

CHAPTER 1 – PURPOSE AND NEED

A. Introduction

The Grand Mesa-Uncompahgre-Gunnison (GMUG) National Forests and the Bureau of Land Management-Uncompahgre Field Office (BLM) are considering a proposal from Gunnison Energy Corporation (GEC) of Denver, Colorado to conduct an exploratory drilling project for natural gas resources.

GEC submitted Applications for Permits to Drill (APDs) eight exploratory natural gas wells on the south side of Grand Mesa and in the North Fork Valley, Delta and Gunnison Counties, Colorado. The APDs contained Surface Use Plans of Operations (SUPO), and downhole drilling and engineering proposals. APDs for the Leon Lake #4 and #5 sites were submitted on September 27, 2002, and September 30, 2002, respectively. APDs for the Powerline Fed 12-91 #1-17, Hubbard Creek Fed 12-91 #2-23, Bull Park Fed 12-91 #1-31, and Oakbrush Fed 12-91 #1-26 were submitted on December 5, 2002. APDs for the Hawksnest Fed 13-90 #1-2 and Thompson Creek Fed 12-90 #1-35 sites were submitted on December 4, 2002. All of the proposed drill sites are on existing federal oil and gas leases, except the Thompson Creek Fed 12-90 #1-35, where the proposal is to directionally drill from BLM-managed lands onto a federal oil and gas lease.

The proposal is for exploration activities only, which would consist of drilling, completion, testing, and monitoring at eight well sites; use of existing roads, and construction of new spur access roads; and water use and disposal activities. No pipeline, compressors or other infrastructure is proposed. The exploratory drilling program is intended to gather information about the extent and distribution of natural gas resources on the federal oil and gas leases, and to perform tests on each well to assess the economic viability of future production. The drilling would target potential gas producing zones in the sandstone, and coal layers in the Mesaverde Formation.

Wells that are determined to be uneconomical would be plugged, abandoned and the surface reclaimed within 1 year after exploration drilling, completion, and testing are conducted. For those wells that are identified as economically viable, they would be tested and monitored until an environmental evaluation for production facilities, including pipelines, compressors, etc., has been completed. In that case, the final phase of reclamation would not be completed until all future development was completed.

B. Project Location

The proposed well sites and new access spur roads are located north of the towns of Cedaredge, Paonia, and Somerset, Colorado, within Delta and Gunnison Counties. The locations of the eight proposed wells are shown on the attached map and are described as follows:

- Leon Lake Nos. 4 and 5 are on the GMUG National Forests northeast of Cedaredge (in Section 13, T12S, R94W) on federal oil and gas lease C-13563-A, which is part of the Leon Lake Gas Unit;

- Powerline Federal 12-91 #1-17 (Powerline Federal), is on the GMUG National Forests northeast of Paonia (in Section 17, T12S, R91W) on federal oil and gas leases COC-65535.
- Bull Park Federal 12-91 #1-31 (Bull Park Federal)), is on the GMUG National Forests northeast of Paonia (in Sections 17, 23, 26, and 31, T12S, R91W) on federal oil and gas leases COC-65537;
- Hubbard Creek Federal 12-91 #2-23 (Hubbard Creek Federal) and Oakbrush Federal 12-91 #1-26 (Oakbrush Federal), are on the GMUG National Forests northeast of Paonia (in Sections 23 and 26, T12S, R91W) on federal oil and gas leases COC-65534;
- Hawksnest Fed 13-90 #1-2 (Hawksnest Federal) and Thompson Creek Federal 12-90 #1-35 (Thompson Creek Federal) are on BLM public lands northeast of Somerset (in Sections 2, T13S, R90W and Section 35, T12S, 90W). The Hawksnest drill site is on federal oil and gas leases COC-65117. The Thompson Creek drill hole would be directionally drilled to explore for gas reserves on federal oil and gas lease COC-65529 (which underlies the GMUG National Forest).

C. Proposed Action

The scope of this analysis will be confined to the issues associated with the proposed action. The analysis will evaluate the proposed action and alternatives for GMUG Forest Plan (Forest Plan) and BLM-Uncompahgre Resource Management Plan (RMP) consistency. A Forest Plan or Resource Management Plan amendment is not anticipated. The proposed action is to drill eight exploration gas wells to gather information about the extent of natural gas reserves on existing federal oil and gas leases, and test the wells for potential production. The exploration well drilling is proposed to occur between 2003 and 2006.

The proposed well locations were sited to ensure compliance with using surface use stipulations on the oil and gas leases, and through interdisciplinary review of proposed sites through the Notice of Staking process. On site reviews required by the Notice of Staking process were conducted on June 4, 17 and 26, 2002 for the Leon Lake Nos. 4 and 5; on October 28, 2002 for the Bull Park Federal and Powerline Federal; on October 29, 2002 for the Hubbard Park and Oakbrush Federal, and on November 6, 2002 for the Hawksnest Federal and Thompson Creek Federal. Revised locations for the proposed wells and access roads identified during the NOS onsite reviews were incorporated into the APD submittals.

The Leon Lake No. 4 site is proposed approximately 460 feet from the normal high-water-line of Surface Creek, and the Leon Lake No. 5 site is proposed approximately 97 feet from intermittent stream. A stipulation on lease COC-13563-A requires drill sites to be located at least 500 feet from the high water levels of ponds and streams. The Leon Lake No. 5 is proposed approximately 330 feet from centerline of FR 127. A stipulation on lease COC-13563-A requires drill sites to be located at least 500 feet from the centerlines of an existing road. Exceptions to these lease stipulations are part of the proposed action.

The Powerline Federal, Bull Park Federal, Hubbard Park Federal and Oak Brush Federal are proposed within areas defined with a Controlled Surface Use lease stipulation for moderate geologic hazards. This stipulation requires that special interdisciplinary team review occur at the time activities are proposed in order to assure that adequate mitigations are in place if necessary.

Specifics regarding road access, drill pad design and activities related to the exploration drilling are described below. A description of mitigations, which are included as part of the proposed action are also listed.

C1. Description of Proposed Activities

Well Pad Design and Construction

- The size of a typical well pad would be 225 feet x 150 feet (0.77 acre). An additional buffer zone of approximately 0.37 acre per pad would be required for an equipment turn-around area and material storage (i.e., topsoil and brush). The estimated total disturbance associated with the well pads would be 9.12 acres (1.14 acres per well site).
- Construction of the well pads would follow procedures described in the Application for Permit to Drill (APD) for each site. Well pad construction would require approximately 2 to 3 days per site.
- A reserve pit (approximately 30 feet x 100 feet x 12 feet deep) would be excavated within the pad's perimeter to catch the drill cuttings (dirt and rock from drilling). It would be lined with impervious heavy plastic material.
- The reserve pit would be fenced stock-tight on three sides during drilling operations. The fourth side would be fenced after the drilling rig is removed from the site.
- A flare pit (approximately 25 feet x 25 feet) would be used during completion and testing of gas wells to remove gas from the vicinity of the rig.

