carrington Daisy (Erigeron carringtoniae), Canyon sweetvetch (Hedysarum occidentale var. canone), Link Trail Columbine (Aquilegia flavescens var. rubicunda), Musineal Groundsel (Senecio musinensis), Maguire Campion (Silene petersonii), and Arizona Willow (Salix arizonica). Details concerning these species, their habitat preferences, and occurrences are described below.

**Locations and General Habitat for the
Sensitive Plant Species Occurring in the Ferron/Price Ranger District**

District	Listed Species	Location and Habitat
Ferron/Price	<u>Cryptantha creutzfeldii</u>	Open Mancos Shale hillside and lower slopes in dry wash and Lower Muddy Creek drainages. Elevation 5500 to 6000 ft. Pinyon, Juniper mixed Mtn. brush veg. type. Some habitat occurs in the Upper Miller Creek drainage.
Ferron/Price	<u>Erigeron carringtonae</u>	Small isolated populations have been found mostly on Flagstaff limestone outcrops, at the head of Cove Creek top of East Mtn., south Rim of Heliotrope Mtn., and top of Ferron Mtn. Wind blown ridge top and snow drift sites. Elevation 9,000 to 11,000 ft. Low forb vegetation type.
Ferron/Price	<u>Hedysarum occidentale</u> var. <u>canone</u>	Scattered populations occur in lower Huntington Canyon, Straight Canyon, and near Joe's Valley. Plants are usually found on sites with a high water table, near springs or along stream beds. Riparian site in Pinyon/Juniper type. River Birch and Squaw bush are plants most commonly associated with this species. Elevation 5500 to 7000 ft.
Ferron/Price	<u>Aquilegia flavescens</u> var. <u>rubicunda</u>	"Link Canyon Columbine". This plant occurs in seeps and wet sites. Populations found in Link Canyon, Box Canyon, Muddy Creek drainage, Straight Canyon, and Joes Valley.
Ferron/Price & Sanpete	<u>Senecio musinensis</u>	The Musinea Groundsel preferred habitat is rock talus and slide rock sites near snow drifts in Flagstaff Limestone formation. Population sites located on White Mountain, Heliotrope Mtn., High Top and Camel Rock, head of 12-Mile Canyon.
Ferron/Price & Sanpete	<u>Silene petersonii</u>	Scattered populations found mostly on Flagstaff limestone formation outcrops on high elevation ridges and snowdrift sites. From Wagon Road Ridge south to the top of White Mtn., Wasatch Plateau, Manti-La Sal National Forest. There is also a small population on Mt. Baldy and Black Mtn. Plant is part of the sub-alpine low forb plant community.
Ferron/Price	<u>Salix arizonica</u>	Arizona Willow requires a specific habitat that occurs as narrow strips along perennials streams around meadows and is dominated by mesic graminoids and mesic forbs. Elevation 8,990 to 10,500 ft. One population has been found on the Manti-La Sal N.F., Upper Beaver Creek, Muddy Creek drainage.

There are no known Forest Service Sensitive plant species within the project area. Habitat is not existent in this area for all species listed above.

Vertebrate Species

There are five vertebrate sensitive species known or suspected to occur on the Manti Division: Spotted bat (Euderma maculatum), Townsend's Big-eared Bat (Corynorphilus townsendii), Flammulated Owl (Otus

flammeolus), Northern goshawk (Accipiter gentilis), and Northern Three-toed Woodpecker (Picoides tridactylus).

Spotted Bat Habitat - Spotted bats occur in scattered areas throughout Utah. They have been found in a variety of habitat types including open ponderosa pine, desert scrub, pinyon-juniper, and open pasture and hay fields. They roost alone in rock crevices high up on steep cliff faces. Cracks and crevices ranging in width from 0.8-2.2 inches in limestone or sandstone cliffs are critical roosting sites. There is some evidence that individuals show fidelity to roost sites. They are territorial and avoid each other while foraging. They are thought to migrate south for winter hibernation. Spotted bats are rare and may be limited by suitable roosting sites. They are found in relatively remote, undisturbed areas, suggesting that they may be sensitive to human disturbance. Little is known of the spotted bats food habits. They are thought to feed mainly on moths. Their echolocation call is very effective for fast flight feeding on moths. They forage alone, after dark, and avoid each other by listening to the echolocation calls of others. (Leonard and Fenton, 1983; Woodsworth et. al., 1981; Watkins, 1977)

In the summer of 1997, surveys conducted by Genwal Resources Incorporated detected spotted bats using habitats within Mill Fork Canyon, Crandall Canyon, Biddlecome Hollow, Tie Fork, Huntington Canyon, and Bear Creek Canyon. Foraging areas were located at relatively low elevation sites associated with riparian vegetation with Huntington Canyon. Specific individual roost sites were not located, general roosting areas were identified on the cliff faces/rock outcrops in Crandall and Mill Fork Canyons. Additional roosting areas were identified throughout the Huntington Canyon drainage among sizeable cliff faces. (Johanson, Rogers and Sherwin, 1997)

Spotted bat foraging and roosting habitat can be found throughout the Wasatch Plateau, mainly associated with steep rock/cliff outcrops and riparian areas. No roosting habitat associated with this project will be impacted. The spotted bat would primarily use the project area for foraging purposes.

Other known observations of spotted bats on the Wasatch Plateau have been at Joes Valley Reservoir and at Emerald Lake.

Townsend's Big-Eared Bat (Western Big-Eared Bat) Habitat - Townsend's or Western Big-eared bat use a variety of scrub and forested habitats, throughout western North America. These bats use juniper/pine forest, shrub/steppe grasslands, deciduous forests and mixed coniferous forests from sea level to 10,000 foot elevation. They utilize colonial nurseries. Cool places such as caves, rock fissures, mines, and buildings are used for roosting and hibernation. Foraging on primarily moths is often done in open woodlands, along forest edges, and over water.

The Townsend's Big-eared bat occurs throughout western North America including Utah. During the winter they roost singly or in small clusters. They remain at these sites from October to February. Migration for these bats usually means a change in location in the same cave or to another nearby cave. The Townsend's Big-eared bat is very sensitive to human disturbance. It will readily abandon roosts when disturbed. Activities that will or may disturb caves or mines should be evaluated to determine potential impacts to this species. (Kunz and Martin, 1982; Utah Division of Wildlife Resources, 1980)

In the summer of 1997, bat surveys were conducted by Genwal Resources Incorporated in areas within Huntington Canyon (Crandall Canyon, Biddlecome Hollow, Tie Fork, Huntington Canyon, Mill Fork, and Bear Creek Canyon). No Townsend's Big-eared bats were located in those areas.

In 1992, Townsend's Big-eared bats were found using inactive coal mines as hibernacula on the Ferron/Price Ranger District. They have also been found roosting in buildings of the Ferron/Price Ranger District in the town of Ferron during late summer of 1992.

It is likely the Townsend's Big-eared bat utilizes other areas on the Wasatch Plateau for roosting and foraging. The Townsend's Big-eared bat would primarily use the project area for foraging purposes.

Flammulated Owl Habitat - Flammulated owls are found throughout the western United States including Utah. They can be found in the mixed pine forests, from pine mixed with oak and pinyon at lower elevations to pined mixed spruce and fir and higher elevations. They have also been found in aspen and second growth ponderosa pine. However, they prefer mature Ponderosa Pine-Douglas fir forests with open canopies. Large diameter dead trees with cavities are important nest site characteristics. They avoid foraging in young dense stands where hunting is difficult. Flammulated owls are dependant upon mature conifer stands for nesting. They are also known to avoid cut-over areas. Flammulated owls are almost exclusively insectivorous, preying on small to medium sized moths, beetles, caterpillars, and crickets. (Reynolds and Linkhart, 1987; Johnsgard, 1988; Bull et. al., 1990)

Flammulated owls have been found in the Quitchupah drainage and the head of the Muddy on the Ferron/Price Ranger District. All but one of these locations have been associated with ponderosa pine.

Northern Goshawk Habitat - In nesting or foraging, the goshawk is a raptor of the dense forest. Goshawks have been found in a variety of forest ecosystems including lodgepole pine, ponderosa pine, Douglas-fir, mixed forest throughout much of the Northern hemisphere. They prey upon small mammals and birds (rabbits, squirrels, chipmunks, grouse, woodpeckers, jays, robins, grousebeaks, etc.). Goshawk nest sites are usually located in mature forests near water, and on benches of relatively little slope. Nests are often used year after year. Goshawks are very protective of their young in the nest and loudly defend them to intruders. They are very sensitive to human disturbance and have abandoned nests and young due to human activities that take place too close to their nest. (Kennedy and Stahlecker, 1989; Hennessey, 1978)

The goshawk is a summer resident of the Wasatch Plateau and the number of nesting birds vary year to year. Nest sites are associated with aspen/mixed conifer, mixed conifer forest types. Recent goshawk surveys (June/July 1998) have resulted in northern goshawk findings within the project area. Breeding habitat for the goshawk is ideal within the vicinity of drill holes 97-22-1, 97-27-1, 98-21-2, 98-33-2, and 99-4-2. One adult bird was located in the vicinity of drill holes 97-22-1 and 97-27-1. Two nests were also located but were inactive. It is likely that the nests were utilized in the past by accipiters.

Three-Toed Woodpecker Habitat - Three-toed woodpeckers range across North America. They are found in northern coniferous and mixed forest types up to 9000 feet elevation. Forests containing spruce, grand fir, ponderosa pine, tamarack, and lodgepole pine are used. Nests may be found in spruce, tamarack, pine cedar, and aspen trees. Three-toed woodpeckers forage mainly in dead trees, although they will feed in live trees. About 75% of their diet is wood-boring insect larvae, mostly beetles but they also eat moth larvae. They are major predators of the spruce bark beetle, especially during epidemics. They forage on a wide variety of tree species depending on the location. In Colorado, they prefer to forage on old-growth and mature trees. Fire or insect killed trees are major food sources. Forest fires and areas of insect outbreaks may lead to local increases in woodpecker numbers after 3-5 years. (Bull et. al., 1986; Scott et. al., 1980)

Surveys for three-toed woodpeckers took place in suitable habitat on the Wasatch Plateau in June and July of 1992. Further surveys during the 1993, 1994, 1995, and 1996 field seasons on the Plateau

resulted in additional three-toed woodpecker findings. This species was found on all Ranger Districts surveyed. Three-toed woodpeckers can be expected in the general vicinity of the project area.

Federally Listed Proposed Species

There are no known U.S. Fish and Wildlife Service Proposed plant or vertebrate species within the project area (US Fish and Wildlife Service list January 7, 1998).

Federally Listed Threatened And Endangered Species

Federal agencies are mandated to analyze effects of proposed projects on Threatened and Endangered species according to the Endangered Species Acts. On January 7, 1998, the Ferron/Price Ranger District received from the U.S. Fish and Wildlife Service a Threatened and Endangered, and Proposed list, listing those species which may occur within the analysis area. Using this information, a species specific list was generated for use during the analysis. A Biological Assessment for Threatened and Endangered species is located in Appendix C of this document.

F. RECREATIONAL OPPORTUNITIES AND USE

Current Opportunities and Use

The project area has an established system of roads and trails providing access and recreation opportunities for a variety of interests and experience levels. The most widely used roads in the project area are Eccles Canyon State Route 264 and Monument Peak Forest Development Road 55019.

