

U.S. Department of the Interior
Bureau of Land Management
Glenwood Springs Energy Office
2425 South Grand Avenue, Suite 101
Glenwood Springs, Colorado 81601

ENVIRONMENTAL ASSESSMENT

NUMBER: CO-140-2007-13 EA

CASEFILE NUMBER: COC 41916

PROJECT NAME: Applications for Permit to Drill into Federal minerals from an existing pad located on private surface.

LEGAL DESCRIPTION:

Overacker 20-56:

Surface Location: 74 feet FNL x 924 feet FWL, NWNW Sec. 29, T6S, R93W

Bottomhole: 300 feet FSL x 1380 feet FWL, SESW Sec. 20, T6S, R93W

Overacker 20-58:

Surface Location: 74 feet FNL x 939 feet FWL, NWNW Sec. 29, T6S, R93W

Bottom-hole: 340 feet FSL x 2070 feet FEL, SWSE Sec. 20, T6S, R93W

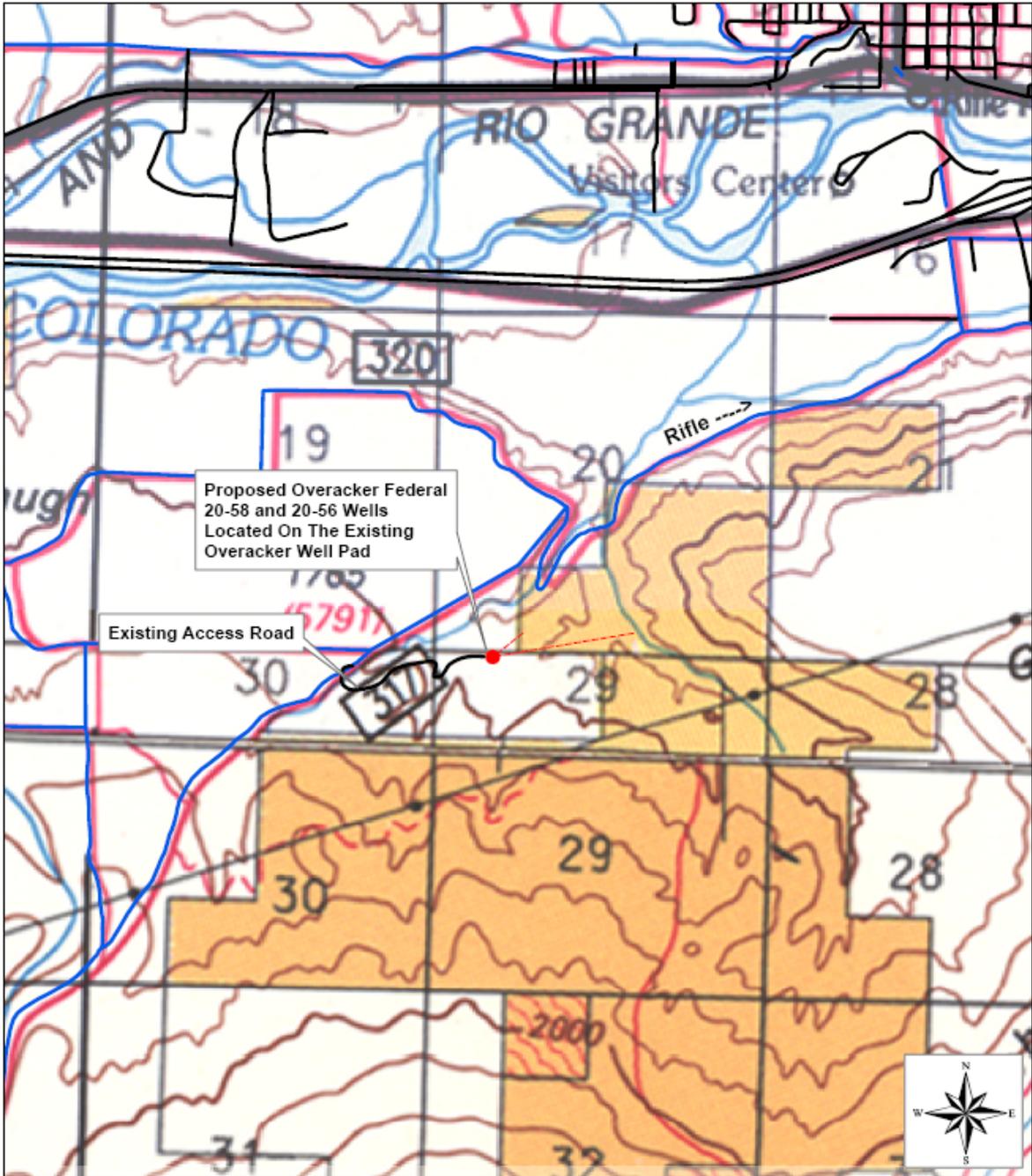
APPLICANT: Petrogulf Corporation

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

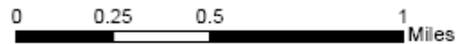
Proposed Action:

Petrogulf Corporation proposes to drill three directional wells from an existing well pad located on private surface starting in the winter of 2007. Two of the wells will be directionally drilled into the Federal lease cited above, the other well will be drilled into private minerals. Planned drilling at this location is for a total of eleven wells directionally drilled into the surrounding leases. The access road is in place and the surface disturbance for the pad is approximately 5.4 acres with the unreclaimed area anticipated to be approximately 1.4 acres. Petrogulf has a surface use agreement in place with the private land owner. Vegetation around the well pad is sagebrush and scattered juniper.