Access Road Construction

Well sites would be accessed using a combination of existing roads and construction of new spur access roads. The following access roads would be used for each well site:

- Leon Lake #4 – State Highway 65, County Road U50, 2500 Drive, Forest Service Road (FR) 125, FR 127, and a new 1,710-foot road spur;
- Leon Lake #5 – State Highway 65, County Road U50, 2500 Drive, FR 125, FR 127, and a new 330-foot road spur;
- Powerline Fed 12-91 #1-17 – State Highway 133, County Road 40.10 DR, FR 701, existing maintenance road for the Western Area Power Authority (WAPA) Overhead Powerline, and a new 75-foot road spur;

- Hubbard Creek Fed 12-91 #2-23 – State Highway 133, Bear Creek Road (private), and a new 4,560-foot road spur;
- Oakbrush 12-91 #1-26 – State Highway 133, Bear Creek Road (private), and a new 1,935-foot road spur;
- Bull Park Fed 12-91 #1-31 – State Highway 133, County Road 40.10 DR, FR 701, and a new 945-foot road spur;
- Hawksnest Fed 13-90 #1-2 – State Highway 133, Coal Gulch Jeep Trail, and a new 70-foot road spur; and
- Thompson Creek Fed 12-90 #1-35 – State Highway 133, Coal Gulch Jeep Trail, and a new 35-foot road spur.

Road construction would consist of a total of 1.83 miles (6.65 acres) of new roads for the eight well sites. The running surface of each access road would be 14 feet, with a total width of 30 feet. No upgrade construction (i.e., widening, culvert installation) has been identified at this time for any of the existing access roads. It is estimated that new road construction would require 2 to 7 days per site, depending upon the length of new road.

Drilling Operations

- After the well site is constructed, a trailer-mounted drilling rig (95-feet tall) would be erected on the site. The rig would be self-contained, using generators to produce electricity for 24-hour operation. Ten to 12 truckloads would be required to transport the drilling rig and associated equipment to the site. A typical well can take 6 to 10 days to complete the drilling operations. Two to three temporary trailers also would be used on the well site during drilling and completion operations.
- Typically, a minimum of seven workers would be at the well site, 24 hours a day, 7 days a week, during drilling operations. There could be up to 20 people onsite during casing and cementing operations.
- The wells are expected to be 2,500 to 5,000 feet in total depth. The Thompson Creek Fed 12-90 #1-35 would be directionally drilled, while the other seven wells would be vertically drilled.
- The wells would be drilled with compressed air to cool and clean the bit and evacuate drill cuttings from the hole. If the well cannot be drilled with air, a simple mud system consisting of bentonite and native mud would be used.

Completion Operations

- When the drilling rig is removed from the well site location, the following activities would occur simultaneously: 1) the fourth side of the reserve pit would be fenced, 2) the location would be bladed, and 3) the interim reclamation process would begin. A completion rig (approximately 90 feet in height) would then be moved onto the location and erected.
- The target formations for natural gas production are the Mesaverde and Mancos. The proposed wells would be drilled through the entire Mesaverde formation and reach total depth within the Mancos Formation. The zones with the most promise would be perforated and stimulated by hydraulic fracturing, which would facilitate the movement of oil and natural gas from the rock pores to a well. If the wells prove to be uneconomical, they would be plugged according to state and federal regulations; and the location would be reclaimed. Testing would be completed, as described below, to determine if the wells are economical.
- Hydraulic fracturing is used to create fractures to enhance well productivity. A thick water-based fluid is pumped into the formation; and, as the pumping rate is gradually increased, the rock fractures at an approximate width of 0.25- to 0.5-inch. Hydraulic fractures typically extend 250 to 500 feet from the well bore. To prevent a fracture from sealing when the pumping ceases, natural sand or sand-like material (called proppant) is pumped into the fracture to keep it propped open. The hydraulic fracturing increases the surface area of the formation open to production and increases well productivity.

Testing

- Well tests would be conducted to determine the formation productivity. Tests can either be conducted open-hole (while the well is drilling) or cased-hole (after the casing is cemented and perforated and hydraulically fractured). Overall, testing could vary from approximately 7 to 120 days.
- After penetrating a potential productive zone, the formations would be tested. This would determine if expensive completion procedures would be used. The first evaluation is normally completed by logging the open hole. Drill stem tests (DST's) are often run after intervals that indicate production potential based on the log evaluation. DST's would provide evaluations of formations of interest under production conditions. Individual zones would be temporarily isolated to evaluate important reservoir characteristics such as permeability, skin damage, pressures, fluid properties, and boundaries.
- A surface test tree consisting of several control valves would be attached to the top of the drill pipe for the DST. A flowline would be extended from the test tree through a choke assembly to a flare pit away from the hole in order to burn any gas that may come to the surface. A berm is usually constructed around the pit to contain the flare and any materials such as cuttings or fluid, which might be blown out with the gas stream. Using these data and

the evaluations of engineers and geologists, a decision would be made to complete the hole for potential production of oil or gas or proceed with abandonment according to state and federal standards.

- For sandstone reservoirs, cased-hole well testing would be conducted by first performing a small injection test to evaluate the permeability. If it is determined the zone of interest may be capable of economic production, it may be hydraulically stimulated. The well would be flowed to the surface to recover the stimulation fluids from the reservoir and to gauge its productivity. Depending on the productivity of the well, flow tests can be conducted over several days or weeks. The gas would be flowed into a test tank to recover any fluids produced during testing. When stabilized flows are reached, the well would either be shut-in to await a pipeline connection or hooked up to an existing gathering system and the well would be placed into production.
- Coal reservoirs in the project area are expected to produce very similar to a sandstone reservoir. All the data from coal mine exploratory wells and gas wells drilled in the early 1980's suggest the coals seams are relatively dry. The coal seams do not contain large amounts of water, which has to be produced prior to gas production. Gas is adsorbed into the coal by a means other than the hydrostatic pressure of water.

Water Use and Supply

- Drilling operations would be responsible for most of the water consumed (mainly for cement) during project operations. A small amount of water would be used for dust suppression. Water would be hauled by truck to the well locations over existing roads from GEC's Oxbow Coal Mine located near Somerset, Colorado.
- Water volumes used in the drilling operations are dependent upon whether the well is drilled using air or mud as the circulation medium, the depth of the well, and the losses that might occur during drilling. In addition, it is possible that approximately 25 percent of the used water could be recycled at each well. The estimated range in total water use for all eight wells is between 1,128,000 to 1,792,000 gallons (3.4 to 5.4 acre-feet) without recycling. By recycling approximately 25 percent of the water, total water use could be reduced to approximately 846,000 to 1,344,000 gallons (2.6 to 4.1 acre-feet).

Water/Waste Disposal

- Solid Waste - All solid waste that results from the drilling operations would be contained in an expanded metal cage. All material in the trash cage would be removed from the site and deposited in an approved sanitary landfill. Sewage disposal facilities would be used in accordance with the U. S. Forest Service (USFS), BLM, and Colorado regulations. Contents would be hauled to a Colorado Public Health and Environmental Department approved disposal site.

