GUNNISON ENERGY CORPORATION'S
PROPOSED EXPLORATORY GAS
DRILLING PROJECT

Appendix L

Response to Comments on the EA
Errata
Additional References

Response to Comments

Letter 1

1-1 Comment noted.

Letter 2

2-1 The potential mitigation measures presented in Table 2-8, and identified in the individual resource sections in the EA were designed to evaluate water resources in the event drilling encounters measurable groundwater. These mitigation measures employ "best practices" solutions and are consistent with standard practice for monitoring water resources.

Some groundwater mitigation measures have been identified to be carried forward as Conditions of Approval in the decisions (see individual agency Decisions). There is a need for additional groundwater information to better quantify the hydrogeologic system, and to provide monitoring opportunities if gas wells are determined to have production potential.

2-2 Air quality impacts are described in Section 3.1.2 and summarized in Table 2-8. The conclusion of the analysis is that air quality impacts would be minor after implementing dust control measures identified in the Design Features of the Proposed Action (2.1.2.12). The one additional mitigation measure involving control of the blooie line discharge dust is identified in the GMUG Oil and Gas EIS recommended to further reduce local particulate levels at the pad site.

2-3 Comment noted.

Letter 3

3-1 Comment noted.

3-2 Additional mitigation measures being carried forward as Conditions of Approval are listed in the respective agency decisions. These are included as part of the decisions to further reduce resource risk, or minimize potential impacts from the project. In some instances, additional mitigation involves monitoring to confirm impact predictions are correct.

3-3 The economic benefits of the Proposed Action are discussed in Section 3.13.2.2 Economic Effects on page 3.13-7. As described, these benefits would be short-term and

limited in scale due to the short-duration of the relatively labor intensive and costly exploration drilling and completion phases of the project.

3-4 If one or more of the wells proves to be economically viable, applications may be submitted to bring the wells into production. A separate NEPA analysis would be completed on any future proposals in accordance with the "Staged Decision Process" described in Section 1.5 of the EA.

Letter 4

4-1 Comment noted.

4-2 Impact discussions for air quality (Section 3.1.2) identify minor temporary increases in criteria pollutants, particulates, methane, CO2, and aromatic compounds in flare emissions. As discussed in Section 3.4.2, potential impacts on water resources include localized sedimentation and potential fuel or chemical spills or leaks. Impacts are considered to be minor after implementing design features of the Proposed Action. Additional mitigation is proposed to further reduce potential effects of project activities on air quality, water, and other environmental resources. In some instances, additional mitigation involves monitoring (e.g., surface and groundwater quality) to confirm impact predictions.

Letter 5

5-1 Comment noted.

5-2 See response to comment # 2-1

Letter 6

6-1 Exceptions to specific stipulations on lease C-13563-A for location of drill sites within 500 feet from the high water levels of ponds, lakes, reservoirs and streams, and for locations of drill sites within 500 feet of the centerline of any roads were identified in the EA, Section 1.4, Decisions to be Made by the Responsible Officials. The authorities for considering an exception to a lease stipulation are discussed in Section 1.5 of the EA. These exceptions can be considered if the action complies with NEPA, is consistent with the existing land management plan, and if the management objectives can be met.

Lease C-13563-A was issued in 1971, prior to the GMUG Forest Plan (1983), and GMUG Oil and Gas Leasing EIS (1993) that identified the land management prescriptions and the standards and to which oil and gas operations would comply. Ponds, lakes, reservoirs and streams are part of what is called Management Prescription 9A

(Aquatic/Riparian/Wetland Habitats) in the Forest Plan. The Forest Plan defines these habitats as aquatic and adjacent ecosystems that remain within 100 feet measured horizontally from the edges of all perennial streams and from the shores of lakes and other stillwater bodies (Forest Plan page III-238). The land management prescriptions present where the proposed wells are located are discussed in Section 1.5 of the EA. The proposed locations of the Leon Lake No. 4 and 5 wells are outside the 100-foot demarcation for these habitats as defined in the Forest Plan. The Leon Lake No. 4 is 460 feet from the normal high water level of an unnamed natural pond, and the Leon Lake No. 5 is 97 feet from an intermittent drainage (EA, Section 1.4). Granting exceptions to this lease stipulation is in compliance with the Forest Plan.

The analysis presented in Chapter 3 of the EA indicates no detrimental effects to the pond and intermittent drainage near the Leon Lake 4 and 5 sites.

The management objectives for the management prescription areas present can be met for the proposed activities.

6-2 As described in Design Features of the Proposed Action (EA, Section 2.1.2.12), feature Wildlife 5, raptor nest surveys and USFS and BLM sensitive breeding bird surveys would be conducted in potentially suitable habitat within a 0.25-mile radius of the proposed drill sites. Raptor nest and breeding bird surveys were conducted from June 22 – 26, 2003. No active or historic raptor nests or sensitive species were observed within a 0.25-mile radius of the proposed disturbance areas. As discussed in the EA on page 3.7-17, additional mitigation for wintering bald eagles along the North Fork of the Gunnison River is not required, since the project would not affect water quality of quantity. Additional mitigation measure FW-3 on page 3.6-23 of the EA specifies that no surface activities will be allowed within a 0.5-mile of active golden eagle nests. Golden eagle nests are most likely to occur on the BLM lands. See also the Conditions of Approval in the respective agency decisions.

6-3 The EA analysis considers the lack of structural data on the Mesaverde Formation (Section 3.4). A one-mile radius for the potential impact zone of hydrofracturing was designed to give a safety factor of 10 times the expected 500-foot radius for hydrofracturing impacts. As disclosed in the EA, none of the eight proposed natural gas wells should measurably impact groundwater resources, and private domestic water supply wells would not be affected.

Conclusions of the Colorado School of Mines (CSM) hydrologic model of Delta County pertaining to gas drilling were presented to the Delta Board of County Commissioners on July 21, 2003. The CSM researchers found that there would be no impact from the exploration wells on the shallow water table, that is the alluvial aquifer where most of the

domestic water wells are completed. This conclusion supports the findings of the Forest Service and the BLM in this EA.

6-4 Effects of the proposed exploration drilling on recreational activities were raised as an issue to be carried forward (EA, Section 2.3, page 2-46), and analyzed in the EA (Section 3.8, Land Use and Recreation). Based on the analysis, three mitigation measures were identified to address recreational impacts (Table 2-8).

6-5 Mitigation measure TE-1 (page 3.7-23) that requires a sensitive plant survey to be conducted in potentially suitable habitat within proposed disturbance areas has been carried forward as a Condition of Approval.

6-6 Tree felling commonly scrapes and scars neighboring trees, which results in open wounds that can serve as vectors for insect and disease attacks. In addition, soil compaction can stress trees that have root systems in the affected zone resulting in less vigor to fight pathogens. In the case of the GEC proposed well sites, trees to be felled are predominantly aspen. Although they have an associated insect community, aspen are better known for the many diseases they routinely harbor. These are natural processes with a high frequency of occurrence in the aspen type and the disturbances proposed would not have a discernible effect beyond an individual tree. Aspens reproduce vegetatively forming long-lived, monospecific stands, meaning that the loss of a tree would have little significance relative to the stand or clone as a whole. Insect and disease surveys are conducted aerially by the USFS on a regional basis to track pest outbreaks for possible management. Surveys would not yield information pertinent to the GEC proposal.

6-7 The potential additional mitigation measure (HS-1) on page 3.15-3 would facilitate coordination with local emergency response providers. See Conditions of Approval in the individual agency decisions.

6-8 Specific information is needed concerning EA inconsistencies for alternative truck routes, water impacts, and regulation of fracing fluids. In reference to the visibility areas listed in Table 3.10-2, the numbers are correct. The total visible area consists of numerous land areas that would have visibility to more than one well site (i.e., there are places that would see both Leon Lake #4 and #5 sites). Therefore, the total visible area is actual land area rather than the addition of each well site acreage in the table. In reference to results listed in Table 3.10-2, text on page 3.10-5 incorrectly reported visibility information for Leon Lake #4 and Leon Lake #5. Visibility information from Table 3.10-2 for the remaining six well sites was correct. Text on pages 3.10-5 and 3.10-6 should read as follows:

Page 3.10-5, Paragraph 6, last two sentences: Overall, visibility of the proposed ground surface would cover approximately 9,147 acres or 2.0 percent percent of the total viewshed. Overall, visibility of the tallest structure would cover approximately 12,513 acres or 2.7 percent of the total viewshed.

Page 3.10-5, Paragraph 7, last sentence and Page 3.10-6, Paragraph 1, first sentence: Overall, visibility of the proposed ground surface would cover approximately 4,740 acres or 1.1 percent of the total viewshed. Overall, visibility of the tallest structure would cover approximately 11,018 acres or 2.4 percent of the total viewshed.

Page 3.10-5, Paragraph 7, last sentence and Page 3.10-6, Paragraph 1, first sentence: Overall, visibility of the proposed ground surface would cover approximately 4,740 acres or 1.1 percent of the total viewshed. Overall, visibility of the tallest structure would cover approximately 11,018 acres or 2.4 percent of the total viewshed.

Where inconsistencies have been noted by the agencies, an errata sheet has been prepared and included at the end of this appendix.

6-9 The effects of the proposed activities on elk calving were identified as an issue to be analyzed in the EA (EA, page 2-45). The impacts to elk calving are discussed in the EA in section 3.6.2.1. A potential additional mitigation measure (FW-4 on page 3.6-23) was identified to mitigate the impacts of the project activities on calving elk, this mitigation states that project activities would not be allowed during the elk calving period (May 15 through June 15) at the Leon Lake #4 and #5 and the Powerline sites. This mitigation measure as revised has been carried forward as a Condition of Approval (see FS DN/FONSI).

6-10 The USFS and BLM perform site inspections during operations. These inspections are done to ensure that the operator is operating in compliance with the Conditions of Approval and other requirements (see Appendix A of the FS DN/FONSI). See also response to comment 109-54.

6-11 Design Features of the Proposed Action are discussed in Section 2.1.2.12 of the EA. With respect to noxious weeds, a Noxious Weed Management Plan will be prepared, and will include measures for special handling of vegetation and soils stripped from identified weed infestations, the use of certified weed-free mulch and certified weed-free straw bales to control erosion, and follow-up monitoring and treatment methods that will be implemented following construction. The operator will be required to implement weed control following direction in the Noxious Weed Control Plan, which will be approved by the USFS and BLM.

6-12 The Colorado SHPO evaluated the historic site as not eligible for the NRHP; therefore, the site would not require monitoring during construction. As discussed in Section 3.11, Cultural Resources, no cultural resources (with the exception of the historic site) were identified as a result of the literature search and field survey of the proposed well pads. Therefore, there would be a low potential for finding cultural material during construction operations.

Letter 7

7-1 Comment noted.

7-2 The EA was prepared to disclose the effects of a proposal for gas exploration activities (EA, Section 1.1). The project is following the "Staged Decision Process" used for oil and gas activities on federal lands, and acknowledges that some of the exploration wells may be taken forward to production if well testing indicates a well is capable of production (Section 1.5 of the EA). As discussed on page 2-51, this proposal is for exploration activities. There is insufficient gas resource information to meaningfully state that natural gas is present in producible quantities. Therefore, it is speculative to discuss long-term natural gas development at this time. Additional NEPA analyses will be required on any future gas development plans.

7-3 Oil and Gas activities have been considered in the land management planning documents for the GMUG National Forest and the public lands administered from the BLM-Uncompahgre Field Office (Section 1.5 of the EA). These planning documents were prepared following applicable federal laws, and included public participation. The Uncompahgre Basin RMP provides the management guidance for the wells on the BLM Public Lands as stated on page 1-8 of the EA, and allows for exploration of oil and gas.

7-4 See response to comment # 7-2.

Letter 8

8-1 The testing of intercepted groundwater is identified in Section 3.4.4 was proposed to determine if the drilling has intercepted groundwater that may be connected to surface water resources. This testing was recommended to protect surface water resources as well as any possible domestic or agricultural users of the groundwater. See the Conditions of Approval in the agency Decisions.

Letter 9

9-1 Comment noted.

Letter 10

10-1 Project-related truck traffic will not result in long-term widespread or substantial increases in traffic congestion, noise or safety hazards. Project-related traffic will average about 35 trips per day over the 75-to-80 day proposed drilling and completion program (EA, page 3.12-8). Approximately one-half of those trips would involve pickups, crew-cabs, and other light and medium-duty trucks (EA, Table 2-5). Such vehicles are comparable to vehicles currently used by numerous individuals and businesses in the area. As shown in Figure 3.12-2 on page 3.12-10, the geographic separation of proposed well locations and access routes limit the duration of traffic impacts in various locations. See also responses to comments 16-6, 29-3, 43-7, 58-6 and 64-2.

10-2 No impacts to groundwater resources are expected from the proposed drilling activities except within immediate vicinity of the drill holes (EA, Section 3.4.2.2). The recommended additional mitigation measures are intended to ensure that, if groundwater is intercepted during drilling, those groundwater resources are protected. Impacts to surface water resources, if they should occur, would be minimal and temporary in nature. The Design Features of the Proposed Action (EA, Section 2.1.2.12) and the mitigation measures carried forward into the Conditions of Approval (Appendix A of the DN/FONSI) will protect surface water resources.

10-3 The drill pads and temporary access roads would disturb about 30 acres of land (EA, Table 2-2). Visual impacts of the project are discussed in Section 3.10.2. Temporary effects on visual resources would occur due to the construction of the pad and access roads and placement of drilling rig and flare exhaust vent on the pad sites. By implementing project design features and the reclamation program, proposed activities would meet agency visual objectives in the disturbance areas.

Letter 11

11-1 Comment noted.

11-2 The effects of truck traffic on local transportation are discussed in Section 3.12.2.1 on pages 3.12-7 through 3.12-14 for the Proposed Action. Cumulative impacts on transportation are discussed in Section 3.12.3 on pages 3.12-14 through 3.12-17. See the responses to comments10-1 16-6, 29-3, 43-7, 58-6 and 64-2 regarding impact conclusions for transportation.

Letter 12

12-1 Comment noted.

12-2 Comment noted.

Letter 13

13-1 Based on the scope of the proposed action (EA, Section 2.1), issues identified during public scoping (EA, Section 2.3), anticipation that no significant impacts (as defined by NEPA, 40 CFR 1508) will result from the proposed action, the Forest Service and BLM believe an EA is the appropriate level of NEPA documentation to disclose the impacts of the proposed action.

13-2 The EA evaluates the potential impacts of the Proposed Action on USFS and BLM lands, and is the basis for issuing decisions for the federal lands affected by the proposed action (EA, Section 1.4). As required, off-site impacts on public and private lands were considered in the Cumulative Effects section for each resource analyzed in Chapter 3. Actions considered in cumulative effects are given in Appendix F of the EA.

13-3 The Forest Service and BLM are carrying forward mitigations that are within their legal authority and jurisdiction to require and enforce (see Conditions of Approval in the respective agency decisions). Any federal agency approval contains the requirement that the operator ensure that their operations are conducted in a manner which conforms with applicable Federal laws and regulations, and with State and local laws and regulations to the extent that such State and local laws and regulations are applicable to federal leases.

13-4 Wright Water Engineers (WWE) prepared a baseline characterization report for water resources within the project study area. The NEPA EA contractor did an independent review of their data and concluded that they were scientifically defensible and consistent with standard engineering practices for evaluation of water resources in a large basin or watershed. In addition, WWE had their report reviewed by outside consultants familiar with the Grand Mesa area, and they also concluded that the data were defensible. The NEPA EA contractor analyzed water resource impacts. WWE prepared the geologic cross-sections in Appendix J. The NEPA contractor also did an independent review of these profiles and concluded that they were accurate based on the best available scientific information. These profiles were used in groundwater impact analysis.