The area is predominantly used for nonconsumptive year-long weekend recreation (driving - passenger and off-highway vehicles, snowmobiling, biking - motor and mountain, trail hiking, picnicking, and boating). Recreation is both dispersed along the roads and trails, and concentrated at developed facilities like Flat Canyon Campground at Boulger Reservoir. The amount of Recreation Visitor Days at Flat Canyon Campground is 4,000.

Seasonal consumptive recreation use consists primarily of hunting and fishing. This level of use can be very high at times, i.e. the beginning of the general hunting season.

Recreational Opportunity Spectrum

The Forest Plan uses the Recreation Opportunity Spectrum (ROS) classification as an inventory system that quantifies the quality of recreation the Forest offers. Past and planned activities, as well as the physical and social setting surrounding the area, affect the ROS.

Three ROS classes occur within the project area: Rural (< 1% of the area), Roded Natural (60% of the area), and Semi-Primitive Motorized (29% of the area).

- A Rural ROS class is characterized by a substantially modified natural environment. Sights and sounds of humans are readily evident, and the interaction between users is often moderate to high.
- A Roded Natural ROS class is characterized by a predominantly natural appearing environment with evidence of the sights and sounds of humans. Interaction between users may be low to

moderate, but with evidence of other users prevalent. Challenge and risk in a more primitive environment are not important to the user.

- A Semi-Primitive Motorized ROS class is characterized by a predominantly natural or natural-appearing environment. Concentration of users is low, but there is often evidence of other people in the area. There is a moderate probability of experiencing isolation from the sights and sounds of humans. Independence, closeness to nature and self-reliance in an environment that offers challenge and risk are important.

A Rural ROS class is associated with the Flat Canyon Campground. A Roded Natural ROS class is associated with Eccles Canyon State Route 264 and Monument Peak Forest Development Road 019. The remainder of the project area has a Semi-Primitive Motorized ROS class.

Visuals

Since the recreational experience can be affected by areas one sees or travels through, aesthetics affect the recreational experience - and potential use of an area. The visual character of the area is similar to adjacent areas and other areas on the Forest. The character of the area is mountainous with undulating to steep side slopes. The vegetation on the landscape consists of both closed timber stands and interspersed openings. Due to topography and vegetation, only limited portions of the landscape are likely to be viewed by a typical Forest visitor.

Visual Quality Objectives (VQO's) are based on the uniqueness of views, the importance of the views, and the distance between viewers and the landscape. Two VQO's occur within the project area: Retention (10% of the area), and Partial Retention (90% of the area).

- A Retention VQO provides for management activities not visually evident to casual Forest visitors.
- A Partial Retention VQO provides for management activities which remain visually subordinate to the characteristic landscape. Visual impacts should conclude soon after completion of the project.

A Retention VQO is associated with the lower portion of Huntington Creek, above Electric Lake. The remainder of the project area has a Partial Retention VQO.

G. RANGELAND USE

Swen's Canyon S&G Allotment is used by a permittee with a Forest grazing permit for 559 head of sheep and a private land grazing permit for 400 head of sheep for the season 7/1 to 9/30. The private land north of Eccles State Route 264 in Flat canyon and west of Upper Huntington Creek is used by the Swen's Canyon band of sheep under a private land grazing permit.

Boulger S&G Allotment is used by a permittee with 1,200 head of sheep for the grazing season 7/6 to 10/5.

Bear Canyon S&G Allotment is used by a permittee with 1,028 head of sheep for the grazing season 7/7 to 9/30.

Burnout S&G Allotment is used by two permittees with 942 head of sheep for the season 7/1 to 9/25.

The Eccles S&G Allotment is used by a permittee with 750 head of sheep for the grazing season 7/16 to 9/25.

CHAPTER 4 Environmental Consequences

A. INTRODUCTION

This chapter identifies the projected impacts from implementing the alternatives considered in detail, presented in Chapter 2. This chapter discloses both the potential direct/indirect effects and cumulative impacts. Direct/indirect effects are those effects that would likely occur during or shortly after implementation of a specific alternative. Direct/indirect effects are presented by resource topic corresponding to the issues identified in Chapter 2. Cumulative impacts are those effects which may occur with implementation of an alternative combined with other past, present, or reasonably foreseeable actions.

B. DIRECT & INDIRECT EFFECTS OF ALTERNATIVE IMPLEMENTATION

WATER RESOURCES:

Alternative 1

Under this alternative, no drilling would occur in any of the drainages. Aquatic species in Boulger Creek, Swen's Creek, and the small unnamed tributary north of Burnout Canyon would experience no new land disturbance impacts. Water quality in Boulger and Swen's Creeks would continue to experience some inputs of sediment from roads and other access within their respective floodplains and dispersed recreation impacts.

Alternative 2

This alternative would have the potential for water-related effects associated with ground disturbance of approximately 4.1 miles of temporary road (12 acres) and 5.5 acres of drill pads.

Under this alternative, aquatic species and habitats in Boulger and Swen's Creek might experience short-term (up to 6 weeks per road/hole) increases in sediment runoff from temporary increases in road traffic and ground disturbance. This would only occur in the immediate area of disturbance if there were heavy precipitation during the actual drilling activity or before vegetation was restored on the site. Small increases in stream sediment would not result in impacts to aquatic species or their habitats. No new stream crossings would be required, so streambanks would not experience direct disturbance.

Additionally, temporary development to access the two drill holes in the un-named drainage to the north of Burnout Canyon would result in one temporary stream channel crossing requiring culvert work prior to use and one temporary riparian/wetland crossing. These crossings would be in very small headwater streams and would cause minor temporary additions of sediment to aquatic habitats. These crossings would also result in minor temporary (up to 6 weeks per road/hole) losses of riparian habitat on the streambanks adjacent to them. This alternative would be expected to directly affect less than 1 acre of wetland/riparian and indirectly affect about 3 acres of wetland/riparian. As long as the roads are successfully closed and revegetated, there should be only negligible short-term impacts to aquatic species.

Alternative 3

This alternative would have the potential for water-related effects associated with ground disturbance of approximately 1.3 miles of temporary road (4 acres) and 5.5 acres of drill pads.

Under this alternative, aquatic species and habitats in Boulger and Swen's Creek might experience short-term (up to 6 weeks per road/hole) increases in sediment runoff from temporary increases in road traffic and ground disturbance. This would only occur in the immediate area of disturbance if there were heavy precipitation during the actual drilling activity or before vegetation was restored on the site. Small increases in stream sediment would not result in impacts to aquatic species or their habitats. No new stream crossings would be required, so streambanks would not experience direct disturbance.

Helicopter drilling of the two holes in the unnamed canyon north of Burnout Creek would eliminate the need for temporary stream channel crossing requiring culvert work prior to use and wetland/riparian road crossings. This would effectively remove the temporary potential for associated effects as described for the crossings in Alternative 2. No stream channels or wetland/riparian would be disturbed and there would be no subsequent effects on aquatic species or their habitats.

WILDLIFE RESOURCES:

Alternative 1

Elk and Deer

Deer and elk currently use the project area. Deer and elk are affected by access and its associated disturbance. Forest user access is currently defined by the Forest Travel Management Plan. Under this alternative, no additional roads (access) or drill pads would be constructed and no seismic line activity would occur.

Current effects under this alternative include potential deer and elk avoidance of roaded and heavily disturbed areas. Deer and elk avoid the existing traffic when roads in the area, Forest Service and private, are used. Enough traffic currently travels these roads to reduce the habitat effectiveness of the adjacent area during the entire late spring through fall season. Approximately 4,480 acres of potential security habitat relative to Forest Service roads are currently ineffective (8,320 acres of the 12,800 acres analysis area would remain effective). (Ineffective habitat is defined as the open roadway and adjacent area up to one-fourth mile away for analysis purposes.) During the primary recreation use days (holiday weekends and hunting season), road use and general disturbance of the wildlife increases. This increase results in animal stress, displacement, and mortality. While disturbance could displace individual deer and elk, populations as a whole should not be adversely affected.

Vegetation disturbed by roads on Forest Service lands include approximately 20.3 acres. Additional vegetation impacts occur from facilities, unauthorized cross-country vehicle use, and dispersed camp sites.

Sensitive Species (Northern Goshawk)

No impacts are expected to goshawk under this alternative.

Alternative 2

Elk and Deer

All drill holes and temporary road construction would impact foraging habitat. Under this alternative, there would be 11 holes drilled, 4.1 miles of road constructed, and 5.5 miles of seismic activity within Forest Service lands. Ground and vegetation disturbance (foraging habitat) would be about 18 acres (personal communication Harber & Barney, Forest Service 1998). Disturbance includes removal of foraging vegetation (grasses and forbs) along the proposed road locations and pad sites. In some drill sites where temporary road construction is proposed, hiding and cover habitat would be disturbed through the removal of standing and downed log trees (20-25 trees) that deer and elk may use during the calving/fawning and nursing period.

About 3 acres of wetland habitat would be indirectly disturbed by drill holes 97-22-1 and 97-27-1. These are areas which deer and elk use for watering and wallowing opportunities. Although the deer and elk would be displaced from these sites for a short time, there should be only negligible impacts to these species.

Those drill holes that would directly impact elk and deer security habitat for the short-term and possibly long-term include: 99-4-2, 98-33-1, 98-33-2, 98-28-2, 99-28-1, 98-21-2, 97-22-1, and 97-27-1. This alternative would impact deer and elk directly in the short-term (up to six weeks per hole/road) by displacing them from about 5,472 acres within Forest Service lands (7,328 acres of the 12,800 acres analysis area would remain effective). (Ineffective habitat is defined as the open roadway and adjacent area up to one-fourth mile away for analysis purposes.) While disturbance could displace individual deer and elk, populations as a whole should not be adversely affected.

Seismic line activity would have no effect upon deer and elk habitat. Disturbance would come from temporarily displacing the animals from human presence during the project and noise from the seismic discharge. Deer or elk mortality from seismic activity is not expected.

Sensitive Species

Drill sites 98-28-1, 98-4-1, 98-33-1, 99-4-1, 98-28-2, 99-28-1 would not encroach upon goshawk nesting habitat. Nesting habitat can be found within and adjacent to the other holes proposed for drilling on Forest Service land (see Chapter 3).

Under this Alternative, potential goshawk habitat could be affected from temporary road construction, representing about 7.3 acres. Disturbance includes removal of foraging vegetation that prey species depend on (i.e. grasses, forbs, and large trees that rodents, grouse, and woodpeckers use). In some drill sites, perching and pluck prey habitat would be interrupted through the removal of standing and downed woody debris and about 3 acres of wetland habitat would be indirectly disturbed. This impact would be short-term until reclamation efforts are implemented (up to 6 weeks per road/hole).

There would be no direct impacts to goshawks because no nest trees were found along road locations and if nest trees are subsequently found, they would be avoided. Further ensuring that there would be no direct impacts, follow-up surveys would be conducted in the spring/summer each new breeding season year, prior to any project implementation to determine use of the area. If goshawks are found, Forest guidelines would be used to alleviate any potential impacts. Additionally, addressing goshawk needs, no project activity would occur until after July 15th of each year to allow

fledgling activity. About an acre of foraging habitat (beaver ponds and wetland road crossing) potentially used by spotted bat, Townsend's big-eared bat, and Northern goshawk would be disrupted for about 4-6 weeks (drill holes 97-22-1 & 97-27-1). This would have no impact on the overall population of these species due to the abundance of riparian habitat within the project area.

No Townsend's big-eared bat roosting habitat associated with this project would be impacted.