- Hazardous Waste – No hazardous waste is expected to be generated as a result of project operations. If hazardous waste is produced due to a spill, a certified transporter and disposer would handle the waste to a Resource Conservation and Recovery Act-approved offsite disposal facility.
- Produced Water – Water could be produced during drilling operations. The produced water would be held in tanks, tested, and removed to a certified disposal facility. The closest disposal site is the Black Mountain Disposal in Mesa County near Grand Junction. It is not known at this time the quantity of water that could be produced during completion operations; however, it would likely range from zero to 150 barrels per day (bpd) per well, declining to 30 bpd after 6 months. When the reserve pit is no longer required, water (if present) would be evaporated and solid material (i.e., drill cuttings) would be buried with reserve pit backfill at a minimum depth of 4 to 5 feet. Excess fluids, if present, would be contained on site and removed to a certified disposal facility.

Traffic Estimates

- Construction, drilling operations, and reclamation traffic would occur during an approximately 20-day period at each site. Total round trips would range from 3 to 54, with an average of 17, trips per day per site. It is anticipated that there would rarely be a time when all operations personnel would be traveling simultaneously to a particular well site. Drilling and completion work would be accomplished by sequencing crews to two or three well pad sites.
- The haul route to the Black Mountain Disposal would include State Highways 133 and 92 to Delta and State Highway 52 to Grand Junction.

Erosion Control, Reclamation and Future Use

- Erosion control at the well pad site would be provided by the Storm Water Pollution Prevention Plan and Grading and Surface Water Hydrology Plan. These plans would reduce or control erosion by use of trenches, grading contours, sediment traps, and drainage ditches. Erosion control for the new road segments would consist of borrow ditches, wing ditches, and water bars as described in the Engineered Road Plan for each site.
- Reclamation would be completed on all disturbed areas to comply with the USFS and BLM requirements. The short-term goal of reclamation is to stabilize disturbed areas as soon as possible to prevent degradation to the well pad sites, new access roads, and adjacent areas. The long-term goal is to return the disturbed land to conditions approximating those that existed prior to the disturbance.

Project Sequencing

If approvals are given to drill the proposed wells, GEC proposes to drill in the following sequence: Leon Lake No. 5, Bull Park Federal, Oak Brush Federal, Hawksnest Federal, Thompson Creek Federal, Hubbard Creek Federal, Powerline Federal, Leon Lake No. 4. Drilling at each location is anticipated to require 8 days. After drilling, the testing activities would commence at the drilled location, while the drill rig would move to the next location. Completion activities at each location would commence approximately one after completion of drilling.

C2. Mitigations Included as Part of the Proposed Action

The following environmental protection measures are included as part of the Proposed Action. These measures are required as part of the lease stipulations or proposed in the APDs. The applicability of these measures to the well sites and their access roads is noted in parentheses.

Air Quality

- 1) Dust would be controlled using non-toxic and non-polluting materials (all sites).

Geology and Minerals

- 1) No surface occupancy or use would be allowed in areas with high geologic hazards. These areas, which are located in portions of Sections 14, 22, 23, 26, and 27 in T12S, R91W, are characterized by active mudflows, earthflows, landslides, and potential avalanches (Lease COC-65534).
- 2) Special interdisciplinary team analysis and potential mitigation plans would be required for surface occupancy or use in areas of moderate geologic hazards. Potential moderate geologic hazards are located in portions of Sections 14, 22, 23, 26, and 27 in T12S, R91W (Hubbard Creek and Oakbrush sites); Sections 31 and 32 in T12S, R91W (Bull Park site); and Sections 16, 17, and 18 in T12S, R91W (Powerline site).
- 3) In the Paonia-Somerset Known Recoverable Coal Resource Area where the overburden is 3,500 feet or less, the management emphasis would be on exploration and development of coal resources. Oil and gas development in this area would allow maximum economic coal recovery and maintain safe underground mining operations (Hubbard Creek, Oakbrush, Bull Park, Powerline, Thompson Creek, and Hawksnest sites).

Soils

- 1) No surface occupancy or use would be allowed on slopes >60 percent, which are present in portions of Sections 14, 22, 23, 26, and 27 in T12S, R91W (Hubbard Creek and Oakbrush sites); Sections 31 and 32 in T12S, R91W (Bull Park site); and Sections 16, 17, and 18 in T12S, R91W (Powerline site).
- 2) Special interdisciplinary team analysis and potential mitigation plans would be required for surface occupancy or use in areas with slopes ranging from 40 to 60 percent. Areas with 40 to 60 percent slopes are present in portions of Sections 14, 22, 23, 26, and 27 in T12S, R91W (Hubbard Creek and Oakbrush sites); Sections 31 and 32 in T12S, R91W (Bull Park site); and Sections 16, 17, and 18 in T12S, R91W (Powerline site).
- 3) Soil erosion would be prevented by implementing procedures in the Storm Water Pollution Prevention (SWPP) Plan and reclamation of disturbed areas (all sites).
- 4) Surface disturbance would be restricted to approved locations. Construction equipment would be restricted to the road ROW at all times. Use of additional areas must be approved in advance by the USFS District Ranger or the BLM (all sites).
- 5) Effects of potential spills or leaks at well sites would be minimized by implementing a Spill Prevention, Control, and Countermeasure Plan.

Water Resources

- 1) No surface occupancy would be allowed within 500 feet of the normal high water mark of any and all lakes, ponds, and reservoirs unless an exception is approved (Leon Lake #4 and #5).
- 2) No surface occupancy would be allowed within 500 feet of the normal high water mark of any and all streams unless an exception is approved (Leon Lake #4 and #5).
- 3) No surface occupancy would be allowed within 400 feet of springs unless an exception is approved (Leon Lake #4 and #5).
- 4) No surface occupancy would be allowed in an area defined as a floodplain unless an exception is approved (Hubbard Creek, Oakbrush, Bull Park, and Powerline sites).

- 5) Erosion would be prevented by implementing procedures in the Storm Water Pollution Prevention (SWPP) Plan, Grading and Surface Hydrology Plan, and reclamation of disturbed areas (all sites).
- 6) Effects of potential spills or leaks at well sites would be minimized by implementing the Spill Prevention, Control, and Countermeasure Plan.
- 7) The Operator shall perform initial water quality and quantity baseline testing for all water wells or springs for which surface owner access is granted within a one-mile radius area prior to the proposed drilling operation. Baseline data on springs will include location coordinates and photo documentation in addition to quantity measurements and documentation of the method of quantity measurement where possible. The initial water quality baseline testing shall include benzene, toluene, ethylbenzene, and xylenes, methane, major cations and anions, total dissolved solids (TDS), iron, manganese, ammonia, pH, presence of bacteria, specific conductance, and hydrogen sulfide.

Copies of all test results described above shall be provided to the Colorado Oil and Gas Conservation Commission, the local county, the BLM and the Forest Service within three (3) months of collecting samples used for the test. If it is determined that the well will be a producing well, the operator will submit a plan for periodic monitoring of water wells and springs in the area.

Vegetation

- 1) No surface occupancy (i.e., well sites) would be allowed in an area defined as a wetland or riparian vegetation unless an exception is approved (Hubbard Creek, Oakbrush, Bull Park, and Powerline sites).
- 2) Road location and construction would be completed in a manner that would maintain the basic natural condition and character of riparian areas (all sites).
- 3) A Noxious Weed Management Plan would be implemented to prevent the spread of noxious weeds both during and after construction activities. These measures would include special handling of vegetation and soils stripped from identified weed infestations, the use of weed-free mulch and weed-free straw bales to control erosion, and follow-up monitoring and treatment methods that would be implemented following construction (all sites).
- 4) Revegetation of all disturbed areas (all sites).