The FS and BLM water resources specialists on the Interdisciplinary Team (IDT) reviewed the data and analysis in the EA, and accepted the work completed. Further, conclusions of the Colorado School of Mines (CSM) hydrologic model of Delta County pertaining to gas drilling were presented to the Delta Board of County Commissioners on July 21, 2003 (Thyne 2003). The CSM researchers found that there would be no impact from the exploration wells on the shallow water table, that is the alluvial aquifer where most of the domestic water wells are completed. The study acknowledged that the

alluvial aquifer is considered to be well connected with surface water. This conclusion supports the findings of the Forest Service and the BLM in this EA.

13-5 Comment noted.

Letter 14

14-1 See response to comment 13-1.

14-2 The cumulative impact analysis included other actions on federal and non-federal lands that could affect environmental resources in combination with the Proposed Action. See also response to comment 13-2.

14-3 Comment noted.

14-4 Project design features (EA, Section 2.1.2.12) and additional mitigation (see Conditions of Approval in the respective agency decisions) will be implemented to minimize or eliminate impacts to environmental resources. The agencies will monitor project activities to ensure that these measures are followed.

14-5 Scheduling of project-related truck traffic is addressed in the EA on page 2-39. Much of the travel is expected to occur during daylight hours. However, the sequencing, timing, and duration of some drilling and completion activities limit the ability to avoid all project-related truck traffic during the evening and night.

14-6 The Wright Water Engineers report was used as reference material along with other literature sources to aid in analyzing the impacts to water resources (see EA, Chapter 5, References). A recent study completed by the Colorado School of Mines (under contract to Delta County) found similar results to those disclosed in the EA. See also responses to comments 6-3 and 13-4.

14-7 See the response to comment 13-1.

Letter 15

15-1 Comment noted.

15-2 See response to comment 2-1.

Letter 16

16-1 The analysis in the EA was based upon issues raised by the public and by agency specialists (EA, Section 2.3).

16-2 In reference to the transport route for water disposal identified in Table 2-6 on page 2-28, SH 65 south would be used for the Leon Lake #4 and #5 sites before it connects to SH 92 and the other road segments. The other six sites would not use SH 65. An alternative route would use SH 65 north to I-70 over the Grand Mesa on the scenic byway.

In reference to the fracing fluid regulations, the statement on page 2-52 of the EA is correct.

16-3 The numbers in Table 3.10-2 are correct. The total visible area consists of numerous land areas that would have visibility to more than one well site (i.e., there are places that would see both Leon Lake #4 and #5 sites). Therefore, the total visible area is actual land area rather than the addition of each well site acreage in the table.

16-4 The EA concluded that impacts to groundwater resources are expected to be limited to the 500-foot radius of influence of the proposed hydrofracturing at each well site. An important basis of this conclusion is that the low permeability of the Mesaverde Formation should prevent any impact to groundwater resources from migrating beyond the 500-foot radius of influence near the proposed drill sites (EA, Section 3.4.2.2). See also responses to comments 6-3 and 13-4.

16-5 See response to comment 6-1.

16-6 The EA assesses the impacts of the GEC's proposed transportation plan, including the company's identified access and water haul routes (EA, Section 2.1.2, Section 3.12). The proposed plan entails the use of existing public roads not under the jurisdiction of the Forest Service or BLM. Use of an alternative travel route on SH65 over the Grand Mesa for Leon Lakes #4 and #5 would entail use of a longer segment of the Grand Mesa Scenic Byway, a two-lane facility with steeper grades and many tight turns.

As described in Sections 2.1.9 and 3.12.2.1, drilling and completion traffic increases are projected to occur over a 20-day period for each well. An estimated total of 350 one-way trips (175 round-trips) are projected for each well; averaging 17.5 trips per day during the 20-day period. According to Gunnison Energy's tentative project sequencing, one such 20-day period would occur in conjunction with Leon Lake #5 at the beginning of the overall schedule. Drilling of the Leon Lake #4 would commence about 30 days after the end of the 20-day period, followed by another 2-week lull before completion of that well. The average daily traffic represents less than a 0.5 percent increase in traffic over current

AADT volume of 3,551 trips through Cedaredge (see Table 3.12-2). Project-related traffic increases through Cedaredge would exceed 1.0 percent of AADT on two days during the 20-day period. The traffic associated with the testing and monitoring phase, 2 to 4 trips per day including an allowance for water haul, represent a nearly imperceptible increase in local traffic. See also response to comment 43-7.

In the event that Gunnison Energy would take project-related traffic on SH 65 over the Grand Mesa, the relative increases in traffic over existing AADT under a worst-case assumption that all traffic used the route would be: a 3.8 percent at the Ward Lake Recreation Area based on the 17.5 average daily trips, peak increases above 10 percent of existing volume on two days, and, less than a 1.0 percent increase during the testing and monitoring phase. However, it would be unlikely that all project-related traffic would use that route, because of steep grades, sharp turns and other factors.

16-7 Raptor nest and bird surveys were completed at the well sites in June 2003. No insect/disease surveys will be conducted, as explained in the response to comment 6-6.

Letter 17

17-1 See the response to comment 6-1. Please note that the exceptions cited are for stipulations on the federal Oil and Gas lease issued by the BLM, and does not pertain to COGCC rules.

17-2 As discussed in Section 3.4.2.1, there would be no discharge of production water from any of the proposed drill sites. All water and fluids produced or used during drilling would be contained on the drill site, as will any spills that may occur during drilling. The Leon Lake No. 4 site is about 1,800 from Surface Creek, and the Leon Lake No. 5 site is about 2,300 feet from Surface Creek. The new temporary spur road for the Leon Lake No. 4 site is 250 feet from Surface Creek at the closest point. Possible increases to sediment loading in streams due to road construction and/or traffic would be local in nature, and will be mitigated by use of sediment control devices (see Conditions of Approval in the respective agency decisions).

17-3 The reference to NOS stands for Notice of Staking, which is part of the procedure for proposing a well on federal lands (EA, Section 2.1.1). See response to comment 6-1. The Proposed Action and Decisions to be Made are to consider granting exceptions to the lease stipulations (EA, Section 2.1 and 1.4).

17-4 As discussed on pages 1.4 and 1-5 of the EA, the COGCC is also responsible for safety and environmental regulations for oil and gas development. Specific rules are defined for the safeguard of health, safety, and welfare of the community.

17-5 Minerals management is an on-going part of the Forest Service mission. Consideration of mineral development projects is given under federal law (EA, Section 1.3). Under the National Environmental Policy Act (NEPA), the USFS is required to consider all potential impacts of a Proposed Action. The agency's assessment, based on the number of wells, their location, and duration of activity, concluded that there was little likelihood that property values, health and livelihoods in the study area would be endangered (EA, Sections 3.13 and 3.15).

17-6 There would be no discharge of fluids or production water from Leon Lake #5. The pads are designed to slope so that all fluids remain on the pad and are collected in the reserve pit. All production water and fluids would be contained on site (EA, Section 2.1.2.1). Sedimentation control will mitigate and sediment migration to the channel. See Conditions of Approval in the agency decisions.

17-7 Although the onsite review was conducted during a relatively dry year, it was acknowledged that an ephemeral stream existed near the Leon Lake #5 site.

17-8 By implementing project design features and mitigation measure WR-4 (page 3.4-26), sediment input to Surface Creek would be minimized. See the Conditions of Approval in the respective agency decisions.

17-9 The agencies would monitor project activities to ensure that project design features and additional mitigation are implemented to reduce impacts. See response to comment 109-54.

17-10 As discussed in Section 3.4.2.1 on page 3.4-15, sediment impacts are predicted to be minimal as a result of implementing erosion control techniques and proper reclamation of disturbed areas. No impacts to any water facilities are expected. If sediment impacts were observed, mitigations identified in the SWPP would be implemented.

17-11 As discussed on page 3.2-3, paragraph 1, the implementation of the SPCC Plan is designed to prevent spills and described immediate procedures to minimize the risk of potential spills on soils.

17-12 The permitting agency would receive information on well spacing. Additional information on well spacing is provided in the EA on page 3.3-12. GEC selected the well locations to be representative of various areas in the lease holding, availability of access, opportunity to use existing roads, minimal disturbance and were at varying distances from the geologic strata outcrop.

17-13 The EA acknowledges the potential that some of the exploration wells may be carried forward to a production state (EA, Figure 2-6 and Appendix F).

17-14 The proposed exploration drilling is being considered following the established process for oil and gas activity on federal lands as described in the EA at Section 1.5.

17-15 GEC used available information on drilling in the area to define their Proposed Action.

17-16 GEC is interested in obtaining additional information on potential gas reserves in the Leon Lake area and therefore, they included Leon Lake #4 and #5 in the proposal being addressed in this EA.

17-17 The siting of Leon Lake #4 and #5 is discussed on page 2-2 (paragraphs 1 through 4). The pad locations were sited to minimize potential effects to environmental resources and meet lease stipulations as much as possible. See also response to comment 17-12.

17-18 Road improvement needs for FR 127 are discussed in the EA at Section 2.1.2.1. The effects of existing use and proposed use of FR 127 are given on pages 3.8-7 and 3.12-13 of the EA. Public access to FR 127 is to be maintained throughout the project implementation period, including during construction. There will be some temporary effects on existing uses of FR 127 from the increase of traffic and shared types of traffic.

17-19 GEC has not proposed road improvements on FR 127. GEC would be required to repair any damage to FR 127 as would be specified under a road use permit.

17-20 Potential impacts of road use on cattle grazing is discussed on page 3.5-11. Cattle and other livestock will be fenced out of the drill site location so they will not be endangered. Coordination with grazing permittees will alleviate conflicts during periods of higher traffic while equipment is moved to and from the site. Except for the drill site location, areas will not be closed to other uses. Overall, impacts would be temporary and not result in substantial effects on forage or grazing activities in the allotments (EA, Section 3.5.2.1). Mitigation measure V-12 (page 3.5-17) would reduce conflicts with the Mill Creek Range Facility. See Conditions of Approval in the FS DN/FONSI.

17-21 Mineral development is part of the Forest Service multiple use mission. It is authorized under federal law (EA, Section 1.3), and is acknowledged as part of the management plan for the GMUG (EA, Section 1.5).

17-22 See the response to comment 3-4 regarding the subsequent NEPA analyses if wells prove to be economically viable. Oil and Gas activity has been analyzed and approved as part of the management plan for the GMUG, and is compatible with other uses of the National Forest such as grazing, recreation, etc.

17-23 By implementing project design features and additional mitigation measures for water resources, vegetation, and transportation, impacts would be reduced to a level that would be compatible with the multiple use missions of the USFS and the BLM. The mission statements are described on page 1-6 in the EA.

Letter 18

18-1 Comment noted.

18-2 Comment noted.

Letter 19

19-1 Comment noted.

Letter 20

20-1 Comment noted.

Letter 21

21-1 The project design features and additional mitigation measures listed in Section 3.4.4 on pages 3.4-26 and 3.4-27 and the oversight of the proposed drilling by the USFS and the BLM will ensure that water resources are protected and not degraded. See also response to comment 109-54.

Letter 22

22-1 Surface and groundwater resources were described using available water quality and quantity data, as referenced in Sections 3.4.1.1 and 3.4.1.2 and Appendices G, H, and I. In reviewing the baseline data for the project area, the water resources specialists concluded that sufficient information was available to evaluate potential impacts on water resources, and support the decisions to be made. As identified in the potential additional mitigation measures in Section 3.4, water resources would be monitored to confirm impact predictions. See Conditions of Approval in the respective agency decisions.

22-2 Based on a review of existing resource information (EA, Chapter 5), the resource specialists on the interdisciplinary team assessed that sufficient information was available to evaluate impacts of the Proposed Action on all environmental resources.

22-3 Issues identified during project scoping included impacts to the socioeconomic environment (EA, Section 2.3). Socioeconomic impacts were analyzed in Section 3.13 of

the EA. Based on a review of existing socioeconomic information by the specialists, it was determined that sufficient information was available to evaluate impacts of the Proposed Action indirect effects on economic elements.

22-4 See response to comment 13-1.

22-5 See the response to comment 13-2 and 13-3. Gunnison County's policy towards time-of-day travel is noted and falls under the requirement that the operators comply with applicable local laws. The USFS and BLM have no authority to regulate use of public roads and highways such as SH 133.

22-6 Under the proposed phasing plan, the majority of project-related traffic increases through Somerset would occur over about a 15-day period. The short-duration and scope of the traffic, particularly in light of the existing traffic volumes on SH 133, not only underlie the assessment of limited economic benefits, but also limit the potential adverse noise, air quality and impacts on tourism (EA, Sections 3.12 and 3.13).

22-7 See the response to comment 22-5.

22-8 Dust control, responsibilities for road damages and repairs, and coordination with local counties are discussed in the EA on page 2-9, under the heading of Proposed Road Use and Spur Road Construction, and page 3.12-17, potential mitigation measures T-2 and T-3. The Colorado Department of Transportation has promulgated regulations for when the use of a pilot car on state highways is required. See response to comment 13-2 and 13-3. This project does not involve use of Gunnison County road 265. See also the Conditions of Approval in the individual agency decisions.

22-9 County permits are listed in Appendix A, Table A-1. See also response to comments 13-2 and 13-3.

Letter 23

23-1 Comment noted.

23-2 See response to comments 2-1 and 3-2, 6-3 and 13-4. Section 3.4.2.2 identifies that impacts to groundwater may occur deep in the formation, specifically within a 500-foot radius of the wellbore.

23-3 Comment noted.

Letter 24

24-1 The EA provides impact discussions for quality of life (Section 3.13.4), noise (Section 3.9.2.1), traffic (Section 3.12.2.1), and water resources (Sections 3.4.2.1 and 3.4.2.2). By implementing project design features and additional mitigation measures for these resources, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA. Sections 3.13.1.4 and 3.13 2.5 describe the range of perceptions regarding natural resource development, including the Proposed Action, and its relationship to the regional economy and quality of life.

Letter 25

25-1 See response to comment 24-1.

Letter 26

26-1 The EA provides impact discussions for wildlife in Section 3.6.2.1 and water resources in Sections 3.4.2.1 and 3.4.2.2. By implementing project design features and additional mitigation measures, impacts to these resources would be eliminated or reduced to a level of insignificance as defined by NEPA.

Letter 27

27-1 Section 3.4 of the EA discloses the effects to water resources. Given the location of domestic water supplies, the geologic environment, depth of the proposed drilling, the analysis showed that the risk to domestic water supplies is very unlikely (EA, Appendix J, Section 3.4.2.2). See also responses to comments 6-3, 13-4 and 14-6.

27-2 As discussed in Section 3.10.2.1, impacts on the viewshed would be temporary and minor in terms of the percent of overall viewshed in the total viewshed area. By implementing project design features and reclamation, project areas would meet the agency visual objectives. As discussed in Section 3.13.2.2, potential impacts to tourism are considered negligible for the Proposed Action. See the response to comment 26-1 for wildlife impacts. This EA does not address well production, as discussed in response to comment 7-2.

27-3 Comment noted.

Letter 28

28-1 Comment noted.

28-2 The EA provides impact discussions for traffic (Section 3.12.2.1), air quality (Section 3.1.2.1), wildlife (Section 3.6.2.1), groundwater resources (Section 3.4.2.2), and

noise (Section 3.9.2.1). By implementing project design features and additional mitigation measures for these resources, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA.

28-3 See response to comment 13-1. Baseline studies were conducted for surface and groundwater quality, sensitive bird species, raptors, vegetation, and cultural resources. In addition, sensitive plant surveys will be conducted. These results in combination with other available resource data were used to characterize environmental resources within the project study area. It is the responsibility of the federal agency preparing the NEPA analysis to thoroughly review the adequacy and accuracy of the baseline data for use in describing the affected environment of the proposed project. The USFS and BLM have examined and evaluated the relative information and determined that the information is adequate for this analysis.