The project should not impact the flammulated owl. Needs for the owl are met by requirements for all cavity nesting trees to be avoided when developing access routes and drill hole sites and for drill hole and seismic line activity to take place after all raptor nesting seasons (July 15th). This timing restriction on seismic activity also provides for the needs of Northern goshawk.

Those drill holes associated with three-toed woodpecker habitat include 98-21-2, 98-33-2, 97-22-1, and 97-27-1. This project should not impact the three-toed woodpecker because all cavity nesting trees would be avoided when developing access routes and drill hole sites, and drill hole and seismic line activity would occur after the breeding season (young of the year have fledged) (July 1st).

Alternative 3

Elk and Deer

Under this alternative, approximately 8 less acres of foraging habitat would be disturbed and 904 less acres of habitat effectiveness would be reduced than that of Alternative 2 (10,232 acres of the 12,800 acres analysis area would remain effective). (Ineffective habitat is defined as the open roadway and adjacent area up to one-fourth mile away for analysis purposes.) While disturbance could displace individual deer and elk, populations as a whole should not be adversely affected.

Habitat associated with this alternative would be more than that provided by Alternative 2 in the form of hiding cover, forage, effectiveness, and security.

The diversity of habitat (vegetation, water, and security) for deer and elk at drill holes 97-22-1 and 97-27-1 would be maintained. More habitat diversity is provided at these holes than the other holes within Forest Service lands because of their distance from existing roads and recreation areas. In this area, grasses and forbs would remain intact, and large trees and woody debris would continue to provide cover for deer and elk. The wetland area would remain undisturbed. Travel management associated with road construction would no longer be a concern. Possible disturbance from helicopter use would occur during the summer, after calving and fawning.

Sensitive Species (Northern Goshawk)

Under this alternative, the drill sites would not encroach upon goshawk nesting habitat. The impacts to goshawk habitat would be less than that of Alternative 2, from 7.3 acres to 4.4 acres. Less foraging vegetation for goshawk prey species and perching/plucking habitat would be interrupted through the removal of trees and woody debris. The wetland habitat would stay intact. Travel management associated with road construction would no longer be a concern and the potential for long-term effects would be no longer relevant.

Direct disturbance to goshawks would not occur if helicopter activity takes place after July 15th. Further ensuring that there would be no direct impacts, follow-up surveys would be conducted in the spring/summer each new breeding season year, prior to any project implementation to determine use

of the area. If goshawks are found, Forest guidelines would be used to alleviate any potential impacts.

RECREATIONAL OPPORTUNITIES AND USE:

Alternative 1

Recreation opportunities would remain unchanged under the no action alternative. There would be no change in potential impacts to recreationists - including hunters. Existing opportunities and uses would be expected to continue. The existing road system would not be altered. None of the previously reclaimed roads included to be reopened for this project would be reclaimed to today's higher standards.

Alternative 2

Most of the holes fall in the Recreational Opportunity Spectrum (ROS) classification of Roaded Natural. There would be no change in this ROS character. Two holes fall in ROS Semi-Primitive Motorized: 99-4-2 and 98-28-2. The ROS associated with these holes would temporarily change from Semi-Primitive Motorized to a Roaded Natural classification. This change would be apparent, only in that frequency of individual contacts with others could increase. After drilling and seismic work are completed, and reclamation reestablishes the contour of the land and vegetative cover, the ROS would revert back to Semi-Primitive Motorized.

The temporary change in the characteristics of ROS class may adversely affect recreational users in the area, especially in the vicinity of the Flat Canyon Campground where an estimated 4,000 recreational visitor days (RVD) are realized each year. Some recreational use may be shifted to other areas on the Forest.

Hunters might be less likely bothered by the presence of temporary drilling activities than other recreationists using the area. Big-game populations are expected to persist and provide continued hunting-related opportunities and experiences.

The area already has a strongly modified appearance. Impacts to views should be minimal and temporary. All holes are within the Visual Quality Objective (VQO) of Partial Retention; None of the holes are in areas with a VQO of Retention. Views from the limited and localized Retention area into the overall Partial Retention areas should be limited by topography and vegetation.

Alternative 3

Most of the holes fall in the Recreational Opportunity Spectrum (ROS) classification of Roaded Natural. Overall impacts to ROS would be expected to be minimal and temporary as described for Alternative 2. The ROS would temporarily change from Semi-Primitive Motorized to a Roaded Natural classification for holes 99-4-2 and 98-28-2, as described for Alternative 2.

This alternative would eliminate approximately 2.8 miles of road access, and correspondingly have less impact to the character of ROS and VQO than Alternative 2. The road access to holes 97-22-1 and 97-27-1 on Trough Springs Ridge would be eliminated, as would be the access off of private lands onto the Forest to holes 98-33-1 and 98-33-2.

RANGELAND USE:

Alternative 1

Grazing operations would remain unchanged under the no action alternative. There would be no project-created impacts to cattle or sheep.

Alternative 2

Livestock use the areas where drilling and seismic activities would occur. There would be some disruption to livestock grazing due to vehicle access through or adjacent to animal herds. Sheep would not be able to graze in the immediate vicinity of the drilling operations. Coordination with the sheep herder would allow for minimizing this disturbance to livestock by moving them from the immediate vicinity. There would be a net loss of 15 Sheep-Months (3 AUM) for a period of 3-5 years due to disturbance caused by drill pads and roads. The scale of this change is minimal and would not result in the permitted numbers or grazing season being modified. Following is an identification of how operations may be affected.

- Boulger S&G Allotment would be affected by drill holes (98-4-1 and 99-4-1) and seismic line S-99-3.
- Bear Canyon S&G Allotment would be affected by drill hole 99-4-2 and seismic line S-99-3.
- Burnout S&G Allotment would be affected by drill holes 97-22-1 and 97-27-1 .
- Eccles S&G Allotment would not be affected by drill holes or seismic lines. This allotment would only be affected by vehicle travel on Trough Springs Ridge road, SR # 264, and the Little Swen's Canyon Road.
- Swen's Canyon S&G Allotment would be affected by drill holes and seismic lines. All drill holes and seismic lines not listed on other allotments are on this allotment or private land.

The seismic activities may have the effect of stampeding the sheep when a charge is set off if they are in the vicinity. Personnel doing the seismic activity would coordinate with the sheep herder so that the herd can be moved a distance (at least 1/2 mile away) to prevent potentially disastrous effects of stampeding the herd.

Project stipulations would ensure that herders and their livestock are not harassed: Project personnel would not harass the livestock, herder, herd dogs, horses, or affect the herder's camp; Project personnel also would not be allowed to have dogs on project sites as such dogs could harass livestock.

Alternative 3

Under this alternative, effects would be similar to those identified for Alternative 2. However, helicopter use would additionally contribute to the threat of stampeding livestock and must be carefully coordinated with the range permittee to avoid potential losses.

SOCIO-ECONOMIC CONSIDERATIONS:

Alternative 1

The mine would not be allowed to drill or conduct the seismic studies. Subsequently, there could be delays in developing coal resources which could lead to bypassed coal. Delays and potential bypassed coal would lead to financial losses for the mine. Losses in terms of royalties not realized would also be forgone by State and Federal entities.

Alternative 2

The mine would be allowed to drill and conduct seismic studies to obtain information required to proceed with mining on their existing leasehold and to proceed with data collection for the pending Flat Canyon LBA. If mining later occurs as a result of the findings of this exploration, royalties would be realized by State and Federal entities.

Road construction and reclamation costs are projected to be \$91,000 for this alternative.

Alternative 3

The mine would be allowed to drill and conduct seismic studies to obtain information required to proceed with mining on their existing leasehold and to proceed with data collection for the pending Flat Canyon LBA. If mining later occurs as a result of the findings of this exploration, royalties would be realized by State and Federal entities.

Road construction and reclamation costs are projected to be \$29,000 for this alternative. Helicopter access, in lieu of road construction and reclamation, is projected to be \$748,020 for this alternative.

C. CUMULATIVE IMPACTS

ALTERNATIVE 1

Private land and Forest Service areas disturbed by roads in the area are approximately 43.5 acres - not including private land home developments, facilities, unauthorized cross-country vehicle travel, and dispersed camp sites. Summer home construction and logging of private lands are also occurring in the vicinity on private inholdings.

Deer and elk avoid the existing traffic when roads are used. Approximately 9,643 acres of potential security habitat relative to all Forest Service roads and private land roads are currently ineffective within the immediate project area (4,480 acres of the 12,800 acre analysis area would remain effective). (Ineffective habitat is defined as the open roadway and adjacent area up to one-fourth mile away for analysis purposes.) While disturbance could displace individual deer and elk, populations as a whole should not be adversely affected.

Other forest-use practices and natural events have affected wildlife habitat within the project area. Livestock grazing is one of the primary forest uses in the area. Livestock has decreased foraging opportunities through competition and have altered vegetation of the habitat.

Past and present recreation activities have and would continue to impact wildlife populations and their habitats. Undeveloped and unauthorized roads and trails are created by ATV's. This has recently become a major impact because the effects result in many acres of lost foraging habitat (removal of herbaceous and browse species through soil compaction) and encroachment of wildlife security zones (habitat effectiveness). Developed Forest trails (James Canyon trail system), summer camping, viewing, hiking, and bicycling all bring a large number of recreationists into the area most of the year.

Perhaps the greatest recreational impact comes from big-game hunting. The lands located within and adjacent to the project area receives intensive use during the big-game hunting season. The season begins approximately August 17th and ends about November 15th, although most hunters are present during the month of October for the general elk and deer seasons. During the hunt, hunters and their camps can be found throughout the area.

Recreation has decreased wildlife habitat and habitat use. Recreation activities have resulted in loss of foraging (due to dispersed camping sites), security/elk vulnerability (encroachment into hiding and cover zones), and habitat effectiveness (wildlife avoidance of areas) through the use of other created roads and trails.

Future impacts could come from the construction of the proposed Narrows Dam project. Dam planning included construction of recreation facilities and provides for additional fishing and water sport opportunities. This project could increase recreation visitor days within the project area.

Although this alternative may impact individual deer, elk, and their habitat, the alternative would not likely contribute to a loss in viability to their overall populations. Deer and elk should continue to remain important as a hunting and viewing resource value throughout the project area. The herds would continue to be managed accordingly by the State of Utah Division of Wildlife Resources.

Past and present private land timber harvesting has temporarily decreased big-game hiding and cover security zones and acipiter nesting habitat. Approximately 900 MBF was harvested on private lands impacting about 120 acres (Anschutz Environmental Assessment). Combined with the loss of vegetative cover and traffic use (logging trucks) this has resulted in big-game avoidance of the area.

Gas exploration and production, coal drilling and mining have disturbed big-game foraging and security habitat through pad development and road construction. Two exploratory gas wells have been permitted and are expect to begin construction during 1998 season (Anschutz Environmental Assessment). Removal of herbaceous and browse species and removal of large trees could result in big-game avoidance of the area. Private land, roads, and recreation-related access has increased use of the area which could affect the area's ability to provide habitat. Roads have increased traffic and forest visitors. Present and future activities will continue to alter of big-game habitat. Habitat effectiveness for big-game is anticipated to decrease overtime.

Private land use in the project area is considerable. Where summer range for deer and elk occur, home development which incudes structures and roads have encroached upon typical security and foraging habitat. Where goshawk nesting and foraging habitat was available, homes and roads have encroached. Many acres have been lost to this resource and will continue to be lost with the additional developments.