- 6) Fire prevention and control measures would be implemented during all activities (all sites).

Wildlife

- 1) No exploration, drilling or development activity would be allowed in big and small game winter range from December 1 through April 30. Winter range for game species (mule deer, elk, bighorn sheep, and turkey) is present in portions of Sections 31 and 32 in T12S, R91W. (Bull Park site).
- 2) No surface use will be allowed in big game crucial winter range from December 1 through April 30. Winter range for game species (mule deer and elk) is present in portions of Sections 1, 2, 3, 5, 6, 10, 11, and 12 in T13S, R90W. Exceptions or waivers to these seasonal constraints may be authorized in writing by the BLM (Hawksnest site).
- 3) New roads in portions of Sections 31 and 32 in T12S, R91W would be closed yearlong to the public to protect big and small game species (mule deer, elk, bighorn sheep, and turkey) (Bull Park site).

Threatened and Endangered Species

- 1) Prior to any surface-disturbance activities, an impact evaluation would be completed by a qualified resource specialist for federally listed species and their habitat or species proposed for listing as threatened and endangered as required under the Endangered Species Act (all sites).
- 2) No surface use would be allowed from December 1 through April 30 to protect potential bald eagle winter concentration areas along the North Fork of the Gunnison River in Sections 10, 11, and 12 in T13S, R90W (Hawksnest site).

Visual Resources

- 1) All facility structures would use colors to blend in with the surrounding landscape. Paint color should have a flat, non-reflective finish (all sites).

Cultural and Paleontological Resources

- 1) GEC would notify the USFS or BLM if any cultural or paleontological resources were discovered during surface disturbance activities. The discoveries would be left intact until the permission to proceed is given by the USFS or BLM (all sites).

Land Use and Recreation

- 1) No surface occupancy would occur within 200 feet of the centerline of trails unless an exception is approved (Leon Lake #4 and #5).
- 2) No surface occupancy would occur within 400 feet of any improvements either owned, permitted, leased, or authorized by the USFS (Leon Lake #4 and #5).
- 3) The existing Coal Gulch/Pilot Knob ATV trail will be rerouted around the west side of the Thompson Creek 12-91 #1-35 until such time that it can be returned to its original location.

Transportation

- 1) No surface occupancy would occur within 500 feet on either side of the centerline of any and all roads and/or highways unless a waiver is approved (Leon Lake #4 and #5).
- 2) Activities on all or portions of leases COC-65529, 65535, and 65537 must comply with the Roadless Area Conservation Rule.
- 3) All newly constructed roads would be closed to motorized public use unless site-specific analysis warrants public use (all sites).
- 4) Vehicular traffic would be restricted to approved locations. Construction equipment would be restricted to the road ROW at all times. Use of additional areas must be approved in advance by the USFS District Ranger or the BLM (all sites).
- 5) No mud blading would be allowed on the access roads. Movement of heavy equipment would be scheduled during the week to avoid high traffic periods. Drilling equipment would not be moved during spring breakup (all sites).

D. Purpose and Need of the Proposed Action

The purpose and need for the proposed action is:

1. To allow Gunnison Energy Corporation to conduct natural gas exploration drilling to gather data about the extent and distribution of natural gas resources on existing federal oil and gas leases C-13563-A, COC-65117, 65529, 65534, 65535, and 65537, to determine the technical and economic feasibility future gas production, consistent with lease terms and conditions.

2. To allow Gunnison Energy Corporation to exercise their exclusive right to explore for oil and gas reserves on the lands contained in their respective federal leases, with the right to build and maintain improvements needed for drilling operations, consistent with lease terms and conditions.
3. Private exploration and development of Federal minerals is authorized and encouraged by the Mineral Leasing Act of 1920, the Mining and Minerals Policy Act of 1970, and the Federal Land Management and Policy Act (FLPMA). Private development of Federal oil and gas leases is a part of the Forest service and BLM oil and gas leasing programs. Federal minerals leasing encourages exploration for domestic oil and gas reserves to reduce dependence on foreign energy supplies.
4. The general purpose and need for the project is to follow the direction given in the GMUG Forest Plan and Oil and Gas Leasing EIS, which encourages environmentally sound energy and mineral development, and which emphasizes oil and gas exploration outside wilderness areas; and the BLM-Uncompahgre Resource Management Plan (RMP) which identifies oil and gas activities as part of it's standard management direction.

E. Authorizing Actions

Leasing and exploration for federal oil and gas resources are under the authority of the Mineral Leasing Act of 1920, the National Mining and Minerals Policy Act of 1970, the National Environmental Policy Act of 1969 (NEPA), the Federal On Shore Oil and Gas Leasing Reform Act of 1987 (FOOGLRA), FLPMA; as well as Federal regulations at 36 CFR 228, and 43 CFR 3160. The pending decisions will conform to the overall guidance of the Grand Mesa-Uncompahgre and Gunnison National Forests Plan (1983) and Oil and Gas Leasing Environmental Impact Statement (1993), and the BLM- Uncompahgre Basin RMP (1989).

F. Decisions to be Made by Responsible Officials

The Forest Supervisor of the GMUG must decide whether or not to approve SUPOs for the Leon Lake No. 4 and 5; Powerline Fed 12-91 #1-17, Hubbard Creek Fed 12-91 #2-23, Bull Park Fed 12-91 #1-31, and Oakbrush Fed 12-91 #1-26, and prescribe provisions for the protection of surface resources (Conditions of Approval).

The Forest Supervisor must also decide whether or not to grant 'exceptions' to lease stipulations for the Leon Lake No. 4 and 5 wells, as described below:

Leon Lake #4

Exception for the lease stipulation that requires drill sites to be located at least 500 feet from the high water levels of ponds and streams, (proposed drill site is approximately 460 feet from the normal high-water-line of a Surface Creek).

Leon Lake #5

- Exception for lease stipulation that requires drill sites to be located at least 500 feet from the high water level of streams (drill site proposed approximately 97 feet from intermittent stream).
- Exception for lease stipulation that requires drill sites to be located at least 500 feet from the centerlines of an existing road (drill site proposed approximately 330 feet from centerline of FR 127).

The BLM-Uncompahgre Field Office Manager must decide whether or not to approve the SUPOs for the Hawksnest Fed 13-90 #1-2 and Thompson Creek Fed 12-90 #1-35, and prescribe provisions for the protection of the Public Land surface resources.

In addition, the BLM-Uncompahgre Field Office Manager must also decide whether or not to grant rights-of-way for road access to the Hawksnest and Thompson Creek, Hubbard Creek and Oakbrush wells, as well as for the Thompson Creek drill site location itself. If approved, the rights-of-way will prescribe conditions for the protection of public land resources.

The BLM-Durango Field Office Manger has the responsibility for final approval of the APDs, including the “downhole” or technical engineering portion, and the completion activities. The BLM Durango Field Office must have approval and terms of surface use prior to the final APD approval. This approval would authorize drilling holes on lands involving Federal ownership (surface and mineral estates).