28-4 Reclamation bonding is required by regulation (43 CFR 3104). As described in potential mitigation measure V-3 on page 3.5-15, additional reclamation bonding may be required to ensure drill sites are returned to pre-existing land use (see Conditions of Approval in the FS DN/FONSI). The agencies will monitor and enforce all regulations pertaining to the proposed project. See response to comment 30-4.

28-5 Comment noted.

Letter 29

29-1 The analysis performed in the EA (Chapter 3) and summarized in Table 2-8 of the EA, indicate the levels of impact expected on various resources. By implementing project design features and additional mitigation measures, impacts to these resources would be eliminated or reduced to a level of insignificance as defined by NEPA

29-2 Potential impacts to groundwater resources are discussed in Section 3.4.2.2. The analysis concluded that effect on groundwater quantity or quality would be confined to a 500-foot radius of individual wells. The Pitkin Mesa springs and pipeline are located 2 miles to the southwest of the Bull Park site (EA, Figure G-2) and would not be affected by the proposed drilling. See also responses to comments 6-3, 13-4 and 14-6, and 27-1.

The Stevens Gulch well site, which is located on private land, is not part of the Proposed Action. This well site was included in the cumulative impact analysis.

29-3 See the response to comment 24-1 regarding quality of life issues. The text in line 5 of the third full paragraph on 3.12-16 that reads "…approximately 170 heavy-truck trips on…" should read "…approximately 180 heavy-truck trips per well on …."

Estimated typical project-related traffic on Stevens Gulch Road (CR 40.10 and FR 701) would be comparable in volume to the traffic associated with existing and proposed timber sales on GMUG on that same road. As described in sections 2.1.9 and 3.12.2.1, an estimated total of 350 one-way trips (175 round-trips); averaging 17.5 trips per day, are projected to drill and complete each well during a 20-day period. Existing traffic volume data are not available for the Stevens Gulch Road. Given the level of residential and agricultural use along that road, and the traffic associated with ongoing timber sales, an estimated daily volume of 400 to 800 trips per day seems reasonable. Based on the mid-point of that range, that is, 600 trips per day, the average daily project-related traffic would represent about a 2.9 percent increase over current traffic. The 2 peak days of project-related traffic would increase traffic by about 7 percent. The traffic associated with the testing and monitoring phase, 2 to 4 trips per day including an allowance for water haul, would represent a nearly imperceptible increase in daily traffic on the Steven's Gulch Road.

Much of the existing approved timber haul traffic also involves heavy-trucks. Project-related traffic volume would exceed the timber haul traffic on about 6 days per well (EA page 2-9, under the heading of Proposed Road Use and Spur Road Construction).

29-4 This NEPA document addresses the applications for eight exploration wells on federal oil and gas leases submitted to the BLM and Forest Service (EA, Section 1.1). The number of wells proposed on private land and being considered by Delta County is not part of this Proposed Action (EA, Section 1.1). The private wells were included in the cumulative impact analysis.

29-5 See response to comment 13-1.

Letter 30

30-1 The following sections in the EA discuss impacts to quality of life and socioeconomics (3.14.1.4), wildlife (3.6.2.1), recreation (3.8.2.1), and rangeland (3.5.2.1). By implementing project design features and additional mitigation measures for these resources, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA.

30-2 The proposed action is to explore for natural gas in sandstones and coal layers of the Mesaverde Formation (EA, Section 1.1 and Figure 2-5). Cumulative impacts were discussed for each environmental resource as required by NEPA (EA, Chapter 3 and Appendix F). The agencies and a third-party contractor conducted this NEPA analysis.

30-3 Project design features (EA, Section 2.1.2.12) and additional mitigation measures (see Conditions of Approval in the respective agency decisions) will be implemented to eliminate or reduce impacts to a level of insignificance as defined by NEPA. As part of the proposed project, low emission generators with noise mufflers will be used, as part of using Best Management Practices as described proposed action (EA, Page 2-9). Use of pumps is not anticipated for the exploration drilling.

30-4 Under regulation (43 CFRR 3104), federal oil and gas lease holders are required to post a statewide lease bond with the BLM. The Forest Service, as the surface managing agency can require additional surface reclamation bonds to cover the full costs of reclamation, (EA, mitigation measure V-3 on page 3.5-15). The Forest Service is carrying this mitigation measure forward as a Condition of Approval (see FS DN/FONSI).

Letter 31

31-1 The EA provides impact discussions for water resources in Sections 3.4.2.1 and 3.4.2.2. By implementing project design features and additional mitigation measures, impacts to these resources would be eliminated or reduced to a level of insignificance as defined by NEPA. The potential mitigation measures presented in Table 2-8 of the EA are designed to ensure that if any impacts to water resources should occur, that they would be contained and mitigated to prevent any impact beyond the 500-foot radius of hydrofracturing expected at each drill site. Domestic and agricultural water users in the valley would not be affected by the proposed drilling. See responses to comments 6-3, 14-6, 16-4, 13-4, and 27-1.

Letter 32

32-1 See response to comment 31-1.

32-2 The effects of project related traffic on the haul route are discussed in Section 3.12 of the EA. The county roads proposed for use are designed to accommodate heavy truck traffic. Improvements needed to existing Forest Service or BLM roads are discussed in Section 2.1.2.1 of the EA. No changes to the existing access to Forest Service or BLM lands would occur. About 1.83 miles of new spur road construction is proposed (EA, Table 2-2). Any new roads will be closed to unauthorized uses, and would be decommissioned by obliteration upon completion of use.

Letter 33

33-1 The proposed action is to explore for natural gas in sandstones and coal layers of the Mesaverde Formation (EA, Section 1.1 and Figure 2-5). The analysis considered cumulative impacts for each resource evaluate (EA, Chapter 3 and Appendix F).

33-2 The process for evaluating oil and gas activities on federal lands following the "Staged Decision Process" is described in Section 1.5 of the EA. This analysis is tiered to the existing land management plans for the Forest service and BLM, which include management direction for oil and gas exploration. See also response to comment 13-1.

33-3 See response to comment 28-3.

33-4 See response to comment 30-3. As discussed on page 2-38, all facility structures (if any are installed) would use colors to blend in with the surrounding landscape. Paint color should have a flat, non-reflective finish. Wildlife would be restricted from the well pad site by using fencing, as discussed in Section 2.1.2.1 of the EA. The pits will not be left open for extended periods of time, and personnel would always be on site working, therefore it is unlikely that birds will be attracted to them.

33-5 See response to comment 30-4.

33-6 Comment noted.

33-7 Comment noted.

Letter 34

34-1 Comment noted.

34-2 Traffic and visual impacts are described in Sections 3.10.2.1 and 3.12.2.1, respectively, and summarized in Table 2-8. Additional mitigation measures are recommended to eliminate or reduce impacts to a level of insignificance as defined by NEPA. See the respective agency decisions for a listing of the Conditions of Approval.

Letter 35

35-1 Comment noted.

35-2 See response to comment 3-2.

35-3 See response to comment 2-1.

35-4 See response to comment 30-4. The bond posted to the State of Colorado (Colorado Oil and Gas Conservation Commission) is not applicable to activities of federal lands. Thus, the surface management agency can require additional reclamation bonding. See also response to comment 30-4.

35-5 Comment noted.

35-6 Comment noted.

Letter 36

36-1 See response to comment 3-2.

Letter 37

37-1 See response to comment 30-2.

37-2 See response to comments 30-3 and 33-4.

37-3 The proposal for the eight exploration wells federal lands is being evaluated under the NEPA process (EA, Section 1.1), which by law requires public involvement (EA, Section 2.2). Any future proposal on Forest Service or BLM would undergo the NEPA process, including opportunity for the public to review and comment on the proposed activities. See response to comment 33-2.

37-4 Comment noted.

Letter 38

38-1 Comment noted.

38-2 Comment noted.

38-3 See response to comment 2-1.

38-4 The analysis of future impacts, both beneficial and adverse, under a full production scenario are beyond the scope of this NEPA analysis because the gas resource data, timing, level of development and other critical information regarding such a scenario are not only not available, but are in fact contingent upon the results of the eight well exploration program proposed by GEC. Additional NEPA analysis would be required for any production scenario to proceed (see Section 2.4 of the EA).

38-5 Comment noted.

Letter 39

39-1 Past, present and reasonably foreseeable future actions considered for the cumulative impact discussion are discussed in Section 2.8, and listed in Table 2-9, and Appendix F of the EA. Cumulative impacts are discussed for each environmental resource in Chapter 3.

39-2 Comment noted.

39-3 See response to comment 6-1. Potential sedimentation impacts to streams near Leon Lake #4 and #5 are discussed in Section 3.4.2.1 on page 3.4-15. The impact conclusion is that sedimentation effects would be minor due to the presence of vegetation in the drainage area and the implementation of project design features (SWPPP, Grading and Hydrology Plan, and reclamation) and additional mitigation measures (see Conditions of Approval in the respective agency decisions).

39-4 Project design features consisting of application of dust control material (EA, page 2-36) would be used to reduce dust and sediment input to the watershed. Design features consisting of the SWPPP, Grading and Hydrology Plan, and reclamation would be used in combination with mitigation measure (see Conditions of Approval in the respective agency decisions) to minimize sedimentation.

39-5 The potential effect of noise from project-related truck traffic on SH65 is described on page 3.9-2 of the EA. The Town of Cedaredge has adopted the State of Colorado standard (Section 25-12-103) for noise which is (based on 25 feet from residences): Residential zone 55 dBA (7AM to 7 PM) and 50 dBA (7 PM to 7AM); Commercial 60 dBA (7AM to 7 PM) and 55 dBA (7 PM to 7AM); Light Industrial 70 dBA (7AM to 7 PM) and 65 dBA (7PM to 7AM). The magnitude of the noise level is expected to be below 55dBA for residences, since they are located at least 100 feet from the highway.

39-6 The EA discloses and acknowledges the effects of traffic along the proposed haul routes (EA, Section 3.12), and acknowledges that the proposed access routes do pass through school zones, with impacts attendant to short-term, minor increases in traffic volumes. In the Town of Cedaredge the project related traffic would represent a 1% increase in the AADT for 2 days. See response to comment 16-6.

39-7 Comment noted. See the responses to comments 16-6 and 22-5.

39-8 See the Conditions of Approval in the respective agency decisions. The Operator is required to comply with any other Local, State and Federal requirements so far as they are applicable to federal leases.

39-9 The SPCC Plan and Fire Prevention Plan (EA, 2.1.2.6) will include contacts with the BLM, USFS, and local emergency response agencies.

Letter 40

40-1 Comment noted.

40-2 The EA is for an exploration drilling project, and analyzes impacts on traffic (Section 3.12.2.1), wildlife (Section 3.6.2.1), noxious weeds (Section 3.5.2.1), and air quality (Section 3.1.2.1), among other resources identified during public scoping and internal agency review (EA, Section 2.3). By implementing project design features and additional mitigation, potential impacts would be eliminated or reduced to a level of insignificance as defined by NEPA. The agencies also will monitor project activities to ensure that these measures are followed.

40-3 Hydrofracturing (one to eight stimulations) proposed for the eight gas exploration wells would affect an area within a 500-foot radius of each well (EA, Section 3.4.2.2). The major fracing fluid constituents (99.9 percent volume, Table C-3) are water (4.8 percent), sand (2.1 percent) and liquid nitrogen (93 percent). These materials present no residual hazard. The other constituents are used in comparatively small amounts, but also present no residual hazard. About 30% of the fracing fluid is left in the ground (EA, Section 2.1.2.3). The low permeability of the Mesaverde Formation would prevent migration of chemicals beyond the 500-foot radius of the fracing influence. If water is encountered in the Mesaverde strata, it is expected to be low quality because of the length of the residence time in the formation (EA, Section 3.4.2.2). These fluids used or encountered during drilling would be piped to the reserve pit, and hauled to a certified disposal site (EA, Section 2.1.2.7). See responses to comments 6-3, 14-6, 16-4, 13-4, and 27-1.

40-4 See response to comment 7-2. As discussed on page 2-51 of the EA, the agencies do not have applications for 600 wells. The EA addresses the 8 applications that have been received from GEC, as described in the Proposed Action (EA, Section 2.1).

40-5 See response to comment 30-3.

40-6 See response to comment 30-4.

Letter 41

41-1 See response to comments 39-1 and 40-4.

41-2 See response to comment 30-4.

41-3 The USFS and the BLM will ensure that all project design features and proposed mitigation measures are implemented for the project. See response to comment 109-54.

41-4 By implementing project design features and additional mitigation measures, impacts would be reduced to a level that would be compatible with the multiple use missions of the USFS and the BLM (EA, Section 1.5).

Letter 42

42-1 Comment noted.

42-2 The effects of traffic and noise are given in Sections 3.9 and 3.12, respectively in the EA. The EA discloses that traffic during testing and maintenance would be much lower than during drilling and completion. The estimated traffic for testing would be two round trips with light-duty trucks, such as pickups or crew-cab trucks, per day per well (EA, 2.1.2.8). In some cases, trips to nearby wells could be combined to effectively reduce the total number of daily trips. See response to comment 16-6.

42-3 See response to 40-3.

42-4 The Decisions to be Made by the responsible officials for the Forest Service and BLM include identifying Conditions of Approval for protecting other resources. The Conditions of Approval are based on the potential mitigation measures identified for each resource (EA, Chapter 3 and Table 2-8). The mitigations selected to be carried forward as part the respective agency decisions are included in the respective agency decisions. The EA (Section 3.4.2.2) did not identify that domestic water sources were at risk for damage from the proposed drilling. See responses to comments 6-3, 14-6, 16-4, 13-4, 27-1 and 40-3.

42-5 Comment noted.

Letter 43

43-1 The words "could result" as used in the cumulative impact discussion for wildlife on page 3.6-20 of the EA refer to the uncertainty on whether this exploration drilling would yield wells capable of gas production. In general, natural gas exploration drilling shows that about 50% of the holes drilled are dry holes (EA, Appendix F). Any future proposed development would be analyzed in a separate NEPA analysis.

43-2 On page 3.5-9, the EA acknowledges that there is a potential fire hazard in the project study area. Fire Hazard is also discussed in Section 3.15.2. Project design features (EA, Section 2.1.2.12) such as a Fire Prevention Plan and having water on site to fire suppression are included in the agency decisions.

43-3 See the responses to comments 6-3, 14-6, 16-4, 13-4, 27-1 and 40-3.

43-4 Potential noise and health and safety impacts are discussed in Sections 3.9.2.1 and 3.15.3, respectively. On page 3.9-3, the EA identifies noise-related impacts along the access roads and at the well pad sites. The statement about noise mainly affecting wildlife is applicable to the well pad sites and access roads with limited human residences nearby. The EA acknowledges that temporary noise would occur along the access routes. However, noise levels are expected to be below the 55 dBA level for residences or schools.

43-5 See response to comment 13-1.

43-6 See response to 16-1.

43-7 The number of total truck trips (192 + 158 = 350) are correct in the EA on Table 2-5. However, the total weight for completion should be "4,245,000", with an overall total weight of 9,840,500 pounds (drilling and completion). A revised version of Table 2-5, showing corrected column and row totals for the number of trips and corrected weight totals, appears below. The revised numbers are noted as "bold italics". Note that 350 trips are one-way trips, rather than round-trips. Consequently, the total number of trips is half the number indicated in the comment letter, averaging 17.5 trips per day, about half of which would involve pickups, crew-cab trucks or other light/medium duty trucks. See response to comment 16-6.