Noxious weed invasion and aspen regeneration play an important ecological role within the project area. As more forest users interact with this local landscape the risk of continual weed encroachment increases. Currently musk thistle is the dominant invader within the project area. Acres are increasing as human activities and natural dispersion continue. Weed control is minimal within the area, mostly

addressed within Federal lands and treated only along the main road ways. These invaders slowly decrease the quality and quantity of the forage habitat for deer and elk. On the Manti, and in some areas within the project area, quaking aspen lacks regeneration due to conifer encroachment. Aspen stands require regeneration in order to fulfill long term calving and fawning habitat needs for big-game. Current ungulate herd objectives and grazing capacities are being met. If forage were to notably decrease, an increase of foraging habitat competition between wild and domestic ungulates as forage decreases could occur. Aspen stands require regeneration in order to fulfill long-term nesting habitat needs for goshawks.

ALTERNATIVE 2

The cumulative impacts presented for Alternative 1 would persist with implementation of this alternative. Cumulative impacts from other resource activities (i.e. timber, grazing) are the same as those for Alternative 1. The cumulative effects table at the end of this section provide a summary.

Under Alternative 2, effects of private land development include an additional 9 holes which results in 20 total holes for the area. Access routes are on existing roads which need improvements and upgrading in some areas. It is not clear how extensive road upgrade and improvement on private land would influence the foraging habitat and habitat effectiveness. It is expected that traffic use would increase acres disturbed within the period of project implementation. However, project-created access impacts would only occur temporarily during activities. The duration of impacts should not exceed six weeks per road/hole, with not all roads/holes accessed at the same time.

Wildlife habitat acres disturbed are expected to increase by 4.5 acres for pad development. Within private land, seismic line activity has increased by 4.5 miles (total of 10 miles). Seismic line activity would have no effect upon deer and elk habitat. Disturbance would come from temporarily displacing animals from human presence during the project and noise during seismic discharge. While this disturbance could displace individuals, the population as a whole should not be adversely affected.

Deer and elk would avoid existing traffic when roads are used. Overall resource impacts from this alternative are greater than those of Alternative 1. Vegetation disturbance would increase from 43.5 acres to 63.5 acres. Habitat ineffectiveness would increase to approximately 11,115 acres within the project area. (Ineffective habitat is defined as the open roadway and adjacent area up to one-fourth mile away for analysis purposes.) While disturbance could displace individual deer and elk, populations as a whole should not be adversely affected.

Stipulations require that temporary roads be effectively reclaimed, thereby reducing potential access effects. Although stipulations would require reclamation, there a potential for long-term cumulative impacts from ATVs travelling on reclaimed roads. Foraging and security habitat for deer and elk could correspondingly be compromised.

Past and present fossil fuel exploration drilling and production within the surrounding area has and will remove minimal amounts of water and disturb relatively small to medium amounts of surface areas and vegetation habitat. In the past, impacts to sensitive species have been insignificant. However, in the reasonable foreseeable future, it is estimated that additional drill exploring and production of gas/coal is likely. Potential threats to wildlife foraging and nesting areas could exist, and continual mineral activity could decrease habitat.

Negative effects to the overall population of blue grouse would not come from this project, however from a cumulative standpoint within the Manti Division, all current vegetation changes from native habitat landscapes that evolved with blue grouse to current human influences and developed landscapes .

ALTERNATIVE 3

All cumulative effects should be less than those described for Alternative 2.

**COMPARISON OF CUMULATIVE EFFECTS
(FOREST SERVICE LANDS ONLY)**

Disturbance	Alternative 1	Alternative 2	Alternative 3
Miles of Temporary Roads or Reopened Roads	0	4.1	1.3
Current Roads Disturbance Acreage	20.3	20.3	20.3
Temporary Road Construction and Pads Disturbance Acreage	0	18	10
Habitat Effectiveness Acreage Reduced	4,480	5,472	4,668
Number of Proposed Drill Pads	0	11	11
Wetland Acres Disturbed	0	3	0
Seismic Line (Miles)	0	5.5	5.5
Goshawk Impacts (Potential Habitat Affected)	0	7.3	4.4

**COMPARISON OF CUMULATIVE EFFECTS
(FOREST SERVICE & PRIVATE LAND)**

Disturbance	Alternative 1	Alternative 2	Alternative 3
Miles of Temporary Roads or Reopened Roads	.4	4.5	1.7
Current Roads Disturbance Acreage	20.3	20.3	20.3
Temporary Road Construction and Pads Disturbance Acreage	5.7	20	13
Habitat Effectiveness Acreage Reduced	9,634	11,115	10,475
Number of Proposed Drill Pads	9	20	20
Wetland Acres Disturbed	0	3	0
Seismic Line (Miles)	4.5	510	510
Goshawk Impacts (Potential Habitat Affected)	0	7.3	4.4

CHAPTER 5 Personnel and Public Involvement

A. INTERDISCIPLINARY TEAM

<u>Specialty</u>	<u>Resource Specialist</u>	<u>Role</u>
NEPA/Geology	Jeffrey Wade DeFreest	Team Leader
Engineering	Brent Barney	Core Team
Wildlife	Steve Romero	Core Team
BLM/Economics	Don Stephens	Core Team
Fisheries	Jill DuFour	Extended IDT
Botany	Bob Thompson	Extended IDT
Lands/Special Uses/Range	Leland Matheson	Extended IDT
Landscape Architect	Kevin Draper	Extended IDT
NEPA	Reta Laford	NEPA Coordinator

B. PUBLIC INVOLVEMENT

Internal scoping for this project included review by various Forest Service resource specialists (2/19/98, 2/24/98, 3/2/98, 3/12/98).

External scoping consisted of notice in the Forest's *Schedule of Proposed Actions*, and by letter to a 75-person mailing list. Those individuals to whom letters were mailed included: Federal, State, and local governmental or land management entities; environmental and interest groups or businesses; adjacent landowners; range permittees; and others known to be potentially interested or affected. Seven letters were received in response to external scoping. The entirety of these letters can be found in the project record.

CHAPTER 6 References

A. Wildlife

- Benson, Patrick C. 1979. Land use and wildlife with emphasis on raptors. Prepared for USDA, Forest Service Intermountain Region.
- Bull, E.L., A.L. Wright, and M.G. Henjum. 1990. Nesting habitat of flammulated owls in Oregon. J.Raptor Res. 24(3):52-55.
- Bull, E.L., S.R. Peterson, and J.W. Thomas. 1986. Resource partitioning among woodpeckers in north-eastern Oregon. Res. Note PNW-444. LeGrande, OR: U.S. Dept. of Agricul., For. Serv., Pacific Northwest Res. Sta. 19 pp.
- Hamre, A.H. eds., Biology and conservation of northern forest owls. U.S. Forest Service, Gen. tech. Report RM-142.
- Hennessey, S.P. 1978. Ecological relationships of accipiters in northern Utah with special emphasis on effects of human disturbance. M.S. Thesis, Utah State University, Logan, Utah. 65 pp.
- Johansson Carl A., Rogers Duke S., Sherwin Richard E. 1997. Assessment of Spotted Bat (*Euderma maculatum*) and Townsend's Big-eared Bat (*Corynorhinus townsendii*) in the Proposed Southern Lease Area (LBA 11). Manti-La Sal National Forest, Emery County, Utah. Conducted for Genwal Resources Inc.
- Johnsgard, P.A. 1988. North American owls, biology and natural history. Smith. Instit. Press, Washinton and London. 295 pp.
- Kennedy, P.L., and D.W. Stahlecker. 1989. Preliminary Northern goshawk Inventory. Unpublished protocol.
- Kunz, T.H. and R.A. Martin. 1982. Plecotus townsendii. Mammalian Species No. 175. 6 pp.
- Leonard, M.L. and M.B. Fenton. 1983. Habitat use by spotted bats (*Euderma maculatum*), Chiroptera: Vespertilionidae): roosting and foraging behavior. Can. J. Aool. 61: 1487-1491.
- Lyon, J.L. 1979. **Habitat Effectiveness for Elk as Influenced by Roads and Cover**. Journal of Forestry: 658 pp.
- Reynolds, R. T. and B.D. Linkhart. 1987. The nesting biology of flammulated owls in Colorado. Pages 239-248 in R. W. Nero, R.J. Clark, R. J. Knapton.
- Scott, V.E., J.E. Whelan, and P.L. Svoboda. 1980. Cavity nesting birds and forest management. Pages 311-324 in R.M. DeGraaf, tech. coord. Proc. of workshop on management of western forests and grasslands for nongame birds. U.S. For. Serv. Gen. Tech. Rep. INT-86. Intermountain For. and Range Exp. Station., Ogden, UT.
- Thomas, J.W. and Toweill, D.E. 1982. Elk of North America, Ecology & Management. Stackpole Books, Harrisburg, Pa. 17105

Watkins, L.C. 1977. Euderma maculatum. Mammalian Series no. 77. 4 pp.

Welsh, Stanley L., N.D. Atwood, S. Goodrich, and L.C. Higgins. 1987. A Utah Flora. Great Basin Naturalist Memoirs No 9. 894 pp.

Woodsworth, G.C., G.P. Bell, and M.B. Fenton. 1981. Observations of the echolocation, feeding behavior, and habitat use of Euderma maculatum (Chiroptera: Vespertilionidae) in south central British Columbia. Can. J. Zool 59:1099-1102.

B. Forest Service References

District wildlife observation records. USDA Forest Service, Ferron/Price Ranger District, Price & Ferron, Utah.

Personal communication with Forest Service personnel.

USDA Forest Service. 1991a. Threatened, Endangered, and Sensitive Species of the Intermountain Region. USDA Forest Service, Intermountain Region, Ogden, Ut.

USDA Forest Service. 1991b. Management guidelines for the northern goshawk in the Southwestern Region as published in the Federal Register, Vol. 56, Oct. 15, 1991, pp 51672-51680; USDA Forest Service, Washington DC.

USDA Forest Service. 1991. Utah Endangered, Threatened, and Sensitive Plant Field Guide. Intermountain Region, Ogden, Utah.

USDA Forest Service. 1994. Flammulated, boreal, and great gray owls in the united states: A technical conservation assessment. Rocky Mountain Forest and Range Experiment Station, Laramie, Wyoming. Rocky Mountain Region, Lakewood, Colorado.

Forest Service Manual (FSM) 2670.31-32 & 2670.5

Manti-La Sal National Forest Land and Resource Management Plan (Forest Plan)

USDA Forest Service. 1996. Environmental Analysis for the Anshutz project. Ferron/Price Ranger District, Manti-La Sal National Forest.

C. State Wildlife Agency References

Utah Division of Wildlife Resources. 1990. Fauna of Southeastern Utah and Life Requisites Regarding their Ecosystems. Publication No. 90-11.