If all or certain individual SUPOs are not approved at this time, the proponent could apply in the future to drill at other locations on the leases. The leases grant exclusive rights for the lessee to explore for and produce the oil and gas resources on the lease. If the decision to approve is made, the Deciding Officials will have the opportunity to select any additional mitigations identified as part of the environmental analysis to reduce surface impacts.

Chapter 2 – Issues and Alternatives

As required under NEPA, input on the proposal to drill eight natural gas exploratory wells was solicited from appropriate agencies, specific interested parties, and the general public. The comments received were analyzed and summarized to identify issues and concerns of the respondents. Based on comments on this proposal and the identified issues, the USFS and the BLM developed alternatives that address the purpose and need for the project. The following information summarizes the public involvement process, the issues raised, and the alternative development process.

A. Public Involvement Process

The key elements of the public involvement process include the public scoping process, creation and maintenance of a project web site.

Public Scoping Process

The USFS and BLM conducted a public scoping process to solicit input on the proposed project. The scoping period began December 30, 2002 and ended January 31, 2003. The scoping process included the following components:

1. Scoping Notification

A legal notice of the scoping period appeared in the *Grand Junction Daily Sentinel* on December 28, 29, and 30, 2002.

News releases appeared in the *Delta County Independent* and the *Grand Junction Daily Sentinel* on January 8, 2003.

A scoping letter, including a project map, was mailed to approximately 950 addressees on USFS/BLM mailing lists. The scoping letter was dated December 30, 2002.

2. Scoping Open House

The USFS and BLM held a public scoping Open House at Heritage Hall in Hotchkiss, Colorado, on January 22, 2003, from 4:00 to 7:00pm. The objectives of the meeting were to provide information to the public regarding the proposed project and to solicit public input. A total of 38 people signed the attendance record for the scoping meeting.

The scoping Open House was announced on public radio station KVNF, which broadcasts from Paonia, Colorado, and was advertised in the *Delta County Independent*.

3. Summary of Scoping

A total of 279 comments were received during the public scoping period. The public submitted written comments at the scoping meeting and by mail and e-mail. In addition, several parties

submitted verbal comments via telephone. The scoping comments are summarized in Sections B and C below.

5. Schedule of Proposed Actions

The project is also included in the GMUG schedule of proposed actions (SOPA). The SOPA is mailed to about 300 individuals on a quarterly bases. It is also available via the GMUG website.

Project Web Site

The USFS and BLM are establishing a project Internet web site, which will be updated approximately monthly. The web site includes:

- Project summary and map
- NEPA process
- Public participation opportunities
- Scoping summary
- Status of EA preparation
- Agency contacts for the EA
- Memorandum of Understanding between the project Proponent, Forest Service and BLM for a primary consultant to prepare the EA.

B. Concerns and Issues Raised During Public Scoping

B.1 Public Concerns Identified During Scoping

The following process concerns were identified during the scoping. The public raised several concerns pertaining to the NEPA process, these concerns are listed below:

- Concern with adequacy and objectivity of environmental baseline studies and impact analyses for all resources.
- Prepare EIS (rather than EA) for GEC's proposed exploratory drilling project due to potential for significant impacts.
- Ensure adequate monitoring and mitigation.
- Need for coordination with county commissioners and agencies.
- Clarify public involvement process.
- Clarify third-party contractor arrangement for preparation of NEPA document.
- Need for energy resource development, including development within the United States.

- The agencies need to disclose the off site impacts.
- Disingenuous nature of looking at exploration without production.

B.2 Issues to be Carried Forward for Analysis

The following issues are associated with the potential effects of the proposed project to specific environmental resources.

Operations and Gas Resources

- This is a coalbed methane (CBM) project and not conventional natural gas
- Concern with exploratory well density, e.g., Leon Lakes #2, #4, and #5.
- Indicate geologic basis and criteria for well site locations.
- Proper fracing and design must be used.
- Need for proper cementing and casing.
- Need to test formations near wellbore.
- Explain vast difference between CBM and conventional gas wells.
- Conventional wells are devoid of water and flow under own pressure.
- Disclose the amount and types (benzene, toluene, ethylbenzene, xylene, polycyclic aromatic hydrocarbons, methanol, naphthalene, sodium hydroxide, MTBE, ethylene glycol, monobutyl ether) of fracing fluids to be used.

Air Quality

- Impairment of air quality, including ozone levels, volatile organic compounds, fugitive dust from truck traffic on roads, and emissions from vehicles and flaring, and other on-site operations.
- Effects of diesel generator emissions.
- Release of chemicals that create ground-level ozone and greenhouse gases.
- Effects of methane leaks.
- Hazardous air pollutant emissions.
- Odors produced by drilling operations.

- Identify proposed dust abatement measures.
- Effects of air quality changes on the West Elk and Raggeds Wilderness areas
- Effects of airborne silica.
- Potential air-quality-related effects on organic orchards.

Geology and Minerals

- Drilling will allow opportunity to gather gas and ground water data
- Risk of hydrofracing to interconnect strata.
- Drilling effects on fault lines and indirect effects on aquifer water quantity and quality.
- Hydrofracturing effects on seismic activity and associated effects on water storage systems.
- Hydrofracturing effects on Surface Creek fault.
- Risk for landslides, earthquakes, and subsidence induced by groundwater withdrawal.
- Effects of gas seeping out of outcrops

Soils

- Increased erosion potential.
- Potential soil contamination due to leak or spill of saline water, hydrofracturing chemicals, fuels, and lubricants.
- Effects of proposed activities on slope stability.

Surface Water

- Adequacy of baseline surface water information and need for pre-activity water testing.
- Drilling and hydrofracturing effects on surface water quantity and quality.
- Drilling and hydrofracturing effects on domestic water supplies, including domestic water wells and municipal supplies (Town of Cedaredge, City of Orchard City, Upper Surface Creek Water Users Association, Colby Water District, Pitkin Mesa Pipeline, Sunshine Mesa Water Company).

- Drilling and hydrofracing effects on irrigation water supplies (Terror Ditch, Overland Ditch, Leroux Creek).
- Drilling and hydrofracing effects on water rights, and how will damaged water rights be replaced.
- Drilling and hydrofracing effects on stock water sources on federal and adjacent private lands.
- Effects of produced water (salinity and selenium) on surface water quality.
- Effects of spills or overflows of containment ponds on surface water quality.
- Spill effects of transferring produced water to waste disposal site in the Upper Colorado River Basin.
- Sedimentation effects from construction and vehicle traffic on surface water quality and potential of proposed activities to increase sedimentation to surface water drainages.
- Ensure monitoring of surface water quantity and quality in potentially affected areas.
- Surface water quality effects of fertilizer use during reclamation.
- Effects of vegetation removal on runoff characteristics, potential sedimentation to surface drainages.
- Potential for proposed activities to create water depletion in Colorado River basin.
- Cumulative effects of proposed activities on water resources in light of current drought.

Ground Water

- Adequacy of baseline ground water information, and need for pre-activity water testing.
- Potential effects of drilling, including water injection on groundwater quantity and quality, and aquifer depletion.
- Increased metal (including selenium) and salinity levels in groundwater.
- Effects of drilling and hydrofracturing on ground water quality and quantity.
- Effects of drilling and hydrofracturing on wells used for domestic, commercial, and agricultural purposes.