Table 2-5
Estimated Traffic Requirements (1) for a Well Pad Site

Air Drilled					
Drilling Day	**Activity**	**Heavy Loads**	**Weight (lb)2**	**Light Loads**	**Total Loads**
1	Build location	1	75,000	2	3
2	Build location	1	75,000	2	3
3	Setup3	30	1,863,000	14	***44***
4	Drill	4	174,500	10	***14***
5	Run intermediate casing3	16	803,000	14	***30***
6	Drill	4	128,000	10	***14***
7	Drill	4	256,000	10	***14***
8	Drill, log	4	176,000	12	16
9	Cement casing3	30	1,860,000	20	***50***
10	Reclamation	2	185,000	2	***4***

Total Drilling		**96**	**5,595,500**	**96**	**192**
Completion Day	**Activity**	**Heavy Loads**	**Pounds**	**Light Loads**	**Total Loads**
1	Move frac tanks	2	60,000	2	4
2	Fill tanks3	20	1,090,000	2	22
3	Setup	14	704,000	10	24
4	Perforate and frac3	36	1,779,000	18	54
5	Flow well	0	0	8	8
6	Flow well	0	0	8	8
7	Flow well	0	0	8	8
8	Flow well	0	0	8	8
9	Install tubing and move	10	462,000	8	18
10	Reclamation	2	150,000	2	4
Total Completion		***84***	***4,245,000***	***74***	**158**

1The estimates above are on a per well basis. The completion rig would be moved to its first location after 2.5 wells have been drilled to stagger the heavy traffic days.

2Weight of vehicle and load.

3Includes water hauling. Approximately 24 additional truck trips per well site would be required if mud drilling is used.

43-8 Groundwater is an irretrievable resource because it is a renewable resource, as explained on page 3.17-1 of the EA. Groundwater removed by drilling and production will eventually be replaced by recharge from precipitation. The cumulative impact to groundwater resources is dependent on the number of wells and the amount of water removed. The amount of water removed depends on the amount of water in the geologic formation. If there is no water, then none will be removed. The impact of the proposed natural gas wells will be limited to the range of hydrofracturing, which is about 500 feet. This impact is temporary. Once the drilling is completed, groundwater flow will replace any groundwater removed, although this may take tens and even hundreds of years. If no groundwater is removed, then no impacts to groundwater resources would occur.

43-9 Groundwater resources may be affected within 500 feet of the drill pad if there are groundwater resources in the formations to be drilled, the amount of groundwater removed is dependent on the number of wells drilled, and groundwater is an irretrievable resource.

43-10 The EA evaluates the effects of the Proposed Action and other cumulative actions on recreation, agriculture, tourism, transportation, wildlife, vegetation, air quality, and visual resources (EA, Section 2.2).

43-11 See response to comment 7-2.

43-12 Comment noted.

43-13 See response to comment 13-1.

Letter 44

44-1 See response to comment 31-1.

44-2 The EA identifies SH65 between SH 92 and CR U.50, as the access route for drilling and completion traffic and the haul route for produced water from Leon Lakes #4 and #5 requiring disposal. The statement regarding the limitation against the use of SH65 for hauling produced water refers to "…using SH65 over the Grand Mesa…" (emphasis added), that is, beyond CR U.50 north of Cedaredge, not the use of SH 65 per se. The effects of the proposed project on tourism is discussed in Section 3.13 of the EA.

44-3 See response to comment 13-1.

Letter 45

45-1 See response to comment 10-1.

45-2 See response to comment 31-1.

45-3 See response to comment 10-3.

Letter 46

46-1 See response to comment 13-1.

46-2 Comment noted.

46-3 See response to comment 7-2 pertaining to future well development. As discussed on page 2-54, of the EA, the applicant's performance on other projects is outside the scope of this NEPA analysis. See response to comment 109-54.

46-4 See response to comment 31-1.

Letter 47

47-1 Comment noted.

47-2 See response to comment 31-1.

47-3 The status of SH 65 as a scenic byway and the relationships of the project-related traffic to the byway are discussed in responses to comments 16-1, 16-6 and 43-7. SH 65 provides access to many residences, businesses, and public facilities. However, its primary function is to facilitate and carry intrastate and interstate travel and commerce, rather than meeting strictly local residential needs.

47-4 Comment noted.

47-5 The short-duration and scope of the project-related traffic, particularly in light of the existing traffic volumes on SH 65, not only underlie the assessment of limited economic benefits, but also limit the potential adverse noise, air quality, and impacts on tourism. See responses to comments 16-6 and 43-7.

Letter 48

48-1 Comment noted.

48-2 Comment noted.

Letter 49

49-1 See the response to comment 31-1. The analysis considered the cumulative impacts of the wells approved on private land (EA, Section 3.4.3, Table 2-9 and Appendix F). The land distance between domestic water wells and the proposed exploration wells on the National Forest is greater than one mile. Further, the vertical separation between the unconsolidated deposits in which the domestic wells are completed and the deeper Mesaverde formation strata targeted for gas exploration is 1,500 to 2,000 feet. Given this and the low permeability of the Mesaverde formation, the analysis shows that there is no risk for effecting domestic water wells (Ea, Section 3.4.3 and Figure J-4). See response to comments 6-3, 14-6, 16-4, 13-4, 27-1 and 40-3.

49-2 The EA provides impact discussions for air quality (Section 3.1.2.1), noise (Section 3.9.2.1), fire danger (Section 3.15.2), soils (Section 3.2.2.1), and roads (Section 3.12.2.1). By implementing project design features and additional mitigation

measures for these resources, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA.

49-3 See the responses to comments 31-3 and 49-1.

49-4 Comment noted.

Letter 50

50-1 See response to comment 13-1.

50-2 The USFS and BLM conducted onsite reviews regarding the proposed transportation access plan. Furthermore, the applicant has included a number of traffic-related design features in the Proposed Action (see page 2-39 of the EA), and potential mitigation measures T-2 and T-3 address future coordination efforts and agreements between GEC, the federal agencies, and local county governments. See the Conditions of Approval in the respective agency decisions.

50-3 See the response to comment 13-1.

Letter 51

51-1 The EA provides impact discussions for water supply (Section 3.4.2), agriculture (Section 3.5.2), truck traffic (Section 3.12.2), and safety (Section 3.15). By implementing project design features and additional mitigation measures for these resources, as applicable, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA.

51-2 As stated on page 2-51 of the EA, 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 therefore is unreliable. The EA analyzed the Proposed Action for eight exploration activities on 8 wells on federal leases, and addresses the applications the agencies have received from GEC.

51-3 As stated on page 2-60 of the EA, in accordance with NEPA, other past, present, and reasonably foreseeable future actions in the project vicinity that could cause impacts affecting the same resources and overlap in a geographical and temporal manner with the anticipated impacts from the Proposed Action must be identified for the cumulative impact analysis (EA, Table 2-9 and Appendix F). These cumulative impacts are analyzed in each of the resource sections of the EA (EA, Chapter 3). There currently is insufficient gas resource information for the project area to meaningfully state that natural gas is present in producible quantities as discussed on page 2-51 of the EA. As a result, long-

term natural gas development in the area currently is speculative and does not meet the definition of a reasonably foreseeable future action under NEPA. See the response to comment 7-2 regarding exploration versus well production and the requirement for additional NEPA analyses on any future gas development plans.

51-4 See the response to comment 30-4 regarding reclamation bonding requirements.

51-5 Comment noted.

Letter 52

52-1 Comment noted.

Letter 53

53-1 Comment noted.

Letter 54

54-1 Comment noted.

Letter 55

55-1 Comment noted.

Letter 56

56-1 Comment noted.

56-2 Comment noted.

56-3 Comment noted.

Letter 57

57-1 Comment noted.

57-2 See the response to comment 13-1.

57-3 The EA addressed the impacts of the proposed 8 wells based on the resource issues identified through project scoping (EA, Section 2.2). Socioeconomic impacts are disclosed in Section 3.13 of the EA.

57-4 See response to comments 6-3, 14-6, 16-4, 13-4, 27-1, 40-3 and 49-1.

57-5 See the response to comment 3-2.

57-6 Comment noted.

Letter 58

58-1 Collection of baseline water data is a Design Features of the Proposed Action (EA, Section 2.1.2.12). See also response to comment 22-1.

58-2 See the response to comment 6-3 and 14-6.

58-3 See the response to comments 6-3, 10-2, 14-6, 16-4, 27-1, 31-1 and 40-3.

58-4 As listed in Table 3.10-2 on page 3.10-2, the estimated percent of visible area at each well site ranged from 1.1 to 4.3 percent of the total viewshed for well pads and 2.4 to 6.9 percent for the well pads and tower. The effects of the drilling tower would be short-term in duration (about one week.) With implementation of project design features, the proposed activities would meet agency visual objectives.

58-5 The EA provides impact discussions for noise (Section 3.9.2) and fire hazard (Section 3.5.2), health and safety (EA, Section 3.15). By implementing project design features and additional mitigation measures for these resources, as applicable, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA.

58-6 The estimated total number of trips is 350 truck-trips per well during drilling and completion, rather than the 350 round trip truck trips indicated in the comment letter. Just over half of these would be associated with the movement of the rigs and the hauling of supplies, materials, and equipment; the remainder would involve light and medium duty trucks.

The 350 trips per well translate into an estimated 2,800 total one-way truck-trips for the 8 well exploration program. The project-related traffic would occur over a 75-to-80 day period, rather than the 20-day period cited in the comment letter, thereby resulting in an average of about 35 trips per day over the entire period. The incremental increase in traffic volume is limited in comparison with existing traffic volumes on the major access routes in the region. For example, 35 trips per day represents less than a 1.0 percent increase over existing AADT on SH 92 west of Hotchkiss or SH 133 east of Hotchkiss. Existing traffic on both of these highway segments is in 4,000 to 4,400 AADT. The

single-day, worst-case, peak impact due to the proposed action would increase traffic on these highway segments by 2.6 percent.

As clarification, the weights shown in Table 2-5 of the EA include the weights of the unloaded trucks themselves (see footnote 2 of the table). Furthermore, most of the material, equipment, and supplies would be transported using trucks operating within normal length and weight limits for state highways in Colorado.

58-7 Comment noted.

58-8 Comment noted.

Letter 59

59-1 The public scoping process is described in Sections 2.2 and 4.1 of the EA. Issues that were raised during scoping and carried forward in the EA analysis are identified in Section 2.3 of the EA. Section 2.4 identifies the issues that were not carried forward in the analysis with rationale provided for their elimination.

59-2 See the response to comment 7-2 regarding exploration activities versus production activities.

59-3 See the response to comment 7-2 regarding exploration versus well production. See response to comment 59-1 regarding public scoping issues. By implementing project design features and additional mitigation measures, as applicable, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA.

59-4 Impact evaluations are based on the best available data and the professional judgment of the resource specialists. Where there is certainty that an impact would or would not occur, it is specifically stated in the EA. If there is a level of uncertainty, the EA states that the impacts, or lack of impacts, is anticipated or assumed.

59-5 Where unresolvable contradictory data were noted in the baseline data, it was disclosed in the analysis.

59-6 Comment noted. See the response to comment 7-2 regarding exploration activities versus production activities.

Letter 60

60-1 See the response to comment 7-2 regarding exploration versus well production and the requirement for additional NEPA analyses for any future gas development plans.

Cumulative impacts are analyzed for each environmental resource (EA, Table 2-9, and Chapter 3).

60-2 See the response to comment 58-6 for clarification on truck trips and load weights. See the response to comment 16-6 regarding accessibility to the Grand Mesa.

As discussed Section 3.12 of the EA, the effects of increased traffic in school zones would be minimal, based on duration (primarily during the summer months) and magnitude of project-related traffic. As discussed in Section 3.15.3 of the EA, the temporary increase in vehicle accident rates as a result of the project is anticipated to be low, based on the project-related minor increase in traffic levels and implementation of the project design features.

The construction of all new roads required for the Proposed Action would be at GEC's expense. GEC also would be financially responsible for maintenance on Forest Service and BLM roads affected by the project (see page 2-10 of the EA). The operator is required to comply with all other applicable Local, State and Federal requirements.

60-3 See the responses to comments 6-3, 10-2, 14-6, 16-4, 27-1, 31-1, 40-3 and 49-1.

60-4 As clarification, no compressors are proposed for the exploratory well program (see Section 2.4 of the EA). Noise effects for the 8 well exploration project are discussed in Section 3.9.2 of the EA. As stated in that section, truck traffic would result in periodic increases in noise as vehicles pass a particular point. This effect would be temporary, lasting approximately 16 days for drilling and completion and several days to several months for testing. As discussed on page 3.9-2 of the EA, other project-related noise would be below the federal standard at the nearest residence.

60-5 The EA analysis is specific to the 8 proposed exploratory well sites identified in the Chapter 2.0 of the document. Any proposal for additional exploration wells on federally managed land would require a separate NEPA analysis. See the response to comment 7-2 regarding the requirement for additional NEPA analyses for any future gas development plans.

60-6 See the response to comment 6-8 regarding the information in Table 3.10-2 and how it tracks with text on pages 3.10-5 through 3.10-7. See the response to comment 10-3 regarding impact conclusions on visual resources.

Letter 61

61-1 The EA provides impact discussions for noise (Section 3.9.2), traffic (Section 3.12.2), and safety (3.15). See response to comment 13-3.

61-2 See responses to comments 6-3, 10-2, 14-6, 16-4, 22-1, 27-1, 31-1, 40-3 and 49-1.

61-3 See responses to comments 14-6 and 22-1.

61-4 Regulations governing the role of the USFS and BLM in oil and gas operations are discussed in Section 1.3 of the EA.

61-5 Comment noted. See response to comment 10-3 regarding visual impacts.

Letter 62

62-1 See Section 3.13.1.4 of the EA regarding potential effects on local lifestyles. Effects to the quality of life for local residences would be tied to potential noise (Section 3.9.2), visual (Section 3.10.2), and socioeconomic (Section 3.13.2) impacts of the project which were analyzed in the EA. By implementing project design features and additional mitigation measures for these resources, as applicable, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA.

62-2 The EA provides impact discussions for air quality (Section 3.1.2), water supply (Section 3.4.2), noise (Section 3.9.2), visual (Section 3.10.2), socioeconomics relative to economy and property values (Section 3.13.2), and traffic (Section 3.12.2). By implementing project design features and additional mitigation measures for these resources, as applicable, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA.

62-3 Comment noted.

Letter 63

63-1 See the response to comment 58-6 for clarification regarding traffic volumes and the weights of vehicles, equipment, and material. See Table 3.12-3 of the EA regarding current traffic volumes on the affected access roads. Also see Section 3.9.2 regarding noise effects, Section 3.12.2 regarding traffic impacts, and Section 3.15.3 regarding project-related accident rate potential. By implementing project design features and additional mitigation measures for these resources, as applicable, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA.

63-2 See the response to comment 7-2.

63-3 See responses to comments 6-3, 10-2, 14-6, 16-4, 22-1, 27-1, 31-1, 40-3 and 49-1.

63-4 See response to comment 6-11 regarding noxious weed monitoring and control.

63-5 See the response to comment 6-8 regarding visibility information presented in Table 3.10-2 on page 3.10-4. The percentages are not additive for the pad and tower columns. The Leon Lake #2 well is included in the cumulative impact discussion for the Leon Lake #4 and #5 sites on page 3.10-8.

63-6 As discussed on page 3.5-9, no project-related impacts to agricultural productivity have been identified. As discussed in Sections 3.8.2.1 and 3.13.2.2, project-related effects to recreation and tourism, respectively, would be minimal.

Letter 64

64-1 See responses to comments 6-3, 10-2, 14-6, 16-4, 22-1, 27-1, 31-1, 40-3 and 49-1.

64-2 Estimated typical project-related traffic on Stevens Gulch Road (CR 40.10 and FR 701) would be comparable in volume to the traffic associated with existing and proposed timber sales on the GMUG on that same road; however, project-related traffic would be short-term and temporary in nature. Much of the timber haul traffic also involves heavy-trucks. Project-related traffic volumes would exceed the timber haul traffic on about 6 days per well.