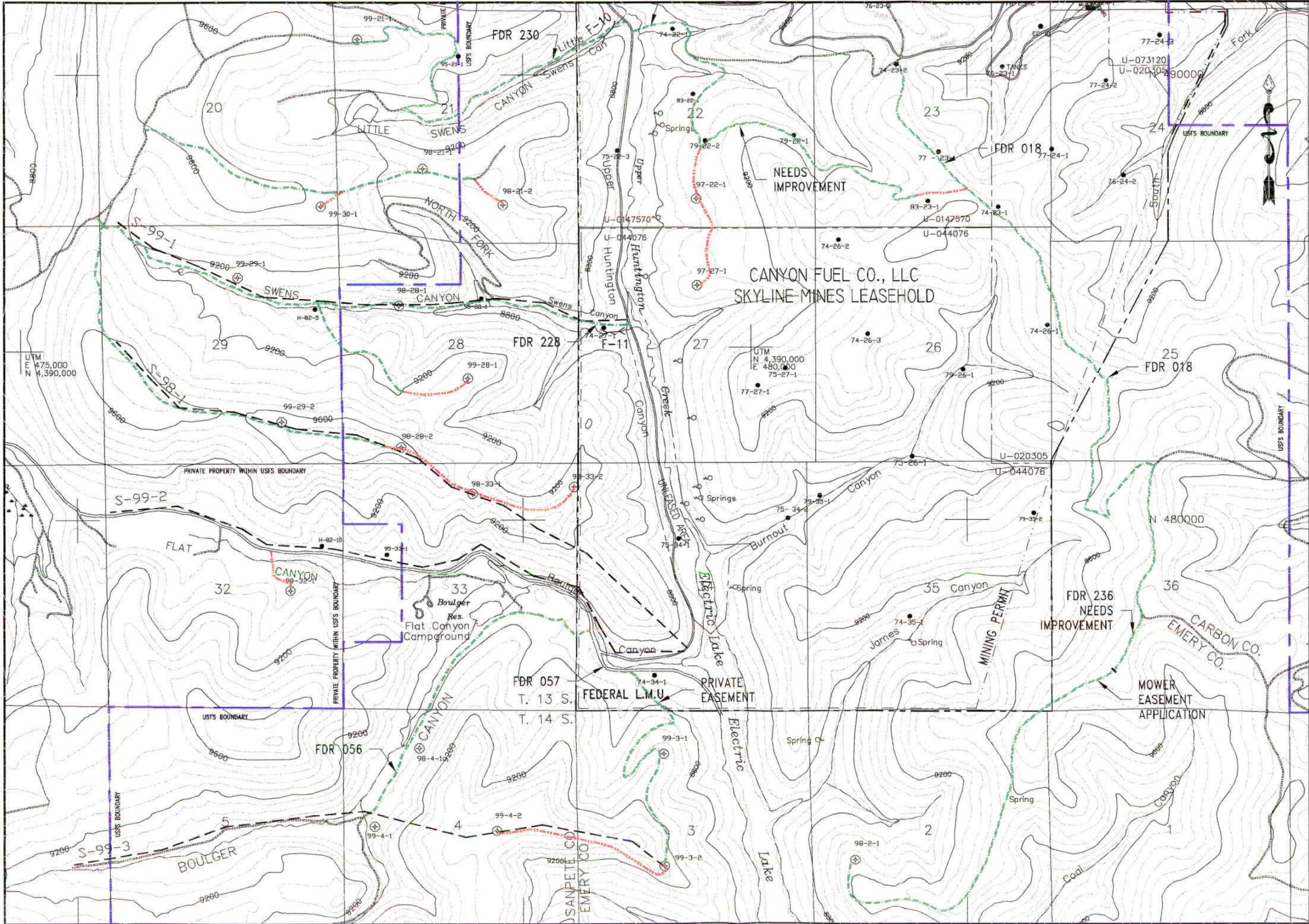
Utah Division of Wildlife Resources. 1980. Bats of Utah. UDDER Publication No. 80-15.

Utah Division of Wildlife Resources. 1978. A brief summary of Forest grouse habitat requirements.

D. U.S. Fish and Wildlife Service References

A list was sent from the U.S. Fish and Wildlife Service (January 7, 1998) presenting the list of threatened, endangered, proposed, and candidate species by county within the State of Utah.

**APPENDIX A
LOCATION MAP**



- LEGEND**
- SEISMIC LINE
 - 99-4-1 PROPOSED BOREHOLE
 - ELEVATION CONTOUR
 - SPRING
 - STREAM
 - PROPOSED NEW ROAD
 - EXISTING ROAD
 - UNIMPROVED ROAD
 - IMPROVED ROAD
 - 91-35-1 DRILL LOCATION
 - LEASE LINE
 - USFS BOUNDARY

APPENDIX B STIPULATIONS

Stipulations to be included in the Coal Drilling Permit/License

1. A pre-work meeting including the responsible company representative(s), contractors, and the Forest Service must be conducted at the project location prior to commencement of operations. Site-specific Forest Service requirements will be discussed at this time.

The permittee is responsible for acquiring all other necessary permits, such as, but not limited to 404 Permit for wetlands/stream cross, if Alternative 2 is selected.

2. A Road Use Permit must be obtained from the Forest Service before equipment is transported onto National Forest System lands. The location of new roads is subject to Forest Service review and approval. No construction may begin prior to approval. Any modifications or changes to approved locations are also subject to review and approval.
3. All surface disturbing activities including reclamation must be supervised by a responsible representative of the permittee/licensee who is aware of the terms and conditions of the projects permits/licenses. A copy of the appropriate permits/licenses must be available for review at the project site and presented upon demand to any Forest Service official.
4. The Forest must be notified 48 hours in advance that heavy equipment will be moved onto National Forest System lands and that surface disturbing activities will commence.
5. Establishment of campsites and staging areas on National Forest System lands in support of this project is subject to Forest Service approval.
6. The Forest Service must be notified of any proposed alterations to the coal exploration license, seismic lines, and coal exploration plan. Any changes to the existing plan are subject to Forest Service review and approval.
7. Fire suppression equipment must be available to all personnel working at the project site. Equipment must include at least one hand tool per crew member consisting of shovels and pulaskis and one properly rated fire extinguisher per vehicle and/or internal combustion engine.
8. All gasoline, diesel, and steam-powered equipment must be equipped with effective spark arresters or mufflers. Spark arresters must meet Forest Service specifications discussed in the "General Purpose and Locomotive (GP/L) Spark Arrester Guide, Volume 1, April, 1988"; and "Multi-position Small Engine (MSE) Spark Arrester Guide, April, 1989". In addition, all electrical equipment must be properly insulated to prevent sparks.
9. The permittee/licensee will be held responsible for damage and suppression costs for fires started as a result of operations. Fires must be reported to the Forest Service as soon as possible.
10. The Forest Service reserves the right to suspend operations during periods of high fire potential.
11. Water needed in support of operations must be properly and legally obtained according to Utah State water laws. The location of diversions, if on National Forest System lands, are subject to Forest Service review and approval. Water diversion structures, if needed, must be constructed as specified by the Forest Service.

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12. Unauthorized off-road vehicular travel is prohibited.
 13. Section corners or other survey markers, including claim corners, in the project area must be located and flagged for preservation prior to commencement of surface disturbing activities. The removal, displacement, or disturbance of markers must be approved by the proper authority. Replacement will be done by the proper authority at the expense of the permittee/licensee.
 14. If cultural or paleontological resources are discovered during operations, all operations which may result in disturbance to the resources must cease and the Forest Service must be notified of the discovery.
 15. Gates must be closed after entry unless otherwise specified.
 16. The permittee/licensee will be held responsible for all damage to fences, cattleguards, resource improvements, roads, and other structures on National Forest System lands which result from their operations. The Forest Service must be notified of damages as soon as possible.
 17. All construction, drilling, and seismic operations (including helicopter operations if alternative 3 is selected) must be coordinated with grazing permittees to prevent conflicts.
 18. Harassment of wildlife and livestock is prohibited.
 19. Topsoil must be stripped from areas occupied by parked vehicles and mud pits and stockpiled for use during reclamation. Topsoil stockpiles will be located to minimize contamination or loss. Rock material will be stockpiled separately.
 20. Drill pads will be designed to prevent or diminish overland flow from entering the site during precipitation events. Pad sites will be sloped to drain all spills and on-sites precipitation into the mud pits. If necessary, pits will be pumped out to reduce their content and insure that overflow does not occur. Fluids will be disposed of off Forest at a Utah State approved disposal site.
 21. All drilling fluids, mud and cuttings must be contained on the project site in mud pits or portable containers. The pit must not be used for disposal of garbage, trash or other refuse. Unattended pits will be fenced to keep out livestock and wildlife.
 22. During the drilling operations all trash, garbage and other refuse must be properly contained on the project site prior to disposal at authorized sites.
 23. All significant water encountered during drilling must be reported to the Forest Service, including the depth and formation at which it was encountered, and an estimate of the flow.
 24. If any of the drill holes encounter artesian groundwater flow, the District Ranger must be notified prior to plugging the hole to determine whether or not the Forest Service would elect to establish a permanent water development at the site.
 25. All drill holes must be plugged in accordance with Federal and State regulations.
 26. The operator must clean up and remove all drilling equipment, trash, garbage, flagging, vehicles and other such materials from National Forest System lands.
 27. Disturbed areas must be reclaimed by the end of the field season. Exceptions require Forest Service approval.

28. The project, including reclamation is to be completed within the two field seasons proposed (1998-1999). Temporary roads will be recontoured by using the existing fill material available, then retopsoiled and unauthorized entry discouraged through the use of fences and trees laid across the reclaimed surface as appropriate. All holes should be drilled, reclamation completed and access adequately blocked by the opening day of the general elk hunt. If additional time is needed the Forest Service should be advised so the permit can be amended.
29. Drill rigs and heavy equipment (not including water trucks) must not be transported in or out of the project areas during the opening weekend of the general elk hunt nor during the opening weekend of the general deer hunt and during holiday weekends. The water truck must be preceded by a pilot vehicle when hauling water for the project during the hunting season or on holiday weekends.
- If alternative 3 is selected, helicopter operations will not be permitted during the general hunting seasons for deer and elk.
30. Contaminated soil and gravel must be stripped and hauled off Forest prior to site reclamation.
31. Mud pits must be allowed to dry or pumped before they are backfilled and reclaimed. If pumped, fluids will be disposed off Forest, at a Utah State approved site. They must be enclosed by a 4-strand barbed wire fence while they are left to dry.
32. Drill sites, roads to be obliterated, and mud pits when they are dry, must be reclaimed by selectively backfilling excavated materials, topsoil last, such that the disturbed area is replaced to approximate original contour. The disturbed area must be seeded with the specified seed mix.
33. Upon completion of the project, compacted soils must be scarified and seeded with the specified seed mix.
34. All disturbed drainages must be replaced to their approximate original configuration when the project area is reclaimed.
35. The reclaimed roads must be signed and blocked off to prevent vehicle access by the public.
36. Reclamation efforts will be diligently pursued to insure that a minimum ground cover is established on all disturbed areas. Revegetation will be considered successful when 90% of the predisturbance ground cover is re-established over the entire disturbed area, with no noxious weeds. Adjacent undisturbed areas will be used as a basis for comparison of ground cover. Of the vegetative ground cover, at least 90% must consist of seeded or other desirable species. The 90% of pre-disturbance ground cover must be maintained for three years.

37. Seeding will be done with the following certified seed mix:

Species	pounds/acre
Intermediate Wheatgrass - <i>Agropyron intermedium</i>	4
Orchard Grass - <i>Dactylis glomerata</i>	3
Slender Wheatgrass - <i>Agropyron trachycaulum</i>	4
Crested Wheatgrass - <i>Agropyron cristatum</i>	2
Ladak Alfalfa - <i>Medicago sativa ladak</i>	1
Yellow Sweet Clover - <i>Melilotus officinalis</i>	1
Small Burnett - <i>Sanguisorba minor</i>	1
Perennial Ryegrass - <i>Lolium perenne</i>	1

This seed mixture must comply with the Utah Seed Act.