- Effects of drilling on springs (water quality and quantity).
- Effects of fertilizer use on ground water quality during reclamation (i.e., nitrate and phosphate increases in wells).
- Effects on groundwater basin translocation.
- Effects on groundwater recharge, including coalbeds that are in recharge area.
- Potential for gas to migrate through coalbeds that are recharging creeks.
- Effects to ground water rights and how will damaged water rights be replaced.
- Define if the ground water is tributary or non-tributary.
- Cumulative effects of proposed activities on water resources in light of current drought.
- Disclose amounts of produced water, toxicity, and how it will be disposed.

Vegetation/Range

- Effects on wetland quantity and quality.
- Effects on riparian areas due to increased selenium.
- Effects to forest vegetation.
- Increased risk of fire effects to vegetation.
- Potential for spread of noxious weeds, including potential for weeds to be introduced through use of contaminated road base materials.
- Air quality effects to vegetation.
- Effects of release of hydrofracturing chemicals or saline water from reserve pits on vegetation.
- Effect on agricultural productivity.
- Effects on cattle grazing, stock water sources (including fencing stock ponds), and open range.
- Effects on fencing, range allotments, and grazing permits
- Traffic effects on cattle along access roads.

- Disclose how timber removal will be handled.
- Effects to *Aconitum bakeri* forma *ochrolecium* form of (monkshood).

Wildlife

- Effects on USFS management indicator species.
- Stress, displacement, migration, and critical winter range effects to big game.
- Disturbance to elk herd calving areas, including area approximately 2 miles away from Leon Lake # 4 and #5.
- Effects on migratory and nesting bird species.
- Noise and human disturbance effects on wildlife.
- Potential habitat fragmentation due to drilling and road building.
- Potential toxic effects on wildlife from exposure to industrial pond water, and reserve pits.
- Beneficial impact of increased grasses and shrubs in reclaimed areas.
- Effects on wildlife linkage areas.
- Effects of proposed action on species diversity.
- Disclose effects of winter use on wildlife.
- Effects on “enhanced wildlife area” in Gunnison National Forest (Hubbard Park).
- Effects to important wildlife habitat landscape features (e.g., corridors between regionally important wildlife usage areas).

Fisheries

- Potential effects of spills, sediment loading, sedimentation, and contaminants on fisheries.
- Effects of selenium on aquatic life.
- Effects to Colorado River cutthroat trout.

Threatened, Endangered, and Sensitive Species

- Effects to threatened, endangered, and sensitive species.
- Effects to potential reintroduction of lynx and potential habitat destruction for lynx and snowshoe hare.
- Effects of potential effects to water resources on Colorado River endangered fish species.
- Disclose effects of potential winter use on TES species.

Land Use/Recreation

- Effects of construction traffic on use by recreationists (horseback riders, hunters, fishermen, 4-wheelers, mountain bikers, and campers) and local residents.
- Visual and noise effects on outdoor recreation enjoyment.
- Potential loss of recreational opportunities (hiking, cross country skiing, biking, hunting, snowmobiling).
- Displacement of dispersed recreation sites.
- Effects on current access to recreation.
- Potential availability of new roads for recreation access.
- Compatibility with off site local land uses (railroad, mining, logging, agricultural crops, and grazing).
- Consistency with existing designated land uses.
- Effects on the naturalness of Grand Mesa.
- Effects on recreational trail use on the Coal Gulch/Pilot Knob ATV trail.

Noise

- Noise effects from drill pads activities.
- Noise effects from increased truck traffic, including effects on local communities.
- Adequacy of baseline noise data for well sites and truck traffic routes.

Visual Resources

- Effects of exploration on visual resources and scenery.
- Effects of road development on visual resources.
- Effects on Grand Mesa National Scenic and Historic Byway and West Elk Scenic Loop.
- Effects of light pollution from lighting at drill sites.

Cultural Resources

- Effects of proposed activity on known cultural or historic resources.

Transportation

- Effects of new road development in area, and upgrading existing roads.
- Damage and wear to roads from increased truck traffic.
- Effects of truck traffic on public safety, including school zones.
- Ensure adequate standards for new roads.
- Public use of new roads for recreation and other uses.
- Road construction, traffic effects on road use by recreationists, (horseback riders, hunters, 4-wheelers, mountain bikers, and campers) local residents, and cattle grazing.
- Effects of increased truck traffic on other uses of FS Roads, including 125 and 127, i.e., hunters, hikers, campers horseback riders, ranchers, fishermen, mountain bikers, 4-wheelers, and snowmobilers.
- Traffic effects on Grand Mesa National Scenic Byway and West Elk Scenic Loop.
- Traffic effects on road access to water ditches.
- Financial responsibility for road development and maintenance.
- Drilling traffic conflict with road closures (seasonal and non-seasonal).
- Consider mitigation, including:
 - Restricting nighttime traffic

- Restricting winter traffic (October through April)
- Road paving
- Constructing equine/cattle trails parallel to roads
- Compliance with agency and county dust control requirements.
- Potential erosion from new roads.
- Effects on Highway 65 National Scenic Byway.
- Off site impacts of transporting produced water to disposal site.
- Effects of new roads and existing road use on GMUG travel plan.
- Improvements to FR 127 will make it unusable to other interests.
- Effects of winter road use.
- Need to prepare a Road Analysis Procedure for the project, and follow guidance of Forest Service Interim Directive 1920.

Socioeconomics

- Identify amount and agency use (local or otherwise) of oil and gas lease fees.
- Effects to local economy including:
 - Loss of retiree revenues
 - Decreased agriculture productivity
 - Maintenance of tax base and associated services
 - Higher local infrastructure maintenance and emergency services costs
 - Loss of tourism revenues
 - Loss of recreation revenues
- Economic effects on ranching and farming.
- Effect on quality of life and life style.
- Population loss and associated economic effect to local business.
- Effects on property values and real estate.
- Economic benefit from future natural gas and coalbed methane development.

- Effect associated with timber and firewood removal.
- Potential loss of hunting revenue from big game herd displacement.

Health and Safety, Potential for Fire Danger

- Potential health effects of chemicals used during drilling.
- Ensure fire prevention plan to minimize effects of fires.
- Need for coordinated fire plan to include firebreaks, access roads, and logging.
- Potential fire danger associated with flaring of gas.
- Public safety concerns due to truck traffic on roads.
- Potential water quality effects due to spill of saline water during transport to disposal site.
- Risk of explosion caused by methane leak.
- Identify proposed disposal methods for hydrofracturing chemicals and saline water.
- Disclose potential for, and contingency plans to address potential spills, wellhead blowout, and fires.
- Ensure applicant coordination with local emergency services.

Reclamation

- Disclose reclamation bonding.
- Disclose reclamation standards and requirements.
- Potential for reclamation success, particularly woody species.

Hazardous Materials

- Transport of hazardous materials, considering need for weather or time of transport restrictions.
- Potential effects from release or spill.
- Disclose all chemical compounds to be used for proposed activities.