See response to comment 29-3 regarding the project-related traffic increase relative to existing traffic volumes.

See page 2-9 of the EA, under the heading of Proposed Road Use and Spur Road Construction, and potential mitigation measures T-2 and T-3 on page 3.12-17 regarding dust control, responsibilities for road damages and repairs, and coordination with local counties. See the Conditions of Approval in the respective agency decisions.

64-3 See response to comment 27-2 regarding potential visual impacts. See response to comment 62-1 regarding potential effects to quality of life for local residences.

64-4 Comment noted.

Letter 65

65-1 Comment noted.

Letter 66

66-1 Comment noted.

Letter 67

67-1 See the response to comment 13-1. The EA provides impact discussions for air quality (Section 3.1.2), water resources (Section 3.4.2), vegetation (Section 3.5.2), wildlife (Section 3.6.2), recreation relative to hunting (Section 3.8.2), noise (Section 3.9.2), visual (Section 3.10.2), and socioeconomics relative to tourism (Section 3.13.2). By implementing project design features and additional mitigation measures for these resources, as applicable, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA. See the response to comment 7-2 regarding exploration versus well production and the requirement for additional NEPA analyses on any future gas development plans. No compressor or pipelines are proposed.

67-2 See response to comment 30-4 regarding reclamation bonding requirements.

67-3 See the response to comment 7-2.

67-4 Comment noted.

Letter 68

68-1 See the response to comment 7-2.

68-2 See the response to comment 13-1.

68-3 See the responses to comments 3-2 and 13-3.

68-4 See response to comment 30-4 regarding reclamation bonding requirements.

68-5 As discussed in Section 1.3, Authorizing Actions, of the EA, GEC would be required to comply with all applicable federal, state, and local laws and permit conditions. The USFS and BLM will apply Conditions of Approval given in the respective DN/FONSIs for the proposed project based on the EA analysis. Other permits and approvals required for the project are identified in Table A-1 in Appendix A of the EA.

Letter 69

69-1 Public comment periods for the proposed project were conducted in accordance with the requirements of NEPA. See Sections 2.2 and 4.1 of the EA regarding the public involvement process.

69-2 The project design features and mitigation measures listed in Table 2-8 of the EA are designed to ensure that any impacts would be reduced to a level of insignificance as defined by NEPA.

Letter 70

70-1 The addressed the issues raised during project scoping process, which is described in Sections 2.2, 2.3 and 4.1 of the EA. The required approval and permits are listed in Appendix A of the EA.

70-2 See the response to comment 62-1 regarding potential impacts to the quality of life for local residences.

70-3 The target zones for drilling include sandstone and coals of the Mesaverde Formation. Additional information on the geologic target zones, differences between coalbed methane and conventional wells, and fracing design is provided on pages 3.3-12 and 3.3-13. Natural gas in the Mesaverde Formation is in the coals, shales and sands that have characteristics of both conventional and unconventional reservoirs. The target zone is a natural gas reservoir that is not solely coal. For a "true" CBM well, the coal is both the source rock and the reservoir rock, however, for the proposed wells, the gas has migrated from the coals to the sands. Thus, the sands and the coal are reservoirs. Solely CBM wells produce water, then gas. The proposed wells are not expected to produce very much water, based on information from coal exploration drill holes and existing coal mines in the area. These wells are expected to be in line with traditional well exploration.

70-4 The project-related noise effects associated with truck traffic are analyzed in Section 3.9.2 of the EA. As stated in that section, truck traffic would result in an increase in noise as vehicles pass a particular point. This effect would be temporary, occurring periodically for approximately 16 days for drilling and completion and for several days to several months for testing.

70-5 As discussed in Sections 3.15.1 and 3.15.3, the temporary increase in vehicle accident risks (including vehicles transporting produced water) is anticipated to be low, based on the project-related minor increase in traffic levels and the project design features. See the response to comment 7-2 regarding exploration versus well production and the requirement for additional NEPA analyses on any future gas development plans.

70-6 Comment noted. Regulations governing the role of the USFS and BLM in oil and gas operations are discussed in Sections 1.3 and 1.5 of the EA. See also response to comment 17-21.

Letter 71

71-1 See the respective agency Decisions for the list of Conditions of Approval carried forward.

71-2 See the response to comment 6-1 regarding exceptions to lease stipulations for the Leon Lake #4 and #5 sites. The project design measures listed in item 5 under Water Resources on page 2-37 and would be implemented at all sites to reduce sedimentation input to drainages. The SPCC plan required for drilling of the 8 proposed exploration wells will include provisions for berms and containment structures to prevent any offsite migration of fluids from the drill pads. See the Conditions of Approval in the respective agency decisions for additional mitigation required.

71-3 Comment noted.

71-4 As stated on page 2-38 of the EA, all facility structures would use colors that would blend with the surrounding landscape. Paints would have a flat, non-reflective finish.

71-5 See the response to comment 16-6 and 71-1.

71-6 See response to comment 71-1. A list of other permits and approvals needed by the proponent is listed in Appendix A of the EA.

71-7 Comments noted. See the respective agency Decisions for the list of Conditions of Approval carried forward.

71-8 See the respective agency Decisions for the list of Conditions of Approval carried forward.

71-9 See the respective agency Decisions for the list of Conditions of Approval carried forward.

71-10 Federal agencies must include offsite areas in the impact analyses for the Proposed Action, alternatives, and cumulative actions. See response to comment 13-3.

Letter 72

72-1 The project design measures listed in items 5 and 6 under Water Resources on page 2-37 and mitigation measures included as Conditions of Approval (refer to the respective agency decisions) would be implemented to reduce the potential for water quality impacts to drainages.

72-2 See the response to comment 71-8.

72-3 As discussed in potential mitigation measure WR-9 on page 3.4-27, a minimum of 2 feet of freeboard would be maintained between the maximum fluid level and the top of the berm. See the Conditions of Approval in the respective agency decisions

72-4 These documents will be prepared after federal agency decisions are made. See the respective agency decisions.

72-5 The various local, state, and federal agencies with jurisdiction over the project (see Table A-1 in Appendix A of the EA) are individually responsible for their respective compliance enforcement. Analysis of the resources available to each agency to fulfill this responsibility is beyond the scope of this analysis.

Letter 73

73-1 The Forest Service and BLM have selected mitigation measures to be carried forward as Conditions of Approval in their respective decision documents. Where applicable in response to comments raised during the public scoping period on the EA, the wording has been adjusted for clarity or other reasons.

73-2 AQ-1 in the text is verbatim the language in the GMUG Oil and Gas EIS (page H-20). The AQ-1 language in Table 2-8 had been paraphrased to conform to the cell size in the table. See Conditions of Approval for the agency decisions.

73-3 Comment noted. See Conditions of Approval for the agency decisions.

73-4 Based on comments received, this mitigation has been reworded. See Conditions of Approval for the agency decisions.

73-5 The lack of site-specific data for the project area on the hydrology and aquifer characteristics of the Mesaverde Formation and other formations that would be penetrated during the drilling of the 8 proposed exploration wells necessitates protective measures that would ensure the protection of groundwater and surface water resources for domestic and agricultural users of these water resources in the Grand Mesa and North Fork area. The overwhelming concern of the public for protection of their water resources requires that, in the absence of site-specific data that can be used to guarantee protection of their water resources, the mitigation measures presented in the EA and summarized in Table 2-8 be required. See also response to comment 2-1, and Conditions of Approval for the agency decisions.

73-6 The Forest Service has reviewed this comment, and researched the industry practices regarding pit liners. See Conditions of Approval for the agency decisions.

73-7 A minimum of 2 feet freeboard would ensure that no pit fluids leave the pad area. See Conditions of Approval for the agency decisions.

73-8 See Conditions of Approval for the agency decisions.

73-9 Agency experience points to reclamation success when the vegetation removed is left in large form, and placed on replaced topsoil. Lopping and scattering the vegetation ensures that organics are reintroduced to the disturbed soil, it provides shade and windbreak for seedlings.

73-10 See response to comment 30-4, and Conditions of Approval for the agency decisions.

73-11 The HABCAP model is used as a tool. In this analysis, the HABCAP modeling showed the impacts to elk habitat effectiveness was due to use on the roads. According to the project sequencing provided by the proponent (EA, page 2-29), the Leon Lake 4 and 5 wells would be drilled 7 weeks apart, and completed 8 weeks apart. Based on this, the mitigation would not place undue burdens on the operator. See also Conditions of Approval for the agency decisions.

73-12 See Conditions of Approval for the agency decisions.

73-13 The assumption used in the analysis associated with Table 3.1-4 on page 3.1-7 is that the wells would not be capped for at least one year after testing is completed. If the wells were capped after testing is completed, the comment is correct in stating that no minor source permitting would be required. The use of AP-42 factors are very conservative but they provide a estimate of emissions if the wells were not capped.

73-14 Comment noted.

73-15 Comment noted.

73-16 The designated well exists as a Colorado well of record.

Letter 74

74-1 The Proposed Action only includes the drilling and testing of 8 exploratory wells. The EA provides impact discussions for water resources (Section 3.4.2), safety (Section 3.15), and traffic (Section 3.12.2) as they relate to the Proposed Action. By implementing project design features and additional mitigation measures for these resources, as

applicable, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA. See the response to comment 7-2 regarding exploration versus well production and the requirement for additional NEPA analyses on any future gas development plans.

74-2 Comment noted.

74-3 Comment noted.

Letter 75

75-1 See the response to comment 7-2.

75-2 See the response to comment 51-3 regarding clarification of the NEPA process.

75-3 The EA does not predict impacts to domestic water supplies (EA, Section 3.4). The City of Delta's water supplies are by the Granby Reservoirs (T12 and 13 south, Ranges 95 and 96 west), are 10 to 15 miles from the proposed exploration wells.

75-4 See Responses to Comments 6-3, 10-2, 14-6, 16-4, 22-1. 27-1, 31-1, 40-3 and 49-1.

75-5 See response to comment 13-3.

75-6 See response to comment 13-3.

75-7 Impacts to visual resources were disclosed in Section 3.1 of the EA. See the respective agency Decisions for a list of the mitigations carried forward as Conditions of Approval.

75-8 Follow-up reporting by GEC will be required where appropriate. Overall evaluation of the effectiveness of the various additional mitigation measures would be determined by the agency staff during review of reported data and site inspections.

Letter 76

76-1 Comment noted.

Letter 77

77-1 Comment noted.

77-2 The EA provides impact discussions for air quality (Section 3.1.2), water quality (Section 3.4.2), and visual (Section 3.10.2). By implementing project design features and additional mitigation measures for these resources, as applicable, impacts would be

eliminated or reduced to a level of insignificance as defined by NEPA. Also see the response to comment 62-1 regarding potential impacts to the quality of life for local residences.

77-3 Comment noted.

Letter 78

78-1 The EA provides impact discussions for air quality (Section 3.1.2), water quality (Section 3.4.2), vegetation (Section 3.5.2), elk calving areas (Section 3.6.2), noise (Section 3.9.2), visual (Section 3.10.2), and traffic effects (Section 3.12.2). By implementing project design features and additional mitigation measures for these resources, as applicable, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA. As clarification, there are no designated deer fawning areas in the project area.

78-2 Comment noted. See response to comment 14-6 and 22-1 regarding verification of baseline data.

Letter 79

79-1 Potential effects to roads are discussed in the EA impact discussion for transportation (Section 3.12.2). By implementing project design features and additional mitigation measures, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA.

Letter 80

80-1 See responses to comments 6-3, 10-2, 14-6, 16-4, 22-1. 27-1, 31-1, 40-3 and 49-1.

80-2 See the response to comment 7-2.

80-3 The EA discloses the effects of the Proposed Action on tourism (Section 3.13), recreation (Section 3.8), traffic (Section 3.12), noise (Section 3.9) and air quality (Section 3.1). By implementing project design features and additional mitigation measures for these resources, as applicable, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA.

80-4 See the response to comment 51-3 regarding the EA cumulative analysis, exploration versus well production, and the requirement for additional NEPA analyses on any future gas development plans.

80-5 Comment noted.

Letter 81

81-1 See the responses to comments 14-6, 22-1 and 28-3 regarding adequacy of baseline data. See the response to comment 51-3 regarding the EA cumulative analysis, exploration versus well production, and the requirement for additional NEPA analyses on any future gas development plans.

81-2 See response to comment 30-4 regarding reclamation bonding requirements.

81-3 Section 2.1 of the EA describes the various components of the Proposed Action, including project design features that would be required to be implemented to minimize potential impacts. Specifically, well pads (which would include the reserve pits) would be fenced, dust control measures would be implemented on unpaved roads, and generators would include mufflers for noise reduction.

81-4 See Section 1.5 of the EA regarding the regulations governing the USFS and BLM's roles in oil and gas leasing. See also response to comment 17-21.

Letter 82

82-1 Comment noted.

Letter 83

83-1 See the response to comment 10-3 regarding potential visual impacts. See the response to comment 51-2 regarding clarification of the Proposed Action.

83-2 See the responses to comments 6-3, 14-6, 16-4, 22-1, 27-1, 31-1, 40-3, and 49-1. As discussed on pages 3.4-15, 3.4-16, and 3.2-17 of the EA, potential project-related sedimentation, spill, and fertilizer effects, respectively, on surface water are anticipated to be minimal. Based on the temporary nature of the exploration program, these effects will be short-term in nature.

83-3 See the response to comment 6-3 regarding the EA impact assessment in relation to the Mesaverde Formation. See the responses to comments 6-3, 14-6, 16-4, 22-1, 31-1, 40-3, and 49-1.

83-4 See the response to comment 30-4 regarding reclamation bonding requirements. As identified on page 2-36 of the EA, soil erosion would be minimized by implementing procedures in the Storm Water Pollution Prevention Plan (during and following exploration) and reclamation of disturbed areas (following exploration). Based on the

timeframe for completion of exploration (which at any well site could last several weeks to several months) and implementation of the aforementioned procedures, erosion potential would be minimal. As discussed on page 2-37 of the EA, a Noxious Weed Management Plan would be implemented in project disturbance areas to prevent the spread of noxious weeds after construction. Figure 2-6 shows the reclamation cycle for the proposed wells. The Description of Proposed Activities in Section 2.1.2 of the EA details the timing of construction and reclamation activities.

83-5 See the response to comment 28-3 regarding the adequacy of baseline data for EA impact evaluations. Potential project-related impacts to wildlife species is discussed in Section 3.6.2 of the EA.

83-6 See the response to comment 13-1.

Letter 84

84-1 Comment noted.

Letter 85

85-1 See the responses to comments 7-2, 51-2 and 51-3 regarding clarification of the Proposed Action, the EA cumulative analysis, exploration versus well production, and the requirement for additional NEPA analyses on any future gas development plans.

85-2 See the response to comment 51-2 regarding clarification of the Proposed Action. See the response to comment 7-2 regarding exploration versus well production and the requirement for additional NEPA analyses on any future gas development plans.

85-3 Comment noted.

Letter 86

86-1 Comment noted.

Letter 87

87-1 See also response to comment 17-21.

87-2 See the responses to comments 7-2, 51-2 and 51-3 regarding clarification of the Proposed Action, the EA cumulative analysis, exploration versus well production, and the requirement for additional NEPA analyses on any future gas development plans.

87-3 See the response to comment 30-4 regarding reclamation bonding requirements.

87-4 Comment noted.

Letter 88

88-1 See the responses to comments 7-2, 7-3 and 13-1.

88-2 Comment noted.

88-3 See the response to comment 30-4.

88-4 See the response to comment 14-1 regarding project design features and additional mitigation. See the Conditions of Approval in the respective agency decisions.