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38. The operator will be held responsible for control of noxious weed infestations found to be a result of this drilling operation.
 39. Timber removed during the project that meets sawlog utilization standards (minimum 8 inch diameter, 8 feet long, and 33 1/3 % sound) will be removed from the area by the permittee. Timber not meeting sawlog utilization standards will be used to the maximum extent possible for access restrictions and surface cover.
 40. Outside berms will not be constructed on any roads.
 41. The operator/agent will immediately notify the Forest Service should raptor nests be discovered.
 42. Any dogs in the project area must be under control at all times.
 43. Snag trees with cavities for nesting, or broken tops will not be disturbed.
 44. Temporary roads are to be closed to the general public. Signs must indicate:
" Road Closed, Access by Permit Only "
 45. Stipulation for Lands of the National Forest System Under Jurisdiction of the Department of Agriculture.

The licensee/permittee/lessee must comply with all the rules and regulations of the Secretary of Agriculture set forth at Title 36, Chapter II, of the Code of Federal Regulations governing the use and management of the National Forest System (NFS) when not inconsistent with the rights and regulations must be complied with for (1) all use and occupancy of the NFS prior to approval of a permit/operation plan by the Secretary of the Interior, (2) uses of all existing improvements, such as Forest Development Roads, within and outside the area licensed, permitted or leased by the Secretary of the Interior, and (3) use and occupancy of the NFS not authorized by a permit/operating plan approved by the Secretary of the Interior.

All matters related to this stipulation are to be addressed to the authorized representative of the Secretary of Agriculture, the Forest Supervisor.

to: Forest Supervisor
 at: Manti-La Sal National Forest
 599 West Price River Drive
 Price, Utah 84501

Telephone: (801) 637-2817

Stipulations to be Included in the Road Use Permit

46. Roads must not be used when they are wet and susceptible to damage.
47. The permittee is responsible for repair of any damages to roads which are caused by his operations.
48. All traffic must maintain safe speeds commensurate with existing conditions.
49. Roads must be watered if dust becomes a problem or if excessive loss of road material occurs.

APPENDIX C

Part 1

**FERRON/PRICE RANGER DISTRICT
MANTI-LA SAL NATIONAL FOREST
BIOLOGICAL ASSESSMENT
FOR
FEDERALLY LISTED PLANT AND ANIMAL SPECIES
FOR
THE FLAT CANYON & UPPER HUNTINGTON 20 HOLE DRILL PROJECT**

Prepared by:

Steve Romero
Ferron/Price Wildlife Biologist

Approved by:

/s/ Rod Player 26 August 1998
Rod Player Date
Wildlife Biologist
Manti-La Sal National Forest

Approved by:

/s/ Robert m Thompson 26 August 1998
Robert M. Thompson Date
Botanist
Manti-La Sal National Forest

I. INTRODUCTION

The purpose of this biological assessment is to evaluate the potential effects of the Flat Canyon/Upper Huntington Canyon 20 Drill Hole proposal on Threatened, Endangered, and Proposed plant and animal species that may occur within the area.

The Endangered Species Act of 1973 (PL 93-205, as amended) requires federal agencies to ensure that any activities they authorize, fund, or carry out, do not jeopardize the continued existence of any wildlife species federally listed as Threatened or Endangered (Section 7). This biological assessment is an analysis of which Threatened, Endangered, or Proposed species may occur in the project areas and whether any impacts on those species are anticipated. This biological assessment is prepared using direction from the Forest Service Manual 2672.4. Discussions with wildlife biologists from the U.S. Fish and Wildlife Service, Utah Division of Wildlife Resources, and staff with the USDA Forest Service also provided information for this assessment.

II. PROPOSED ACTION & ALTERNATIVES

The Forest Service has received two proposals from Canyon Fuel Company to conduct drilling on lands where the Manti-La Sal National Forest is the surface management agency. The first proposal is for a 2-hole coal exploration plan to be conducted on lands already under lease. The second proposal is for an 18-hole coal exploration license (CEL) and 4 seismic lines, on lands not yet under lease. The Forest Service is considering both of these proposals in this environmental assessment. The project location is shown in Appendix A of the NEPA document.

2-Hole Coal Exploration Plan: In April 1997, Canyon Fuel Company initially submitted a coal exploration plan to the Bureau of Land Management (BLM) to drill 2 holes on their existing leasehold, in the upper Huntington drainage during the 1997 field season. The plan was forwarded to the Forest Service on April 16, 1997. The proposal was reviewed, and a decision was made that an environmental assessment would be appropriate due to the scale of the project, and, in part, because of the complexity of road construction required for the access to the drill holes. At the request of the company, processing of the coal exploration plan was halted, pending the submission of their proposal for an 18-hole CEL for a proposed future lease; so that both could be considered in a single analysis.

18-Hole Coal Exploration License: In December 1997, Canyon Fuel Company submitted an application for a CEL to the BLM consisting of 18 drill holes and 4 seismic lines for the Flat Canyon vicinity. The proposal was forwarded to the Forest Service in January 1998. The BLM has assigned the coal exploration license the number UTU-76864.

Though all of the activities proposed are within the administrative boundary of the Manti-La Sal National Forest, some of the drill holes fall on private inholdings, and some are also of mixed estates (i.e. private surface with state or federal minerals ownership). Ownership within the project area is a mosaic of public and private lands. While this analysis will cover the entire project (20 drill holes and 4 seismic lines proposed), Forest Service consent/approval is limited to lands under Forest Service management.

Seven drill holes and 2.5 miles of seismic line are planned on land with private surface and privately held coal reserves. Permitting of those holes will be the responsibility of the Utah Division of Oil Gas and Mining (UDOGM).

- Two holes and 2 miles of seismic line are projected on private surface with Federal coal reserves, managed by the BLM.
- Eleven holes and 5.5 miles of seismic line are proposed on lands under the surface management authority of the Forest Service, where the mineral estate is managed by the BLM. On these drill holes, the Forest Service has consent authority to the BLM decision. Three of the holes on Forest Service lands are also under a Bureau of Reclamation (BOR) withdrawal for water development and therefore also require consent of the BOR to the BLM decision.

The proposed action is for the mine to drill up to 20 holes, using newly constructed temporary roads and existing roads for access, and to conduct 4 seismic lines of investigation in the vicinity of Upper Huntington Canyon and Flat Canyon for the purpose of coal exploration over the next two years. A detailed description of the mine's proposal is outlined in Chapter 2, under Alternative 2 of the NEPA document.

The purpose and need of the proposed action is to evaluate the coal quality, thickness, elevation, extent and other geologic constraints; prior to mining in the case of the 2-hole plan, and for baseline data in the case of the CEL. The data collected in the CEL and seismic investigation will be used in the Lease-by-Application (LBA) process for the proposed Flat Canyon Tract.

ALTERNATIVE DESCRIPTIONS

Alternative 1 - No Action

The Forest Service does not consent to the approval of the Coal Exploration License, 2-Hole Coal Exploration Plan, nor does the Forest Service approve the Geophysical Prospecting Permit (4 seismic lines). The BLM and UDOGM can not issue permits for the activities where the Forest Service is the surface management agency. The BLM could approve activities on mixed estates where the mineral rights are in Federal ownership, and the UDOGM could approve activities where private or state surface and mineral estates are involved.

Alternative 2 - Consent/Approval of Projects as Proposed

This alternative wholly responds to the purpose and need and partially addresses the water resource issue.

Canyon Fuel Co. proposes to conduct coal exploration activities by drilling 20 drill holes and approximately 10 miles of surficial seismic investigations within the upper Huntington Canyon area. The project area map (Map 2) and table of drilling locations (refer to appendix C) were provided by the mining company. The access to drill holes will be by existing Forest Roads, with some new construction of short sections of temporary road.

The special access needs for drilling will require new construction or reopening of previously reclaimed roads totaling 4.1 miles on forest, and pad sites will require between 1/4 to 1/2 acre each of disturbance.

The drilling will be accomplished with rotary and core drilling methods. Core drilling will be done only on that part of the hole near the projected minable coal horizons. Hole diameters will range from 3-1/4" to 9-5/8" in diameter. Drilling muds will be used in the process and may contain: water, soap, foam, bentonite, and other drilling polymers. Drilling fluids and cuttings will be contained on site in lined mud pits or portable containers. The pit will be fenced as appropriate to prevent wildlife and livestock from entering it. The pit will not be used for trash or other waste disposal.

The exploration and support equipment used in the drilling operation will include truck-mounted rotary and diamond core drilling machines, and support equipment such as a water truck for each drill rig, a pipe truck, D-8 size dozer, track-mounted backhoe, road grader, fuel truck, air compressor(s), electric generators, personnel trailer, electric and mechanical geophysical logging equipment, and four wheel drive pickup trucks for access by personnel.

The majority of the seismic lines will be done on existing roads using truck mounted ("Thumper-Truck") seismic equipment for an energy source. Portable seismic equipment will be used on those portions of the line not accessible by road. Equipment will be hand carried or packed in on horses for the off-road work.

Seismic lines S-99-1, S-99-2, and half of S-98-1 are along existing roads; the other half of S-98-1 and all of S-99-3 will utilize conventional shotholes for an energy source. Shotholes will be hand augered on 100 foot centers to a depth of 5-10 feet. One half pound of explosive will be used in each hole. A certified blaster will be on site for all of the shothole work.

The Forest Service would consent to, and the BLM would approve the Coal Exploration License, as proposed with about 2.3 miles of new or reopend road access on Forest lands; the 2-Hole Coal Exploration Plan, as proposed with access via Trough Springs Ridge (1.8 miles of new or reopened road access on Forest); and the Forest Service would approve the Geophysical Prospecting Permit for 4 seismic lines on National Forest lands. The BLM would approve activities on mixed estates where the mineral rights are in Federal ownership, and the UDOGM would approve activities where private or state surface and mineral estates are involved. Forest Service stipulations would be applied from the Forest Plan, and mitigations and monitoring would be applied as necessary to address issues and anticipated environmental effects.

Alternative 3 - Helicopter Access Requirement for 4 of the 20 Holes Proposed

This alternative wholly responds to the purpose and need and addresses the water resource issue.

The Forest Service, as the surface management agency, would not allow road access for two of the holes proposed for the CEL (98-33-1, 98-33-2) and the two holes included in the Coal Exploration Plan (97-22-1, 97-27-1). The use of a helicopter transportable drill and associated equipment would be required to drill these holes. This alternative would reduce the total new/reopened road disturbance on forest from approximately 4.1 miles to 1.3 miles. The consent and approval authorities, as well as the remainder of the proposed drill holes and seismic lines, would otherwise be the same as in Alternative 2.

III. SPECIES POTENTIALLY AFFECTED BY THE PROJECT

Known or Possible Threatened, Endangered, and Proposed Plants and Animals on the Ferron/Price District:

<u>SPECIES</u>	<u>CLASSIFICATION</u>
Bald Eagle (<i>Haliaeetus leucocephalus</i>)	Threatened
American Peregrine Falcon (<i>Falco peregrinus anatum</i>)	Endangered
Southwestern Willow Flycatcher (<i>Empidonax traillii extimus</i>)	Endangered
Heliotrope Milk-Vetch (<i>Astragalus montii</i>)	Threatened

Note: The above species lists was derived from a U.S. Fish and Wildlife Service (USFWS) list of threatened, endangered, and proposed species that may be present in the general Wasatch Plateau area,

describing species and habitat in Utah by County. This list was received January 7, 1998 and is the current list used (Martinez, pers. comm. 1998).