Cumulative Effects

- Consider cumulative effects of drilling and other activities on environmental resources.
- Consider cumulative effects on wildlife big game species and hunting.
- Consider cumulative offsite effects on Delta County roads, water resources, agriculture, and traffic.
- Include Leon Lake #2 in impact analysis.
- Consider the cumulative effects of development on the Grand Mesa Slopes.

C. Issues Not Carried Forward in the Analysis

The following issues were determined to be out of the scope of this project, or not affected by the Proposed Action. Rationale for the exclusion of these issues from the NEPA document is provided below.

- The FS and BLM need non-industry expertise to reviewing the drilling information.

The agencies have qualified geologists and petroleum engineers on staff that will review this drilling information.

- Will FS/BLM put restriction on number of exploratory wells can be drilled.

The usual process is for the proponent to analyze the exploration data and make a determination whether or not additional exploration is needed, or whether sufficient data has been gathered to warrant a production proposal. Any future proposals for exploration drilling or production will undergo a NEPA analysis.

- Will the FS regulate the siting of the wells.

The proposed well locations were sited based on stipulations contained in the oil and gas lease. Through the Notice of Staking and APD process, the agencies were involved in field siting the individual well locations.

- Can the agencies manage spacing of no more than one well per 160 acres, or restrict production well density.

Well spacing on an acreage basis is considered at the production stage. This proposal is for exploration. There is insufficient gas resource data at this time to assess whether production is viable. The BLM regulates spacing of federal oil and gas reserves, generally at 160 acres.

- What justification is required from the companies for proposed spacing.

Well spacing on an acreage basis is considered at the production stage. This project proposal is for exploration. A company would need to supply geologic and gas reservoir data to support a spacing plan.

- Consider surface disturbance associated with long-term coalbed methane development. Until a Supplemental EIS to the 1993 Oil and Gas Leasing EIS is done, the GMUG cannot approve CBM related leasing or development proposals.

This proposal is for exploration activities. There is insufficient gas resource data to meaningfully state that coalbed methane is present in the area in producible quantities. Therefore, considering long-term coalbed methane development at this time would be purely speculative.

- Consider full field development, and GECs long term plans. What could potentially occur on the 90,000 acres of GECs leases.

This proposed action is for exploration activities on existing leases. There is insufficient gas resource data to support considering full field development. The agencies will work with GEC on longer term plans once the exploration data is available.

- GEC has proposed 600 wells.

The agencies do not have applications for 600 wells. The number 600 is purely speculative, and is not based on any gas resource data, and is therefore unreliable. This NEPA document addresses the applications the agencies have received from GEC.

- How will gas wells fit into the Healthy Forests Initiative.
This project does not fall within the scope or auspices of the Healthy Forests Initiative, which is focuses on treating fuels and vegetation. This project would not impede management toward achieving goals of this Initiative.
- The leasing and drilling approval process is unsound.

The process followed for leasing and this exploration project proposal is following existing laws and enacting regulations.

- Need for equal treatment of private landowners and project proponents for access.

As holders of federal oil and gas leases, the project proponent is guaranteed a right for reasonable access to explore and develop a lease. Private landowners applying for easements to access private lands across federal lands are given the same consideration for reasonable access.

- Forest Service has made the decision not to reopen the Hubbard Canyon Road. How is upgrading Hubbard Canyon Road is considered environmentally damaging, but drilling is not.

No activities are proposed in Hubbard Canyon, therefore, this issue is out of the scope of this analysis.

- Road locations are not included on map included with scoping letter.

The proposed road access was included on the map in the scoping letter, and a text box was included to help explain the proposed routes and new spur roads proposed.

- Grand Mesa should be protected as a recreation area.

The Grand Mesa is managed for multiple uses. Water storage projects, livestock grazing, outfitter/guide activities are among the uses other than recreation that are currently occurring on the Grand Mesa.

- Evaporation ponds will be built to eliminate water.

No evaporation ponds are proposed.

- The legality of GECs leases is in question.

The agencies are not aware that GECs leases are illegal. The leases were issued in accordance with federal guidelines and regulations.

- Provide the Local Government Designee (LGD) access to the drill sites.

The agencies worked with the Delta County LGD during the Notice of Staking process. Allowing access for the LGD during the drilling process is not within the federal agency jurisdiction to grant. This is a request that needs to be brought before the Colorado State Oil and Gas Conservation Commission.

- Regulate the quantity of fracking fluids used.

There are no regulations pertaining to regulating the amount of fracking fluids used.

- The leasing was done without an EIS.

Lease COC-13563-A was leased in 1971, and predates the laws that required NEPA analysis for leasing. Leases COC-65529, 65534, 65535 and 65537 are on lands that were made available and authorized for leasing in the GMUG National Forest Oil and Gas Leasing EIS (1993). Lease COC-65117 is BLM public lands that were authorized for leasing the BLM-Uncompahgre Basin RMP (1989).

- Effects of noise from compressors.

No compressors are proposed.

- Consider Delta County regulations, as Delta County developing high industrial level regulations, including natural gas development; federal government should cooperate with county and postpone decision pending these regulations.

The agencies are aware of the proposed Delta County regulations. This issue is out of the scope of the analysis.

- Consider Gunnison County moratorium on oil and gas drilling.

The agencies are aware of the proposed Gunnison County moratorium. This issue is out of the scope of the analysis.

- Suggested use of Colorado School of Mines geologic analysis contracted by Delta County.

The agencies are aware of that this analysis is being prepared. It will be used as reference material when it is available.

- Adverse visual effects of pipelines should be addressed.

No pipelines are proposed.

- The environmental analysis should include gas development proposed by BDS International (three recompletion wells and six new wells in Buzzard Divide Area).

The gas wells proposed in the Buzzard Divide Area are about 12 miles north of this project area, and outside the cumulative impacts analysis area. These wells are proposed in a proven, producing gas field.

- Sustainable resources or other fuels should be considered as an alternative to natural gas or coalbed methane.

This would not meet the Purpose and need of the proposed action.

- Effects to “areas considered for wilderness designation.”

No areas proposed for wilderness designation are involved in the proposed action.

- Coalbed methane and natural gas development proposed for the entire Grand Mesa should be included in the cumulative impact analysis.

This proposal is for exploration activities. There is insufficient gas resource data to support considering full field development.

- Evaluate potential effects of gravel pit development.

No gravel pits are proposed as part of the proposed action.

- Identify landowner rights.

This issue is out of scope of the analysis for activities on federal lands.

- NEPA documents for oil and gas leases should include site-specific analyses of potential future leases; the leasing process is flawed in that future site-specific NEPA documents cannot preclude exploration or development that has been approved in a prior programmatic EIS.

The NEPA process for oil and gas leasing, exploration and development follow a tiered process. At the leasing stage, insufficient information is available to analyze site-specific impacts.

- Need for agency review of applicant’s track record.

The purpose of the NEPA analysis is to analyze the effects of the proposed project; the applicant’s performance on other projects is outside of the scope of this analysis.

- Delta County should hire an independent geologist to review drilling results.

This activity is outside of the scope of the NEPA analysis.

- Inconsistencies in agency policies regarding road uses, i.e., oil and gas exploration versus water development.

The NEPA analysis consider all relevant policies and regulations.