Letter 89

89-1 See the responses to comments 7-2, 7-3 and 13-1.

89-2 Comment noted.

89-3 See the response to comment 30-4.

89-4 See the response to comment 14-1 regarding project design features and additional mitigation. See the Conditions of Approval in the respective agency decisions.

Letter 90

90-1 See the responses to comments 7-2, 7-3 and 13-1.

90-2 Comment noted.

90-3 See response to comment 30-4.

90-4 See response to comment 14-4 regarding project design features and additional mitigation measures. See the Conditions of Approval in the respective agency decisions.

Letter 91

91-1 See response to comment 13-1. The EA provides impact evaluations for water resources (Section 3.4.2.1), wildlife (3.6.2.1), socioeconomics (3.13.2), and recreation (3.8.2.1).

91-2 Comment noted. See response to comment 6-1. The stipulations for Leon Lake #4 and #5 were listed in lease C-13563A rather than the 1993 Oil and Gas EIS

91-3 See response to comment 6-1.

91-4 Truck traffic on SH65 and other access roads would have to abide by state laws regarding speed, etc. See response to comment 60-4 regarding traffic-related noise impacts.

91-5 In reference to potential project effects on elk calving near the Leon Lake #4 and #5 sites (page 3.6-10), potential mitigation measure FW-4 (page 3.6-23) would restrict activities during the elk calving period from May 15 to June 15. See the respective agency decisions for Conditions of Approval.

91-6 The text on page 3.3-15 is correct. Based on existing geologic data, it is not expected that faults would be encountered during drilling. Therefore, no mitigation is necessary.

91-7 As described on page 3.5-3, the Surface Creek Potential Conservation Area is located approximately 0.25 mile from the Leon Lake #4 site. Project activities would not affect this PCA because it is located upstream and upgradient from the well site. The Forest Service has not formally recognized this area as requiring special management.

91-8 As stated in paragraph 5 on page 3.8-7, GIS visibility results indicated no effects on views of the Byway from the Leon Lake #4 and #5 well sites.

91-9 See responses to comments 6-3, 14-6, 16-4, 22-1, 27-1, 31-1, 40-3, and 49-1

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Letter 92

92-1 See response to comment 91-1.

92-2 See response to comment 91-2.

92-3 See response to comment 91-3.

92-4 See response to comment 91-4.

92-5 See response to comment 91-5.

92-6 See response to comment 91-6.

92-7 See response to comment 91-7.

92-8 See response to comment 91-8.

92-9 See response to comment 91-9.

Letter 93

93-1 See response to comment 91-1.

93-2 See response to comment 91-2.

93-3 See response to comment 91-3.

93-4 See response to comment 91-4.

93-5 See response to comment 91-5.

93-6 See response to comment 91-6.

93-7 See response to comment 91-7.

93-8 See response to comment 91-8.

93-9 See response to comment 91-9.

Letter 94

94-1 See response to comment 91-1.

94-2 See response to comment 91-2.

94-3 See response to comment 91-3.

94-4 See response to comment 91-4.

94-5 See response to comment 91-5.

94-6 See response to comment 91-6.

94-7 See response to comment 91-7.

94-8 See response to comment 91-8.

94-9 See response to comment 91-9.

Letter 95

95-1 Comment noted.

Letter 96

96-1 Comment noted.

Letter 97

97-1 Comment noted.

Letter 98

98-1 Comment noted.

Letter 99

99-1 Comment noted.

Letter 100

100-1 Comment noted.

100-2 Comment noted.

100-3 The authorities and compliance with the existing land use plans are discussed in Sections 1.3 and 1.5 of the EA.

Letter 101

101-1 The issue of perception of this type of activity is discussed in Section 3.13 of the EA.

101-2 Groundwater resources were described using available water quality and quantity data, as referenced in Section 3.4.1.2 and Appendix I. See also response to comments 6-3, 14-6, 16-4, 22-1, 27-1, 31-1, 40-3, and 49-1.

101-3 See the response to comment 30-4 regarding reclamation bonding requirements.

Letter 102

102-1 Comment noted.

102-2 Potential impacts to roads are discussed under transportation in Section 3.12.2 of the EA. By implementing project design features and additional mitigation measures for this resource, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA. As stated on page 2-36 of the EA, dust would be controlled using non-toxic and non-polluting materials. See also Conditions of Approval in the individual agency decisions.

Letter 103

103-1 The EA provides impact discussions for water resources (Sections 3.4.2.1 and 3.4.2.2), air quality (Section 3.1.2.1), and wildlife (Section 3.4.2.1). The analysis includes the potential effects of cumulative actions in the project study area on all environmental resources. By implementing project design features and additional mitigation measures for these resources, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA. See response to comment 28-3 regarding adequacy of information used in the EA.

103-2 See the response to comment 30-4 regarding reclamation bonding requirements.

103-3 See responses to comments 30-3 and 81-3.

103-4 See response to comments 17-21 and 17-23.

103-5 Comment noted.

Letter 104

104-1 Comment noted.

104-2 See response to comment 2-1 regarding mitigation measures for water resources. See also the Conditions of approval in the individual agency decisions.

104-3 Comment noted.

Letter 105

105-1 Comment noted.

105-2 This analysis considered cumulative impacts (EA, Table 2-9, Appendix F and Chapter 3). Subsequent NEPA analyses will be prepared for site-specific proposals regarding other exploration and/or development activities. These analyses will follow the staged NEPA process used in the oil and gas leasing, exploration, and development (see Response to comment 7-2). As part of each specific proposal, a cumulative impact analysis will be conducted. If future development can be defined as part of the reasonably future actions, it will be included in the cumulative analysis. See the response to comment 51-3 for clarification of reasonably foreseeable future actions and their inclusion in cumulative impact analyses.

105-3 The effects of the proposed activities on IRA are discussed in Section 3.12 of the EA.

105-4 Comment noted.

105-5 As explained on page 2-50 (last two bullets), well spacing is considered at the production stage. This proposal is for exploration. See also response to comment 7-2.

105-6 There are no USFS standards for noise. Typically, the federal standard of 55 dBA at a distance of 25 feet from residences is used in impact analyses.

105-7 By implementing project design features and additional mitigation measures, impacts would be reduced to a level of insignificance as defined by NEPA for wildlife resources at these five well sites.

105-8 See response to comment 6-1 regarding exceptions to lease stipulations at Leon Lake #4 and #5.

105-9 Comment noted.

105-10 There are different ways to characterize and evaluate habitat fragmentation from roads. The EA uses one approach involving an estimate of acres removed during road use. The effects of fragmentation within an already heavily roaded area are difficult to discern and would be minimal regardless of method of analysis used in this EA. See also Response to Comment 109-27.

105-11 Mitigation measure FW-1 on page 3.6-23 has been revised to say "Surveys will be conducted in aspen habitat for cavity nests so all aspen (live, dead, large, old) are is included."

105-12 Mature aspen is only present at the Oakbrush site. Based on the site location evaluations (see pages 2-1 and 2-2), a team of resource specialists sited each proposed pad and access road to minimize impacts to environmental resources. The GMUG MIS assessment has a lengthy discussion on condition of aspen habitat within the GMUG. It concluded that that mature aspen is not limited, in fact the majority of the forested acres on the GMUG (with the exception of ponderosa pine) is in a mature to late seral condition (GMUG MIS Assessment).

105-13 See response to comment 105-12. The proposed project would impact a relatively small amount of mature aspen located at the Oakbrush site.

105-14 See response to comment 105-2.

Letter 106

106-1 Comment noted.

Letter 107

107-1 See response to comment 105-2 regarding cumulative impact analyses. See response to comment 28-3 regarding adequacy of information used in the EA. Also see the response to comment 51-2 regarding existing applications for the Proposed Action. See also response to comment 7-2.

107-2 The Proposed Action is an exploratory drilling project for natural gas resources that could include conventional gas and coal seam reservoirs as discussed on page 3.3-12 of the EA. See the response to comment 13-1. The Uncompahgre Basin RMP does not address differences in conventional vs. unconventional wells because there are not any fundamentally different impacts from wells drilled into a sandstone, coal or shale reservoir. The impacts anticipated for any wells drilled would be similar to oil and gas development in formations without coalbeds. The proposed activities are consistent with the existing land use plans (EA, page 1-8).

107-3 See the response to mitigation measure 30-4 regarding bonding requirements.

107-4 Project design features and additional mitigation measures were developed based on the best available technology and objective of reducing impacts from gas exploration

activities. See the Conditions of Approval in the respective agency decisions. Use of Best Management Practices is part of the proposed action (EA, page 2-9).

107-5 Comment noted.

107-6 Federal agencies must include offsite areas in the impact analyses for the Proposed Action, alternatives, and cumulative actions. This EA addressed impacts to "offsite" or non-federal land where applicable particularly regarding cumulative actions (EA, Table 2-9, Appendix F and Chapter 3).

Letter 108

108-1 See the response to comment 107-4 regarding project design features and additional mitigation.

108-2 See the response to mitigation measure 30-4 regarding bonding requirements.

108-3 See the response to comment 13-1.

108-4 Comment noted.

Letter 109

109-1 The proposed project is properly characterized as exploratory natural gas drilling. Identification of coalbeds and sandstones being targeted for exploration is discussed in Sections 1.1, 2.1.2.3, 2.1.2.4, 3.3.1.3, and Figure 2-5 of the EA. While it is possible that coalbed gas may be produced, there is also a high probability that sandstones may also yield gas in commercial quantities. One of the primary zones targeted for exploration is the Barren Member described in Section 3.3 of the EA as being comprised of sandstones, siltstones, and clay. There also are three secondary targets in sandstones as discussed on page 3.3-12 of the EA, and shown on Figure 2-5.

Past gas exploration in the general area of the proposed wells is discussed on page 3.3. 7 of the EA. Further, the GMUG Oil and Gas EIS reports that most of the wells in the Piceance basin are dual completions in the Mesaverde (tight gas) sandstones and coals. Four wells that were drilled on the GMUG in the 1980s that targeted coal and sandstone reservoirs have been plugged and abandoned (GMUG Oil and Gas EIS, Appendix E). In addition, the Leon Lake Unit #2 was reportedly completed in a sandstone in the Barren Member. See response to comment 70-3.

There is an assertion in the comment that says that hydraulic fracturing "does not appear to be necessary (or is necessary on a limited basis) for sandstone." Section 2.1.2.3 of the

EA discusses the potential use of hydraulic fracturing through numerous zones of the Mesaverde formation including the Barren member (a sandstone), the coal bearing member, the Rollins (a sandstone) the Corcoran and Cozzette members (both sandstones). See page 3.3-7 of the EA regarding reservoir treatments at other gas fields in the Piceance Basin. There is a misconception that hydraulic stimulation only is needed for coalbeds as a way of distinguishing CBM as different from activities common to other conventional and unconventional gas reservoirs. Hydraulic fracturing is not unique to CBM applications. Hydraulic fracturing is a widely accepted and used stimulation practice used for all types of oil and gas reservoirs and is commonly used to enhance well production.

109-2 The comment references a USGS study that advocates basin-wide studies in order to determine "unique basin attributes" regarding coalbed methane "issues." The Piceance Basin has been studied extensively (EA, Chapter 5, list of references at the end of this appendix, and project file), and coalbed methane production has accounted for a large amount of gas production to the north of the project area towards the center of the basin. Piceance Basin coals have much different production characteristics than San Juan Basin and Black Warrior Basin coals, and there has been substantial production experience in the Piceance Basin to distinguish it from other basins. A major difference is the relative amount of water produced from coalbed wells in the Piceance Basin (see discussion in EA, pages 3.3-6 and 3.3-7).

A study by the US Environmental Protection Agency (EPA 816-D-02-006) on hydraulic fracturing for coalbed gas production and potential effects on drinking water sources has appendices that discuss the major coalbed gas producing basins in the US (USEPA 2002, as referenced in the EA). The Piceance Basin is discussed in Appendix 3 of the USEPA report and it provides a concise summary of the geology, hydrogeology, and production characteristics of the coal beds. It also has a list a list of references (though by no means all-inclusive) that are pertinent to the issues of discussion in the EA. Some of the references present the results of studies of the geology and production characteristics of the coal in the Piceance Basin. The EA also cites other references that present the results of geology and production characteristics of the Piceance Basin, but these references are also by no means all-inclusive for the subject. The USEPA fracturing study also has an appendix on the San Juan Basin.

Geologically, the Mesaverde rocks of the basins are quite similar (sandstones, shales, and coals deposited in a fluvial-deltaic environments) so a comparison of geology per se would not be informative, especially in regard to environmental issues. However, there is a key property that is of different magnitudes between the coals of the basins. That property is permeability and it has direct environmental and economic implications. In the Piceance Basin, the permeability of the coal is generally so low that basin-wide,

water production potential at any given well is 100 barrels of water per day (BWPD) or less (Tyler et al 1995 as referenced in the EA, page 3.3-7). Often wells produce little or no water. This is in contrast with the San Juan Basin with water production potentials of 300 BWPD or more in local areas and the Powder River Basin with rates up to 500 BWPD and even higher in deep thick coal seams (>1000 BWPD) (Ayers 2002). Another characteristic of the Piceance Basin coals is that the coalbed gas production alone may not be economically viable and that to have commercial wells, operators must produce coalbeds and sandstones from the same wells (Tyler et al, 1995). As stated n the EA (3.3-6) Piceance Basin coalbed gas production peaked in the early 1990s. The peaking of the production may have resulted from the fact that operators probably learned the lesson of low commercial viability of wells that were completed solely in the coalbeds and began to commingle coalbed and sandstone production. The wells producing solely from coalbeds do not now contribute significantly to the overall gas production of the basin. In contrast, the San Juan Basin is the nation's leading basin in coalbed gas production and the Powder River Basin will be a significant producing area in the future.

The recently completed groundwater modeling study by the Colorado School of Mines for proposed wells in Delta County supports the conclusions found in the EA that the strata targeted for exploration (both the sandstones and coals) will produce little water. The groundwater that may be present in these formations is not in hydraulic connection with the near-surface groundwater that supplies water to domestic wells and other water developments. The groundwater in the Mesaverde formation interior to the mesa is groundwater that has a long residence time in the formation (i.e. old) and flows very slowly through a deep system. This groundwater has been out of contact with the atmosphere, and in contact with the rock units, likely for thousands of years.

The School of Mines modeling study confirmed estimations made in the EA that water production may range from zero to 150 barrels per day (a barrel is 42 gallons, thus would compute to a maximum of 6,300 gallons per day). The study also found that in contrast to other areas where coalbed methane has been developed (in Wyoming and the San Juan Basin), the water production issue is not a concern in Delta County. The study further found that the only water left in the coals in the area is irreducible water that was created as the coals were heated. Meaning that water was expelled and gas was created during heating of the coals over geologic time.

109-3 The comments are noted about impacts of CBM development on domestic water wells, vegetation, rangeland, and air quality in reference to the San Juan Basin case study. It should be noted that geological, hydrogeological, and potential gas producing characteristics of the southern Piceance Basin where these eight exploratory wells are proposed differ from the San Juan Basin.

As discussed in Section 3.4.2.2 of the EA, there are no domestic water wells within 1 mile of the proposed well sites. The radius of influence for strata dewatering is not expected to be much beyond the hydraulic fracturing radius, or 500 feet. Therefore, the seepage of methane into water wells is not expected to be a concern.

Because all of the proposed well locations are situated such that the outcrop is of much greater distance from the well bore than the radius of influence of the wells (the distance to the coal outcrop from each of the proposed well sites in miles is: Leon Lake 4 and 5 approximately 5, Bull Park about 2, Powerline site about 4, Oakbrush 1.5, Hubbard Creek 2, Hawksnest 1 mile, and Thompson Creek 1 mile), no project-related impacts at the outcrop could be reasonably expected to occur. Results of the Colorado School of Mines groundwater modeling study of Delta County supports the finding that the zone of influence from hydraulic fracturing is small, and will not have translated effects through the formations.