IV. SPECIES OCCURRENCES AND HABITAT NEEDS

BALD EAGLE - During the breeding season Bald Eagles are generally closely associated with water, along coasts, lakeshores, or river banks. During the winter Bald Eagles tend to concentrate wherever food is available. This usually means open water where fish and waterfowl can be caught. They also winter on more upland areas feeding on small mammals and deer carrion. At winter areas, Bald Eagles commonly roost in large groups. These communal roosts are located in forested stands that provide protection from harsh weather (Stalmaster, 1987).

Bald Eagles are occasionally found near the lakes and reservoirs in the analysis area, during the late fall and early winter. Here they prey upon fish and waterfowl. When the lakes and reservoirs freeze over eagles leave the analysis area. No Bald Eagles are known to nest on the Forest. However, there is an active Bald Eagle eyrie near the town of Castle Dale, many miles south of the project area. During 1993, the nesting territory was observed to determine the foraging area and fledgling area. None of these activities were observed on National Forest System lands.

AMERICAN PEREGRINE FALCON - peregrines occupy a wide range of habitats. They are typically found in open country near rivers, marshes, and coasts. Cliffs are preferred nesting sites, although reintroduced birds now regularly nest on man-made structures such as tower and high-rise buildings. Peregrines are known to travel more than 18 miles from the nest site to hunt food. However, a 10 mile radius around the nest is an average hunting area, with 80 percent of the foraging occurring within a mile of the nest. Peregrine falcons prey on a wide variety of birds including shorebirds, waterfowl, grouse, and pigeons (Ratcliffe, 1980; and Cade et al. 1988).

Migrating or transient, peregrines have been seen on the Wasatch Plateau. In 1996, surveys conducted by U.S. Forest Service, Utah Division of Wildlife Resources, and PacifiCorp Company discovered peregrines exhibiting nesting behavior in Cottonwood Canyon (approximately 4 miles east of Joes Valley Reservoir). The pair was observed copulating and defending a territory however, egg laying and incubation did not occur at this site. Additional surveys (1996) conducted by Forest Service personnel found a pair of peregrines occupying a territory on the east rim of South Horn Mountain (approximately 6 miles southeast of Joes Valley Reservoir). This pair was found using the cliff systems directly below the existing electronic site. In 1996 the Utah Division of Wildlife Resources discovered an active peregrine nest near the Star Pint Mine (approximately 10 miles southeast of Price, Utah). The nest was occupied with eggs but it is not known if the nest produced young. Other nest and territories occur near the east bank of Joes Valley Reservoir and Link Canyon on the southern end of the Ferron/Price Ranger District. 1998 raptor monitoring surveys indicated the Link Canyon territory was active. The Joes Valley site was not occupied. There are no known Peregrine Falcon nest sites within the analysis area. Nesting habitat is very limiting. Any birds observed in the analysis area would be incidental.

SOUTHWESTERN WILLOW FLYCATCHER - The Southwestern Willow Flycatcher spends most of its time in the southwestern United States extending its range to the lower one-fourth of the state of Utah. These flycatchers are closely associated with riparian habitat such as willow or alder thickets along streams, on the shores of ponds, or bordering marshy areas. They are also found in the brushy margins of fields, along mountain streams, and in shrubby floodplain areas. They prefer areas of high shrub densities interspersed with openings or meadows. The woody component of their habitat is almost exclusively deciduous including willows, alders, cottonwoods, aspens, and shrubs such as chokecherry, hawthorn,

sumac and wild rose. As the name implies, Southwestern Willow Flycatchers are insectivores, eating wasps, bees, beetles, flies, moths and butterflies (Unitt 1987).

Surveys for Southwestern Willow Flycatchers have been conducted within the Ferron/Price Ranger District. Willow Flycatchers were detected in some of the areas surveyed (Fish Creek (Scofield tributary), and Upper Joes Valley) however, it is not known if the Willow Flycatchers detected in those areas found were Southwestern Willow Flycatcher or *Empidonax traillii adastus* (northern variety). Sonogram and blood samples were taken from those populations to determine the species of willow flycatcher. Areas of known suitable habitat for Willow Flycatchers occur at Pete's Hole and Huntington Canyon. The proposed drill hole and road development will not disturb willow flycatcher habitat. There are no known areas within the analysis area that appear to be suitable willow flycatcher habitat where seismic activity will conflict with this bird.

Excerpts from the proposed rule that appeared in Federal Register, Vol. 28, No. 140, 7/23/93 indicated the Ferron/Price is outside the range of this species. Discussions with the U.S. Fish and Wildlife Service (May 1997) indicate no known presence of Southwestern Willow Flycatcher within the area. Sonogram testing of the Fish Creek population indicate the Willow Flycatchers detected there are probably not Southwestern Willow Flycatchers but the *Empidonax traillii adastus* species (Sedgewick, pers. comm. 1998).

HELIOTROPE MILK-VETCH - Habitat occurring within the Ferron/Price Ranger District, this plant is only found at high elevations (10,000 to 11,000 ft.) on Flagstaff limestone outcrops. Associated with low growing subalpine vegetation, populations are located on top of Heliotrope, Ferron, and White Mountains. These areas are not within the analysis area.

V. DETERMINATION OF EFFECTS

Suitable Habitats

The analysis area does not contain suitable habitat (i.e. elevation, vegetation, season, and/or geology) for two of the species in the above list. Therefore, it is determined that there will be no effect upon it. The species, described below, is eliminated from further analysis.

Falco peregrinus anatum - the Peregrine Falcon is known not to occur within the analysis area. Nesting habitat is generally not available. Foraging could occur but would be incidental.

Astragalus montii - the proposed mineral activities are outside the range of this species. Refer to the Draft Recovery Plan for Heliotrope Milkvetch October 1995.

The potential for effects upon the following species will be analyzed further:

Bald Eagle (*Haliaeetus leucocephalus*)

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

Effects of the Mineral Activities

Bald Eagle (*Haliaeetus leucocephalus*)

None of the alternatives should have a noticeable adverse effect on Bald Eagles. The foraging activities of the Bald Eagles nesting near Castle Dale do not occur on the Forest (UDWR, 1995). Therefore, the only possible impact would be a disturbance factor to migrating Bald Eagles foraging in the late fall and early

winter. For the Alternative which includes helicopter activities, there is an increased potential for disturbance to migrating eagles. However, because helicopter activities would be allowed only prior to the late fall and early winter eagle migration period (November 1), such disturbance would be very minimal.

Southwestern Willow Flycatcher (*Empidonax traillii extimus*)

None of the action alternatives will have an effect on Southwestern Willow Flycatchers. The closest known suitable habitat is in Huntington Canyon, below Electric Lake Dam. Willow flycatcher surveys were conducted in Huntington Canyon and no birds were detected.

LISTED SPECIES BIOLOGICAL ASSESSMENT SUMMARY OF CONCLUSIONS OF EFFECTS

Project Name: Flat Canyon, Upper Huntington Canyon Drill Hole Project

Alternative: All Alternatives

Species	No Effect	May Effect Not Likely To Adversely Affect	Likely To Adversely Affect	Beneficial Affects
Bald Eagle	X			
American Peregrine Falcon	X			
Southwestern Willow Flycatcher	X			
Heliotrope Milk-Vetch	X			

VI. Rationale for the Summary of Conclusions of Effects

Bald Eagle (*Haliaeetus leucocephalus*)

All action alternatives will have **NO EFFECT** on the Bald Eagle for the following reasons:

- 1) Foraging of the Bald Eagles in Castle Dale do not occur with Forest System lands.
- 2) Helicopter activity will occur only prior to the eagle fall/winter migration (November 1).
- 3) Helicopter activity disturbance to migrating eagles would be coincidental.

Southwest Willow Flycatcher (*Empidonax traillii extimus*)

All action alternatives will have **NO EFFECT** on the Southwestern Willow Flycatcher for the following reason:

- 1) No mineral activity will occur within any suitable willow flycatcher habitats.

VII. CUMULATIVE EFFECTS

The current existence of these Federally Listed wildlife and plant species is partly due to the present designated laws protecting populations and their habitat. The question is, how much change of other species and their habitat is acceptable because of additional human actions within the analysis area and on the surrounding Wasatch Plateau? Because all species and their habitats are ecologically connected, directly and indirectly, there is a level of effects that can spill over to those protected species and their habitats. Over time, as human activities increase, effects on wildlife, plants and their habitat can be impacted.

Past and present recreation activities have and will continue to impact wildlife populations and their habitats. Undeveloped and unauthorized roads and trails are created by Off Road Vehicles (OHV). This has recently become a major concern because the effects result in many acres of lost foraging habitat (removal of herbaceous and browse species through soil compaction) and encroachment into wildlife security zones. Developed designated roads and trails, summer/fall camping, viewing, hiking, hunting, and bicycling all bring a large number of recreationists into the area most of the year. Perhaps the greatest recreational impact comes from big-game hunting. The lands located within and adjacent to the project area receives intensive use during the big-game hunting season. During the hunt, hunters and their camps can be found throughout the area.

Past and present timber harvesting has decreased wildlife cover and security areas. Approximately 900 MBF was harvested on private lands impacting about 120 acres (Anschutz EA). Combined with the loss of vegetative cover and traffic use (recreation, logging), wildlife will avoid using areas.

Noxious weed invasion and aspen regeneration play an important ecological role within the project area. As more forest users interact with this local landscape, the risk of continual weed encroachment increases. Currently Musk Thistle, White top and Canada Thistle are the dominant invaders within and adjacent to the analysis area. Acres of spread are increasing as human activities and natural dispersion continue. Weed control is difficult and is mostly addressed within Federal lands. These invaders slowly decrease the quality and quantity of the forage habitat many wildlife species depend on. On the Manti -La Sal National Forest, and it is evident in some areas within the project area, quaking aspen lacks regeneration due to conifer encroachment. Aspen and conifer/aspen stands require regeneration in order to fulfill long term breeding, nurturing, and rearing habitat for many wildlife species. The lack of aspen regeneration could result in habitat competition among wildlife species and domestic species utilizing the areas.

Past mineral activities have disturbed wildlife foraging and security habitat. Operations have altered habitat through the removal of understory and overstory vegetation for pad and road construction. The disturbance of these multistory habitats disturb wildlife and plants through either displacement or mortality. These effects are usually short term because of the aggressive reclamation efforts the Mineral companies are required to implement.

Other forest use practices and natural events have affected wildlife habitat within and adjacent to the project area. Livestock grazing is a primary forest use that adds to the overall affect. Grazing competition between livestock and wildlife will decrease forage and cover. Habitat is altered by domestic grazing, resulting in further displacement of wildlife.

The total effects from the proposal relative to all present, past and foreseeable effects should not have harmful impacts upon the local threatened and endangered species provided all the planned designed features for the project are implemented. However, as future human actions increase, additional uses from mining, recreation, grazing, fire suppression, etc. over space and time, will continue to affect the existing habitat. It is not really known if those affects would be negative or positive.

VIII. DOCUMENTATION

References used to determine the presence (or absence) of Threatened, Endangered, Proposed Species as well as species characteristics and habitat information include:

Boschen, Nelson. 1995. Bald Eagles in Southeastern Utah: 1994 Nesting Season.

Cade, T.J., J.H. Enderson, C.G. Thelander, and C.M. White. 1988. Peregrine Falcon Populations: Their Management and Recovery. The Peregrine Fund, Inc., Boise. pp. 949.

Ratcliffe, D.A. 1980. The Peregrine Falcon. Buteo Books, Vermillion, S.D. pp. 416.

Stalmaster, M.V. 1987. The Bald Eagle, Universe Books, New York. pp 227.