- Relevant existing documents, including the Oil and Gas Leasing EIS (1993), BLM's Uncompahgre Basin RMP (1987), and the GMUG Amended Land and Resource Management Plan (1991) do not address coalbed methane exploration or development; these documents should be updated prior to the environmental analysis of site-specific coal bed methane exploration or development.

The referenced documents pertain to leasing for oil and gas on federal lands. Subsequent NEPA analyses are prepared for site-specific proposals regarding exploration and development proposals, according to the tiered NEPA process used in oil and gas leasing, exploration and development.

- Concern with piece-mealing environmental studies for various proposed exploration wells, e.g., Leon Lake #2, etc.

The recompletion for the Leon Lake #2 well is not part of the Proposed Action. A separate environmental analysis was completed by the USFS, with the findings discussed in a Decision Memo.

- Leon Lake #2 drilling should not have been approved under a Categorical Exclusion; an EIS should be prepared for the Leon Lake #2 drilling.

The Leon Lake No. 2 recompletion activities were reviewed and approved in a Decision Memo. Preparation of an EIS for that activity was not warranted.

- The Leon Lake #2 stipulations should be applied to GEC's exploratory drilling proposal.

The Leon Lake No. 2 falls on the same oil and gas lease as the Leon Lake Nos. 4 and 5, therefore the same stipulations will apply. Conditions of Approval for each site specific will be developed from this NEPA analysis.

- Air quality modeling should be conducted for this analysis.

Requirements for dispersion modeling are established in guidelines for obtaining a permit for construction from the Colorado Department of Public Health and Environment, Air Pollution Control Division. These guidelines establish the need for a permit and include a threshold of emission rates for which modeling is required. For the installation and temporary operation of the drill sites, none of the predicted emission rates exceeds the established modeling thresholds.

- The 2000 Forest Service MIS Assessment is inadequate. The Forest Plan requires actual collection of MIS data.

There is no requirement that “site-specific” monitoring of population trends be conducted. Monitoring of population trend must be designed and conducted at a scale that is appropriate to the distribution and life history characteristics of the individual species. MIS population data monitoring was considered in the Forest-wide MIS assessment where such data is available. This information along with the adequacy of the Forest Service MIS assessment was affirmed in recent appeal decisions by the Regional Office, Appeal Deciding Officer for Sheep Flats and other GMUG Timber Sale projects.

- Effects on possible reintroduction of Uinta Basin hookless cactus, boreal toad, and boreal owl, and moose.

The project area does not contain suitable habitat for the hookless cactus. There are no plans for reintroduction of the Boreal owl on the GMUG. Reintroduction of the Boreal toad has been proposed for the Kannah Creek drainage about 15 miles west of the project area. No firm plans for reintroduction have been made. Moose reintroduction on the Grand Mesa has been put on hold due to concerns about chronic wasting disease.

- Effects on recreational trail use, including east end of Crag Crest Trail.

No project activities are proposed near the Crag Crest Trail.

- Effects to pristine and wilderness nature of Grand Mesa.

The Grand Mesa is managed for multiple uses including roads, water storage features, and recreation. There are no designated wilderness areas on the Grand Mesa.

- Improvements required for project-related use of FS Road 121.

There is no project-related use proposed for FR 121.

- Traffic transporting chemicals needs to be placarded.

This is a State law with which all commercial vehicles must comply.

- Potential for underground coal seam fire.

This is considered extremely unlikely in association with the proposed action. Underground coal seam fires are usually associated with coal burning naturally at the outcrop of the seam to the atmosphere, and in some cases with an underground mine. The outcrop ranges from 1 to 4 miles away from the proposed wells.

- Removing large quantities of water from shallow aquifers could cause sinkholes. Effects to utilities (gas, water, electric) from groundwater-drawdown-related geologic effects such as subsidence.

The proposed action does not include large quantities of water removal from shallow aquifers; therefore no sinkhole formation is anticipated, or risk to utilities from ground water withdrawal subsidence.

- The agencies need to place a moratorium on APDs pending completion of a Supplemental EIS on CBM development.

This is out of the scope of the proposed action. The agencies are considering exploration drilling on existing federal oil and gas leases.

- The GMUG will far exceed the number of wells “analyzed” in the 1993 EIS. The EIS assumed 47 wells.

The 1993 EIS was for oil and gas leasing. The analysis assumed a reasonably foreseeable development scenario for drilling permits over a 15-year period starting in 1993. For the Grand Mesa and Gunnison portions of the GMUG, it forecasted 24 wells (GMUG Oil and Gas EIS, Appendix E). Since 1993, about 5 drilling permits have been received and approved for these areas. The six permits being considered in this analysis are within the forecast.

- A Biological Evaluation has not been done for leasing. The FS is required to undertake an evaluation on whether leases “may effect” a TE species.

A Biological Evaluation was done at the time the GMUG Oil and Gas Leasing EIS was prepared.

- Potential disturbances to “roadless areas”, and compliance with the Roadless Area Conservation Rule.

None of the proposed activities are in an Inventoried Roadless Area. The Roadless Area Conservation Rule is currently enjoined from implementation.

- Risk of water Injection-induced seismic activity.

Water injection is not proposed.

D. Alternatives

Alternative 1 – No Action

No Action- Consideration of the No Action alternative is required by CEQ regulations ((40 CFR 1502.14). The GMUG and BLM-Uncompahgre Field Office would not approve the SUPOs as submitted. Selection of the No Action alternative would not authorize occupancy and surface use of the federal oil and gas leases at this time. All activities and natural processes currently permitted or occurring would continue. No additional mitigation or monitoring would be required as part of this alternative other than meeting Forest Plan and RMP directions, standards and guidelines. If the No Action alternative were selected for all or certain individual locations, then the proponent could reapply for drilling on a particular lease in the future.

Alternative 2 – Consent/Approval of All or Parts of Project as Proposed (Proposed Action)

This alternative would consider the eight-well exploration program as proposed in the APDs, including mitigations contained in the APDs. Additional mitigation measures may be required as a result of the environmental analysis.

Prior to the filing of APDs, the proposed drill sites and new access roads were evaluated considering the existing lease stipulations and other important resource issues. Based on the IDT field evaluations, each proposed drill site and/or new road spur segments were adjusted for the proposed well sites to account for individual resource concerns. The revised site/road locations are part of the Proposed Action. This alternative assumes that activities proposed will be done in accordance to standards identified in the GMUG Forest Plan, and Oil and Gas Leasing EIS, and the BLM-Uncompahgre Basin RMP.

Alternatives Considered but Not Analyzed in Detail

- Consider alternative drilling methods such as chemical mud bases, air drilling, and biodegradable chemicals.

Alternative drilling methods such as use of chemical mud bases, air drilling, and biodegradable chemicals were recommended during scoping. Air drilling and use of chemical mud bases and biodegradable chemicals are part of the Proposed Action.

- Consider alternate locations for the drill sites and roads.

The project was proposed through the Notice of Staking (NOS) option. As required by regulation, field onsite reviews for the proposed locations were held prior to submittal of the APDs. During these onsite reviews, the proposed locations and road access were placed to minimize surface disturbance and adverse impacts to other surface resources. The results of the field reviews are part of the Proposed Action.