The comment about air quality impacts in the San Juan Basin applies to a full field development situation. As discussed in Section 3.1.2.1 of the EA, air quality impacts resulting from exploration activities at the eight exploratory wells and their associated access roads would be minor. The also EA provides impact discussions for rangeland (Section 3.5.2); wildlife (Section 3.6.2); and threatened, endangered, and sensitive species (Section 3.7.2). By implementing project design features and additional mitigation measures for these resources, as applicable, impacts would be eliminated or reduced to a level of insignificance as defined by NEPA.

A recent US District Court Opinion did not identify “unique” problems with Coalbed methane.

109-4 The comment makes reference to a BLM report on probable effects of CBM development in the San Juan Basin. It should be noted that geological, hydrogeological, and CBM production characteristics of the San Juan Basin differ than the southern Piceance Basin. See response to comment 109-2.

In the project area, the sandstones and coal layers targeted for exploration lie between 1,200 and 4,500 feet below the land surface. The strata are nearly flat lying, dipping a few degrees to the north and northeast. If gas seeps were to occur, it would be where the potential gas bearing strata are exposed at the outcrop. In the project area they generally form steep cliffs that do not support vegetation. There have not been any areas where gas seeps have been noted to cause vegetation deaths.

See also response to comment 13-4.

109-5 The potential geologic hazards associated with dewatering of the coal seams (including fire hazard) as they relate to the site-specific conditions in the Proposed Action area are discussed on page 3.3-10 of the EA. As stated in-text, the effects would be negligible, as the area of influence would not extend to the outcrop of the target formations.

109-6 The project area along the south flank of the Grand Mesa has a different geology and hydrologic conditions compared to the San Juan Basin. The Mesaverde Formation in the project area is a tight gas sand, which will limit the migration of gas through the formation. Also, the Mesaverde in the project area is not a regional aquifer. In the San Juan Basin, the Fruitland Formation is a regional aquifer and must be depressurized to release the methane. This is not the case in the project area. See the response to comment 13-4 regarding baseline water resource data for the EA.

As discussed on page 3.3-10 of the EA, the potential for methane seepage to the surface as a result of the proposed project is minimal. Due to the low permeability of the target formations, the isolated nature of groundwater in these formations, the depth of the target zones in relation to domestic and municipal wells, and the fact that groundwater in the target zones is non-tributary to surface water resources, the potential for gas migration, effects to surface flows, and effects to aquifers would be extremely low, as discussed on page 3.4-20 of the EA.

See also responses to comments 6-3, 14-6, 16-4, 22-1, 27-1, 31-1, 40-3, and 49-1.

109-7 The agencies acknowledge that the impacts cited in the comment have been documented in the San Juan basin as a result of full gas field development. The EA discloses the effects of the eight-well proposed natural gas exploration drilling project. Any proposal for future development would be analyzed under NEPA (EA, Section 1.5). The EA considers the impacts based on the proposed action (Section 2.1), and the issues raised (Section 2.3). The analysis was performed using data specific to the area, and the anticipated impacts disclosed (Chapter 3).

109-8 The EA references relevant studies used in characterizing existing environmental resources within the project study area (EA, Chapter 5). As explained in responses to comments 109-3 and 109-6, the hydrology and geology of the south flank of the Grand Mesa is different than the San Juan Basin. Therefore, references to impact observations in the San Juan Basin are not relevant to the impact analyses provided in the EA. See the response to comment 13-1 and 109-2.

109-9 The method proposed for handling water produced during exploration drilling and testing, involves storing the water in tanks and then transferring it to an offsite facility approved for disposal (EA, Section 2.1.2.7). This method of handling produced water would be sufficient to handle the limited amount of produced water expected from each

exploration well. The SPCC plan required for each drill site would ensure that any leaks or spills that may result would be contained on the drill site and quickly removed, which would minimize risks of surface or groundwater contamination. See also response to comment 109-2.

109-10 As discussed in the EA, Section 2.4, this proposal is for exploration activities. There are insufficient gas resource data to meaningfully state that a natural gas is present in the sandstones and coal layers in the area in producible quantities. Therefore, considering long-term gas field development from any strata at this time would be speculative.

109-11 The Uncompahgre Basin RMP does not address differences in conventional vs. unconventional wells because there are not any fundamentally different impacts from wells drilled into a sandstone, coal or shale reservoir. The impacts anticipated for any wells drilled would be similar to oil and gas development in formations without coalbeds. See page 3.3-13 of the EA.

109-12 The GMUG Oil and Gas EIS recognizes that coalbed methane resources are present in the project area (GMUG Oil and Gas EIS, Appendix E and G).

109-13 Coal is both the source rock and reservoir rock for methane, in that the gas is stored in the same place where it formed. Like conventional reservoirs where gas is stored in the pore spaces between grains of sand, in a coal reservoir, some gas is stored in the pore space between solid particles of coal called cleats. In a coal reservoir, gas is also stored within the microscopic structure of the coal itself (RMMLF, 2002). Gas in both sandstone reservoirs and coal reservoirs 'flow' in response to pressure changes. The discussion of the types of gas to be targeted in this exploration program is provided in paragraph 1 on page 3.3-12 of the EA. See the response to comment 109-1 regarding the project's primary target zone and the response to comment 109-10.

The RFD in the GMUG Oil and Gas EIS is simply an analysis tool for the leasing analysis, it does not place "restrictions" on the amount of activity that might occur. The EA identifies that the proposed 8 exploration wells are within the forecast of the RFD (EA, page 3.3-8). See response to comment 109-10.

See response to comment 109-10. The Uncompahgre Basin RMP does not address differences in conventional vs. unconventional wells because there are not any fundamentally different impacts from wells drilled into a sandstone, coal or shale reservoir. The impacts anticipated for any wells drilled would be similar to oil and gas development in formations without coalbeds.

Flaring and hydraulic fracturing are common practices associated with oil and gas development in formations without coalbeds. See response to comment 109-50.

109-14 The "Staged Decision Process" for evaluating impacts of oil and gas activities on federal lands is described in the EA in Section 1.5. This staged approach applies to all types of oil and gas development. See the response to comment 109-10 regarding the speculative nature of a developable gas field being present in the Grand Mesa area.

109-15 Cumulative impacts are analyzed for all environmental resources in the EA (Table 2-9, Chapter 3 and Appendix F). See the response to comment 51-3 regarding reasonably foreseeable future actions for the cumulative impact analysis.

109-16 See the response to comment 109-14 regarding the "Staged Decision Process" for evaluating proposed oil and gas projects. See the response to comment 13-1.

109-17 See the response to comment 109-15 regarding cumulative impact analyses. The agencies are not aware of any law placing a stay on these analyses.

109-18 See the response to comment 109-14 regarding the "Staged Decision Process" for evaluating proposed oil and gas projects. This EA was prepared following this process. Amendments to the GMUG Forest Plan and the BLM RMP were determined to not be necessary for this proposed action (EA, page 1-8).

109-19 Information on Underground Sources of Drinking Water (USDWs) from EPA and COGCC was reviewed. The information indicates that USDWs are defined by presence of a water-bearing unit with less than 10,000 mg/l total dissolved solids. According to EPA, USDWs in the Piceance Basin are much shallower than the gas bearing formations. The EA provides impact discussions for water resources in Sections 3.4.2.1 and 3.4.2.2. See also drawing in Appendix J of the EA that depict the vertical separation of the gas bearing strata and the domestic water sources.

109-20 The WWE report provides the most comprehensive evaluation and best available data for the project area. The agencies have also incorporated the findings of the recent Colorado School of Mines groundwater modeling study prepared for Delta County. The EA has recommended a number of mitigation measures (see Table 2-8 of the EA) that are designed to protect the water resources of the project area and to ensure protection of water resources used for domestic and agricultural purposes in the North Fork Valley. See the Conditions of Approval in the respective agency decisions. See also response to comment 22-1, 109-2 and 109-3.

The situation at the West Elk Mine is outside the scope of this analysis.

109-21 See the response to comment 28-3 regarding the adequacy of available data for preparing the EA. Existing information on environmental resources in the study area was

supplemented with surveys for raptor nests, sensitive bird and plant species, vegetation communities, and surface water and groundwater quality.

109-22 The effects of hydrofracturing on groundwater quality is discussed in Section 3.4 of the EA. Based on experience, it is expected that hydrofracturing would not affect the Mesaverde Formation beyond about a 500-foot radius from each drill site. Because of the low permeability of the Mesaverde, chemicals introduced during hydrofracturing are not expected to migrate much beyond 500 feet from each drill site. To ensure protection of groundwater resources, the EA has recommended a number of monitoring and mitigation measures (see Table 2-8 of the EA) that would protect groundwater quality from any adverse impacts due to the proposed drilling. There are no domestic water wells within one mile of any of the well sites (EA, Appendix J). None of these wells are completed in a coal seam. See the respective agency decisions for Conditions of Approval. See response to comment 40-3.

The analysis performed evaluated the effects of eight exploration wells on water resources in their proximity. The analysis in the EA determined very little risk to domestic water sources, a finding supported by the Colorado School of Mines modeling study, and other recently completed studies. These analyses were completed using data, knowledge, experience and information about the geology and hydrogeology of the Grand Mesa and North Fork Valley.

109-23 As discussed in Section 3.15.1 of the EA, no impacts to surface water resources or domestic or agricultural well water has been identified based on the horizontal and spatial relationship between the proposed wells and these resources and the lack of hydraulic connection between these resources and the groundwater in the project's target zones. As a result, no health effects from hydrofracturing chemicals are anticipated.

109-24 Potential impacts to surface water resources as a result of a potential leak or spill of hydrofracturing chemicals is discussed on page 3.4.-16 of the EA. By implementing project design features and additional mitigation measures, impacts would be reduced to a level of insignificance as defined by NEPA.

109-25 As described in mitigation measures WR-2, WR-7, and WR-8 on pages 3.4-26 and 3.4-27 of the EA, potential effects of pit water on soil, water, and biological communities would be minimized by implementing these measures. See the respective agency decisions for Conditions of Approval.

109-26 Regarding *"…PM10 baseline data is (sic) outdated… impacts to local air quality have been mounting.. specifically, the population on Colorado's western slope has increased…" and…"on-site air quality data for all criteria pollutants should be collected for at least one year prior to beginning operations."*

On-site air quality data are sometimes required for new or modified stationary (permanent) sources classified as "major" or PSD sources. The exploratory wells in the proposed action (and alternatives) would not be permanent stationary sources and would not be required to perform on-site ambient air monitoring. The wells would potentially become minor sources if they become producing wells in the future; however, as minor sources, they would not be required to perform ambient air monitoring.

Regarding *…minor source baseline date…and ….consume available increment".*
The minor source baseline dates are: August 7, 1977 (particulate matter and sulfur dioxide); and February 8, 1988 (nitrogen dioxide). Emissions from proposed exploratory GEC wells would be temporary and would not consume available increment.

Regarding Reference *… to a 1995 USEPA document…*
The document is referenced in the EA (USEPA 1995) and is available on the USEPA web site: http://www.epa.gov/ttn/chief/ap42/index.html.

Regarding *Visibility data in the West Elk Wilderness.*
There are no official visibility monitoring sites (Improve sites) and, therefore, no official visibility data in the West Elk Wilderness. Visibility monitoring data from Weminuche Wilderness Area and Mt. Zirkel Wilderness Area indicate that the central Colorado mountains have average deciviews of about 0.9. (Source: Long-Term Strategy Review and Revision of Colorado's State Implementation Plan for Class I Visibility Protection October 31, 2001).

Regarding *…CBM impacts….flaring …*
Flaring emissions are calculated and represented in the EA. See response to comment 109-50.

Regarding *Obtaining all necessary air quality permits…*
GEC would be required by Colorado state law to obtain any necessary air permits. See Appendix A of the EA.

Regarding *Cumulative …some percentage of wells will be producers…*
The EA addresses the exploration drilling that is the proposed action, not production. For the cumulative impact analysis, it was assumed that 50% of the wells would carry forward to production. This was based on information in the GMUG Oil and Gas Leasing EIS.

109-27 Information presented in the comment is taken out of context. As stated in the EA impacts discussions:

There would be no construction within mapped elk calving areas. The two Leon Lakes well sites are near a mapped calving area but not within. Timing restrictions for the construction and/or operation of these sites would preclude any indirect impacts to elk calving activity (see Section 3.6.2).

Locked gates on all new access roads would maintain big game security during the hunting seasons resulting in conditions unchanged from existing conditions (see Section 3.6.2).

There would be no increase in winter access opportunities to preferred lynx habitat for predators that could compete with lynx (see Section 3.7.2).

Potential sedimentation impacts for fisheries (including Colorado River cutthroat trout) would be minimized through implementation of project design features. Also, project activities would not affect water quality in Hubbard or Terror creeks that support conservation populations, or in Surface Creek where the species is managed under the Conservation Agreement (see Section 3.6.2).

The likelihood of the presence of any sensitive plant species is low, based on the preferred habitat conditions of potential species. Sensitive plant species surveys to be completed in July 2003 will ensure that no sensitive plant populations are present within any of the proposed disturbance areas (see Section 3.7.1 and 3.7.2).

Population viability is not a concern for hunted game species, but limiting factors such as big game security and winter range are important considerations in herd management. In contrast, population viability is a concern for sensitive, threatened, or endangered species since habitat loss could affect small, local populations (see Section 3.6.2).

Hairy woodpecker prefers late successional lodgepole pine forests with an abundance of snags but also can be found in a variety of other forest and woodland habitats (see Sections 3.6.1 and 3.6.2).

HABCAP is the model we have used to measure habitat capability and habitat effectiveness quantitatively. In the HABCAP Documentation and Users Guide 01-20-94 the terms habitat effectiveness and habitat capability have very precise definitions. These definitions carry directly over into the standards set in the Forest Plan.

In the HABCAP model, and for the purpose of calculating compliance with the Forest Plan:

Habitat Capability is a function of forage value combined with cover value for all species. The model has specific numeric adjustments calibrated into the algorithm, but the basic equation is:

HC = (Forage value)(Cover value)

The effect of roads on the "effectiveness" of this habitat is not factored into this definition of habitat capability.

Habitat Effectiveness is a function of Forage, cover AND roads effects combined. Again, the model has specific numeric adjustments calibrated into the algorithm, but the basic equation is:

HE = (Forage value)(Cover value)(Roads effect)

Habitat Effectiveness is calculated in this manner for elk and deer only in the HABCAP model.

There are some very important conclusions that come out of these definitions:

Because disturbance to vegetation (cover and/or forage) is minimal (16 acres on National Forest), habitat capability, as calculated by HABCAP, remains unchanged across all alternatives. No aspect of the decision being made affects calculated habitat capability. Hence the Forest Plan Standard for habitat capability does not apply.

Habitat effectiveness is impacted by road densities and use of roads. The habitat effectiveness standards in the Forest Plan (they are specifically under Transportation Management heading of Forest Direction) are specific to elk only (not deer). Hence, the applicable standards in the case of this project are those specifying habitat effectiveness (not habitat capability).

This interpretation is supported by the fact that there is separate standard in the Forest Plan for elk and habitat effectiveness.

These are stated as objectives and not as absolute standards. Objectives may be met if possible, but may also not be met if overriding factors indicate that they should not be. In other words, direction stated as objectives accords the decision maker the authority, and the responsibility, to weigh that objective against others, such as project needs, and to determine if in fact the objective may yield.