Unitt, P. 1987. *Empidonax traillii extimus*: An Endangered Subspecies. *Western Birds*. 18:137-162.

Welsh, Stanley L., N.D. Atwood, S. Goodrich, and L. C. Higgins. 1987. A Utah Flora. Great Basin Naturalist Memoirs Number 9. pp. 894.

Forest Service References

District wildlife observation records. USDA Forest Service, Ferron/Price Ranger District, Price, Utah.

Personal communications with Forest Service personnel.

Sedgewick, J. July 1998. USDA Forest Service Fort Collins Colorado. Personal Communication.

USDA Forest Service. 1991a. Threatened, Endangered, and Sensitive Species of the Intermountain Region. USDA Forest Service, Intermountain Region, Ogden, UT.

USDA Forest Service. 1991. Utah Endangered, Threatened, and Sensitive Plant Field Guide. USDA Forest Service, Intermountain Region, Ogden Utah.

USDA Forest Service. 1996. Environmental Analysis for the Anschutz project. Ferron/Price Ranger District, Manti-La Sal National Forest.

State Wildlife Agency References

Utah Division of Wildlife Resources. 1990. Fauna of Southeastern Utah and Life Requisites Regarding their Ecosystems. Publication No. 90-11.

U.S. Fish and Wildlife Service References

U.S. Fish and Wildlife Service. 1995. Heliotrope Milk-Vetch (*Astragalus montii*) recovery plan. U.S. Fish and Wildlife Service, Denver, Colorado. 11pp.

Federal Register Vol. 58 No. 140, 7/23/93.

Martinez, Jeanne. August 1998. Fish and Wildlife Service. Personal communication.

APPENDIX C

Part 2

SENSITIVE SPECIES BIOLOGICAL EVALUATION SUMMARY OF CONCLUSION OF EFFECTS

Project Name: Flat Canyon 20 Hole Coal Exploration Drilling

Species	ALT 1	ALT 2	ALT 3	ALT 4
1. Spotted Bat	NI	NI	NI	
2. Townsend's Big-eared Bat	NI	NI	NI	
3. Flammulated Owl	NI	NI	NI	
4. Northern Goshawk	NI	MIIH	MIIH	
5. Three-toed Woodpecker	NI	NI	NI	
6. Link Trail Columbine	NI	NI	NI	
7. Creutzfeldt Cryptanth	NI	NI	NI	
8. Carrington Daisy	NI	NI	NI	
9. Maguire Champion	NI	NI	NI	
10. Musinea Groundsel	NI	NI	NI	
11. Canyon Sweetvetch	NI	NI	NI	
12. Arizona Willow	NI	NI	NI	

Prepared by: /s/ Steve Romero Date: 7/24/98

Approved by: /s/ Rod Player /s/ Robert Thompson Date: 7/24/98
Wildlife Biologist Botanist

NI = No Impact

MIIH = May Impact Individuals or Habitat, But Will Not Likely Contribute to a Trend Towards Federal Listing or Loss of Viability to the Population or Species. Depending on the alternative, impacts may be positive.

WIFV = Will Impact Individuals or Habitat With a Consequence that the Action May Contribute to a Trend Towards Federal Listing or Cause a Loss of Viability to the Population or Species.

APPENDIX D

Transportation System/Engineering Report

The proposal is to drill twenty coal exploration or development coal hole for use in developing mine plans for existing or future leases. The drilling will require the use of one or more Forest Highways, seven or more forest development roads (FDR), one or more forest development trails (FDT) and the temporary construction of four or more roads within National Forest lands.

Use on the roads is expected to be approximately 42 trips per hole drilled or 840 trips for the twenty hole program. Once the access roads and drill sites are prepared of drilling activities to begin, the actual drilling at its site is expected to average between 5 to 7 days. Although, all the drill sites are not located on National Forest lands access to 18 of the proposed sites will require some travel over Forest Develop Roads. All these road are functionally classified as local roads generally serving only one primary use.

Primary access to the Forest Development Road System will occur over Forest Highway 45 (State Route 264) under jurisdiction of the of Utah. Additionally, highway access could come from the east over State Route 96 or from the west over Forest Highway 7 (State Route 31), both of which are under jurisdiction of the State of Utah.

On the Forest Development Road System the roads likely to be use are:

Swens Canyon Road, FDR #50228, which could be used to access eight holes. This is a local road, with mostly native, but some spot gravel surfacing, traffic level 'D' for use by high clearance vehicle use and maintenance at level '2'.

MIA Road, FDR #50230, which could be used to access three holes. This is a local road, with aggregate surface, traffic service level 'C' for passenger car use and maintenance at level '3'. Approximately 0.8 miles of this road is on National Forest Lands, but user would need a Road Use Permit.

Electric Lake Road, FDR #50222, which could be used to access three holes. This is a local road, with aggregate surface, traffic service level 'C' for passenger car use and maintenance at level '3'. A short segment of this road on National Forest lands and could be used, but this road is still under easement deed to the State of Utah as a portion of the former Huntington-Overview Highway, which was relocated during the construction of Electric Lake. This road provides access to the Electric Lake boat ramp, a point recreation facility on the Forest.

Monument Peak Road, FDR #50018, which could be used to access two or three holes. This is a local road with native surface, traffic service level 'D' for high clearance vehicle use and maintenance at level '2'. Approximately 0.65 miles could be used to access the first two holes and 3.5 miles could be used to access one additional hole from private property. This road is planned for the removal of 2.6 million board feet of timber from private lands in 1998 and 1999 and the drilling of two exploration oil/gas wells in 1998 or 1999. It is currently undergoing reconstruction and spot surfacing for these uses.

Boulger Lake Road, FDR #50056, which could be used to access two holes. This is a local road with aggregate surfacing to Boulger Lake and native surfacing beyond the lake. The first portion surface with aggregate is managed for traffic service level 'C' for passenger cars at maintenance level '3', while the remaining portion with native surface is maintained for high clearance vehicle use at maintenance level '2'.

An un-named road, FDR #50096, would also be reopened or reconstructed to access four holes. Portions of this road on National Forest lands were obliterated in 1991 and would have to be re-established. This was a local road, inventoried for managed purposes, with a primitive prism established through use, it was maintained for the protection of resources with use being accepted prior to closure in 1991. Additional temporary road beyond the historic termini would have to be constructed to access three of the hole from this road. Approximately 0.2 miles of this road would have to be re-established for the drilling.

An un-named road, FDR #50236, could also be used to access a hole on private lands from the Monument Peak Road. This is a local road with native surfacing, maintained for high clearance vehicle use at maintenance level '2'. Approximately 0.2 miles of the road would be used in conjunction with a trail.

An un-named trail, FDT #5371, would have to be constructed for use by motor vehicles wider the 54 inches if access can not be obtained across private lands to hole 98-2-1.

All the local Forest Development Roads are located in area with management area prescription for RNG with emphasis on production of forage, except the upper portion of the Boulger Lake Road where management prescription for TBR with emphasis on wood-fiber production and harvest. Temporary road could enter areas of TBR and also management area prescription for WPE with emphasis on watershed protection or improvement.

The visual quality objective (VQO) along all the routes is for partial retention for viewing from foreground or middleground for common and distinctive varieties of medium or high sensitivity class. Part of the 5000 feet of road proposed to access 98-33-1 and 98-33-2 may interfere with meeting the VQO along the Eccles Canyon Scenic Byway until revegetation is well reestablished (10-20 years). The recreation opportunity spectrum along the Forest Highway and Forest Development road corridors is to maintain a roaded natural appearance. Without proper reclamation and closure the recreation opportunity could change to semi-primitive motorized from semi-primitive non-motorized. Road closure and reclamation is complicated by today's popularity of ATVs and other off-road vehicles.

The seven Forest Development Roads will require pre-haul or recurrent maintenance prior to or during use. FDR #50096 would required re-establishment impacting approximately 0.6 acres on a flat open light vegetated ridge. Use on the roads would be approximately 6 trips per day for 7 days of drilling. Traffic on FDR #50228 would be 336 vehicles trips over a 56 day period, on FDR #50230 and FDR #50222 use would be 126 vehicle trips over 21 days for each road, and FDR #50018 and FDR #50056 would see use of 84 vehicles trips over 14 days for each road. If FDR #50096 is used for four locations; use would be 168 vehicle trips over 28 days, while FDR #50236 and FDT#5371 could see 42 vehicle trips over 7 days if private access is not used. Use on these road could be limited to one year or extended over a three year period. This limited use is not expected to impact the management prescription emphasis, visual objectives or recreational spectrum objectives for the areas along or adjacent to the road corridors.

Two proposed drill sites located in Section 22 (97-22-1 and 97-27-1) would require construction of a approximately 1.9 miles of temporary road within a TBR management area within roaded natural appearing and semi-primitive motorized recreation opportunity spectrum, visual quality objective of modification or partial retention. The road would traverse through most spruce or aspen stands, on side slopes between 20% and 35%. The route could use a traceable former temporary road from historic logging. Where the route is located in spruce stands of timber near and surface water presents problems to satisfactory use of vehicle travel. Up to 5.5 acres could be disturbed to provide access to these sites in addition to the disturbance at the drill sites. Closure and reclamation will be difficult with the popularity of ATVs and other off-road vehicles.

Three proposed drill site locations in Section 28 and 33 (98-28-2, 98-33-1, and 98-33-20) would require the reconstruction of 0.2 miles of previously obliterated FDR and construction of approximately 0.9 miles of temporary road on National Forest lands within RNG or TBR management areas with roaded natural and semi-primitive motorized recreation opportunity spectrum, visual quality objective of partial retention from middle ground of the distinctive variety class of high sensitivity level. Access to the first hole could require construction down a moderately steep broad ridge in sparse aspen cover, the next hole could be accessed by construction down a steep narrow ridge in moderate aspen and spruce cover, and the third hole could be accessed by construction along a very narrow ridge with dense spruce cover and pitching grades. The temporary road would disturb approximately 3.2 acres, with construction to the first hole consider moderately difficult, to the second hole difficult, and to the third hole very difficult. The steepness of the potential grades and side slopes traversed will make soil erosion during construction, use and reclamation difficult to control or reduce. Visual quality objective from Forest Highway 45 and the Boulger Lake area could be impacted.

The proposed drill site in Section 28 (98-21-2) would require construction of approximately 0.65 miles of temporary road within RNG and TBR management areas with roaded natural and semi-primitive motorized recreation opportunity spectrum, visual quality objective of partial retention from middle ground of the distinctive variety class of high sensitivity level. The construction would be mostly in open meadows or sparse aspen stands on moderate side slopes of 20% to 35%. Grades could be held to 8% with some pitches to 12%. The construction would be considered moderate difficulty. Approximately 1.9 acres of temporary disturbance would occur for the access road.

The proposed drill site in Section 4 (99-4-1) would require construction of approximately 0.4 miles of temporary road within RNG and WPE management areas with semi-primitive motorized recreation opportunity spectrum, visual quality objective of partial retention for foreground viewing of the common variety class of medium sensitivity level. The construction would be along a ridge with moderate grades and sideslopes in mostly open grasses or light aspen. Construction would be moderate, while reclamation to protect the watershed values may be more difficult. Approximately 1.2 acres would be disturbed and reclaimed.

If alternative 3 is selected, the effects on the transportation system overall will be similar to those seen in alternative 2, except that the amount of temporary road would be reduced from 4.1 to 1.3 miles on Forest. This reduction would in turn reduce the amount of reclamation required and also reduce the travel plan management problems associated with keeping roads closed.