In the case of the proposed drilling, the calculated changes to Habitat Effectiveness for elk (mislabeled Habitat Capability in the EA) is based entirely on increase in traffic on

existing roads during the project. The increase in traffic is of very short duration (a period of 3 to 6 weeks for each drilling location) and represents a 1% decrease in habitat effectiveness. This will occur in the summer, when elk are widely dispersed, and free to temporarily move to other areas. There is no effect on elk from these projects other than possible temporary displacement of a few individuals during drilling operations. Habitat effectiveness will return to existing conditions after completion of drilling activities.

Habitat fragmentation refers to the loss of blocks of habitat for various species of wildlife as a result of separation by intervening areas of unsuitable habitats. Fragmentation typically is only a concern with larger scale habitat conversions or separations by actions such as forest fire, timber harvest, subdivisions, and paved highways. Short-term habitat losses and or conversions associated with the Proposed Action are small in scale and would not represent movement barriers between areas of suitable habitat for any local wildlife populations. Once operations are completed, the small openings in shrublands and forested habitats created by the well sites and short segments of access roads would be no larger than areas of open meadow habitat that occur naturally throughout the analysis area.

If any of the exploratory wells prove to be successful for gas production, additional NEPA analysis would be required by the USFS to evaluate the potential effects of long-term operation.

109-28 As indicated in Table 3.6-1, the probability of occurrence of any terrestrial MIS species in the analysis area is “low” to “none” for all but northern goshawk, black bear, mule deer, and elk. Breeding bird and northern goshawk nesting surveys completed for all proposed disturbance sites in June 2003 documented the lack of presence of nesting northern goshawks within the sphere of project influence. For the three big game species, the Colorado Division of Wildlife maintains population trend data and manages population size through hunting harvest. As a cooperating land management agency, the USFS is tasked in maintaining big game habitat effectiveness in concert with Colorado Division of Wildlife population goals.

109-29 As indicated in Table 3.7.1, the only BLM Sensitive species likely to occur in the analysis area are the leopard frog and northern goshawk. Any potential impacts to the leopard frog would be precluded by avoidance of any areas of suitable habitat regardless as to whether populations of the leopard frog are present or not. A need for species inventories only is necessary if areas of suitable habitat could be impacted. There is a slight potential that project development could impact potential northern goshawk nesting habitat. As a result, the USFS and BLM have required that northern goshawk nesting surveys be completed in all areas of suitable habitat prior to any project development activities. Northern goshawk nesting surveys completed in areas of suitable habitat near

proposed disturbance sites in June 2003 documented the lack of presence of nesting northern goshawks within the sphere of project influence.

109-30 As indicated on Tables 3.6-1 and 3.7-1 of the EA, there are very few MIS or sensitive species potentially occurring in the Proposed Action analysis area. There would be no impacts to populations of sensitive amphibian species (tiger salamander, boreal toad, or leopard frog) since the Proposed Action would not affect suitable breeding habitat for these species. Beyond the possible presence of these species, purple martin, northern goshawk, elk, mule deer, and black bear are the only other sensitive or MIS species that are likely or known to occur in the analysis area and could be affected by the Proposed Action. Population viability is not a concern for hunted game species, as the Colorado Division of Wildlife maintains population trend data and manages population size through hunting harvest. For purple martin and northern goshawk, breeding bird surveys were completed in June 2003 in areas of suitable habitat within the sphere of influence of the Proposed Action. These surveys documented the lack of presence of nesting northern goshawks or nesting purple martin within the sphere of project influence.

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. For this reason, MIS population and habitat trend monitoring is properly conducted at the forest plan (or broader) level, and provides a useful context for planning at the project level. A recent appeal decision on the Sheep Flats Timber Sale affirms this information (Recommendation Memorandum for Sheep Flats Diversity Unit Timber Sale, 12/20/01). See page 2-55 of the EA.

109-31 See the response to comment 109-30 regarding MIS and sensitive species.

109-32 See the response to comment 109-30 regarding MIS and sensitive species.

109-33 See the response to comment 109-30 regarding MIS and sensitive species.

109-34 See the response to comment 109-30 regarding MIS and sensitive species.

109-35 See the response to comment 109-30 regarding MIS and sensitive species.

109-36 See the response to comment 109-30 regarding MIS and sensitive species.

109-37 See the response to comment 109-30 regarding MIS and sensitive species.

109-38 See the response to comment 109-30 regarding MIS and sensitive species.

109-39 A separate Biological Assessment (BA) and Biological Evaluation (BE) were prepared for this project (project file). The BE concluded that USFS approval of the Proposed Action would not have an effect on population viability of any sensitive species.

109-40 See the response to comment 109-30 regarding MIS and sensitive species.

109-41 See the response to comment 109-30 regarding MIS and sensitive species.

109-42 See the response to comment 109-30 regarding MIS and sensitive species.

109-43 See the response to comment 109-30 regarding MIS and sensitive species.

109-44 See the response to comment 109-30 regarding MIS and sensitive species.

109-45 See the response to comment 109-30 regarding MIS and sensitive species.

109-46 See the response to comment 109-39 regarding the preparation of a BA and BE for this project.

109-47 The Potential Conservation Areas (PCAs) delineated by the Nature Conservancy have been identified for the vegetation community present and the hydrologic importance of Surface Creek to Grand Mesa. The vegetation in the PCAs would not be impacted by GEC activities because their proposal is at least 0.25 mile from the nearest PCA. The Forest Service has not formally recognized the PCA, and has not prescribed any special management direction for this area. The hydrology of Surface Creek would not be impacted for reasons described in Section 3.4.2.1, Surface Water. Furthermore, there are no regulatory or local policy requirements for the management of these PCAs.

109-48 A list of threatened or endangered species potentially occurring within the project study area was requested and obtained from the USFWS (see Appendix K). A BA was prepared that analyzed the effects of the Proposed Action and cumulative actions on federally listed and candidate species. The impact determinations from these analyses was "no effect" on Colorado pikeminnow, razorback sucker, humpback chub, bonytail, bald eagle, Canada lynx, and boreal toad. Formal consultation is not required for "no effect" determinations.

109-49 Noise impacts on wildlife are discussed in paragraph 3 on page 3.6-13 for the Proposed Action and paragraph 2 on page 3.6-21 for cumulative actions. Cumulative impact analyses for air quality, recreation, and transportation are provided in Sections 3.1.3, 3.8.3, and 3.12.3 of the EA, respectively. Concerning impacts to these resources, the impact analysis includes only exploration activities, which would consist of drilling, completion, testing, and monitoring of the eight well sites. The cumulative impact

analysis was completed based on the assumptions stated in Section 3.1. Future production would require a separate NEPA analysis.

109-50 Potential fire hazards are discussed in Section 3.15.2 of the EA. By implementing project design features and additional mitigation measures, impacts would be reduced to a level of insignificance as defined by NEPA. Flaring is a common practice associated with oil and gas drilling and development. The oil and regulations at 43 CFR 3164 allow for the issuance of Onshore Oil and Gas Orders and Notices to Lessees (NTL) when necessary to implement and supplement the oil and gas regulations. Onshore Order No. 2 and NTL 4A discusses flaring during oil and gas drilling operations. Flaring is controlled combustion, or burning of the natural gas, in order to keep explosions from occurring. Flaring is part of the proposed action (EA, Section 2.1.2.4). The proposed operations would direct flares to a flare pit, which would be equipped with a muffler for safety. Use of flaring is discussed in Appendix G of the GMUG Oil and Gas EIS. Because a closed flaring system will be used, the risk of fire is considered low.

The Mountain Coal Methane Drainage project is outside the scope of this analysis.

109-51 See the response to comment 6-1 regarding exceptions to lease stipulations. The reference to areas being "slope failure complexes" (EA, Section s a general description of the morphology of certain areas. During the on site reviews (EA, Section 2.1.1) the IDT ensured that each particular well site was not in an area of mass wasting (EA, Section 3.3.2.1).

109-52 As outlined in BLM Onshore Order No. 1, the BLM reviewed the status of Federal oil and gas lease COC-13563-A during the APDs review process. BLM determined that lease C-13563A is in effect.

An exploration hole is not proposed for lease C-13509. Lease C-13563A is in accordance with the regulations found in 43 CFR 3107.2-2, 43 CFR 3107.3-1 and 43 CFR 3107.4.

Per 43 CFR 3107.3-1, any lease committed to a unit agreement shall continue in effect so long as the lease remains subject to the agreement, provided that the agreement remains capable of producing in paying quantities. The lease was committed to Leon Lake Unit Agreement in 1980, which is still in effect and held by production.

Per 43 CFR 3107.4, Federal oil and gas leases will receive a 2-year extension upon termination of the Leon Lake Unit Agreement. No such termination and extension has occurred.

Per 43 CFR 3107.2-2, termination of a Federal oil and gas lease held by production requires multiple steps, the first of which requires the BLM Authorized Officer to issue

an official determination that the lease is not capable of producing in paying quantities and to provide the leaseholder 60 days to reestablish production in paying quantities on the lease. No such determination has been issued for this Federal oil and gas lease.

After the steps outlined above and prior to termination of a Federal oil and gas lease held by production, the BLM Authorized Officer is required to prepare a Last Production memorandum which includes a determination that the Federal oil and gas lease is no longer capable of producing in paying quantities and the effective date of that determination. No such determination has been issued for these Federal oil and gas leases.

Upon receipt of a Last Production memorandum, an official lease termination decision, which includes appeal rights, is issued. No such decision has been issued for these Federal oil and gas leases.

The official lease files for these Federal oil and gas leases show that the leases are committed to the Leon Lake Unit Agreement and that the official status of the leases are held by production.

The other recently issued leases that are a part of this proposal are in compliance with 30 USC 226(g). Prior to lease issuance, all lessees are checked against BLM's List of Entities in Noncompliance. All leases were found to be in compliance.

109-53 As defined in potential mitigation measure V-3 on page 3.5-15, reclamation bonding would be required to ensure that drill sites are returned to pre-existing land use. See the Conditions of Approval in the agency Decisions. The dollar amount of the bonding will be determined as part of the APD approval process.

109-54 The USFS and BLM have oversight, inspection and enforcement authority over gas operations on National Forest System or Public lands. The agencies have various enforcement options to use, including project shut down, issuance of incidences of non-compliance (INCs), suspension of permits, etc.

109-55 Socioeconomic issues raised for the project are discussed in Section 3.13 of the EA. Regarding affirmative action for federal mineral lease holders: The issuing agency has no responsibilities related to ensuring compliance of the non-federal entity with federal/state laws related to EEO, non-discrimination, wage rates, complaints from non-federal company workforce or the public concerning discrimination. The lease holder is responsible for compliance with all federal laws concerning equal employment opportunity as applies to their operations and workforce, non-discrimination, wage rates, persons with disabilities, workplace safety, occupational health, etc. Agencies such as OSHA, EEOC, DOL and state Civil Rights commissions are responsible for compliance and complaint response as appropriate. The lease holder is not required to demonstrate

compliance with federal laws related to EEO, non-discrimination, wage rates, health and safety as a condition for issuance of a lease.

109-56 Section 2.3 of the EA lists the issues analyzed in this analysis. See also response to comment 13.1.

Letter 110

110-1 As indicated in Table 3.7-3 on page 3.7-23, potential habitat may exist for moonwort species at the Leon Lake #4 and Hawksnest sites. This species will be included in sensitive plant survey, which is scheduled for July 2003.

110-2 The applicant's proposed seed mixes are presented on page 2.32 of the EA. These mixes would be used to reclaim project-related disturbance areas on BLM lands. Mitigation measure V-10 (on page 3.5.16 of the EA) presents the seed mixes that the USFS may require for use on forest lands.

110-3 As discussed in paragraph 3 on page 3.7-18, project-committed design features would preclude any development or direct disturbance to wetlands or aquatic habitats that could provide potential breeding habitat to boreal toad. An additional mitigation measure (TE-2) is proposed at the Oakbrush site to maintain flows in an intermittent stream crossed by the proposed access road. Since no impacts are anticipated for the project, boreal surveys are not recommended.

110-4 Impacts to birds have been considered by conducting habitat characterization and bird surveys. If nesting migratory species are encountered, the FS or BLM will evaluate the impact and coordinate with the USFWS on avoidance of take.

110-5 The comment is noted regarding the effectiveness of project design features and additional mitigation measure WR-4 on page 3.4-26 to minimize sedimentation effects on streams occupied by Colorado River cutthroat trout.

Errata Sheet

The following inconsistencies or inaccuracies were noted during IDT review of the EA or brought forward in public comments. Where applicable, the corrected information is provided below.

Page iii, WRIS should read Wildlife Resources Information System

Page 3.5-2, Table 3.5-1 – An "x" should be appear in the "aspen" column for the Thompson Creek well pad site.

Page 3.5-2, paragraph 6, lines 1 and 2 – The sentence should read as: "At the Thompson Creek site, the access road passes through a mixture of oakbrush and meadow habitats, while the well site is located in aspen (0.5 acre), meadow (0.3 acre), and oakbrush (0.3 acre).

Page 3.5-7, paragraph 5, lines 2 and 3 - The sentence should read: "Approximately 10.4 acres of aspen forest, 9.3 acres of oakbrush, 9.3 acres of meadow, and 1.1 acre of mountain shrub habitat types would be cleared.

Page 3.6-4, Table 3.6-1 - The species name for pinyon jay should read *Gymnorhinus cyanocephalus*.

Page 3.6-3, paragraph 4 - The following information is needed pertaining to the impact analysis for Northern Goshawk. "The small stand of relatively young aspen that would be impacted by the Thompson Creek well site was judged not to provide suitable nesting or foraging habitat for northern goshawk."

Page 3.7-18, paragraph 6 - The following information is needed pertaining to the impact analysis for Purple Martin. "The small stand of relatively young aspen that would be impacted by the Thompson Creek well site was judged not to provide suitable nesting habitat for purple martin."

Page 3.7-22, the vegetation community described for the Thompson Creek well site in Table 3.7.3 should read "Oakbrush, meadow, aspen, and piñon-juniper woodland."

Page 3.7-18, The first sentence under Hawksnest and Thompson Creek should read: "Oakbrush habitat at these sites …"

The text on pages 3.10-5 and 3.10-6 should read as follows:

> Page 3.10-5, Paragraph 6, last two sentences: Overall, visibility of the proposed ground surface would cover approximately 9,147 acres or 2.0 percent of the total viewshed. Overall, visibility of the tallest structure would cover approximately 12,513 acres or 2.7 percent of the total viewshed.

Page 3.10-5, Paragraph 7, last sentence and Page 3.10-6, Paragraph 1, first sentence: Overall, visibility of the proposed ground surface would cover approximately 4,740 acres or 1.1 percent of the total viewshed. Overall, visibility of the tallest structure would cover approximately 11,018 acres or 2.4 percent of the total viewshed.

Page 3.10-5, Paragraph 7, last sentence and Page 3.10-6, Paragraph 1, first sentence: Overall, visibility of the proposed ground surface would cover approximately 4,740 acres or 1.1 percent of the total viewshed. Overall, visibility of the tallest structure would cover approximately 11,018 acres or 2.4 percent of the total viewshed.

The text in line 5 of the third full paragraph on 3.12-16 that reads "…approximately 170 heavy-truck trips on…" should read "…approximately 180 heavy-truck trips per well on …."

Additional References

Ayers, WB. 2002. Coalbed Gas Systems, Resources, and Production Review of Contrasting Cases from the San Juan and Powder River Basins, American Association of Petroleum Geologists Bulletin, Vol. 86, No. 11, pp. 1853-1890.

Brimmer, Clarence A., 2003. United States District Court. Opinion: Order Reversing the Decision of the Interior Board of Land Appeals.

Rocky Mountain Mineral Law Foundation, 2002. Regulation and Development of Coalbed Methane. Mineral Law Series 2002, Volume 4.

Thyne, Geoff, 2003. Presentation of Colorado School of Mines Groundwater Modeling Study of the Grand Mesa to Delta County Commissioners, July 21, 2003.