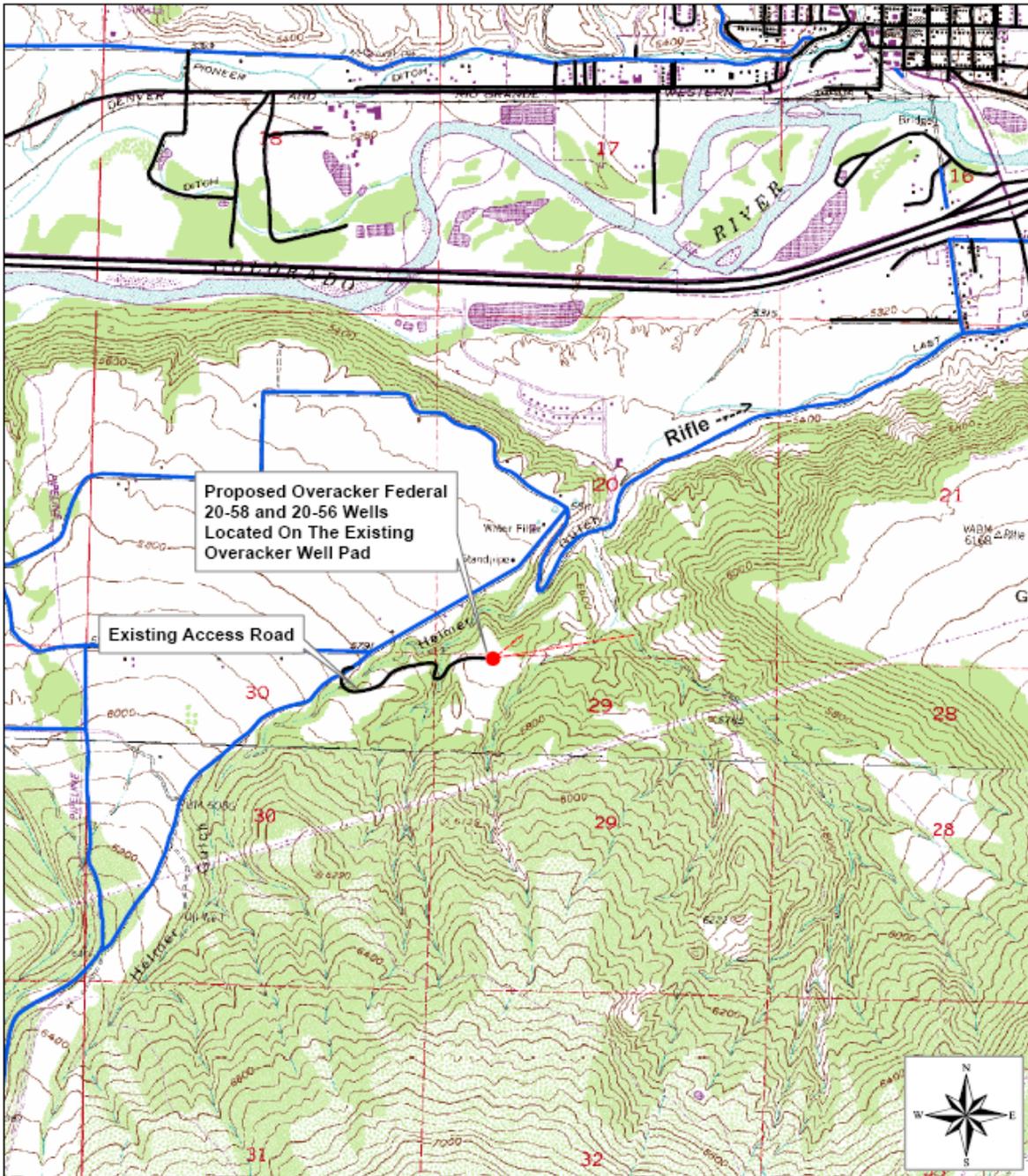
The proposed action includes drilling and completion operations, installation of production facilities (pipeline, separator/dehydrator, water tank, etc.), production of natural gas, and intermediate and final reclamation measures. The Applications for Permit to Drill (APDs) include a drilling program and a multi-point surface use and operations plan that describe details of well pad construction and interim reclamation.



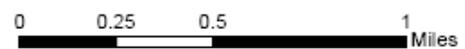
T6S, R93W, Sec. 29, 6th PM, Garfield County, Colorado
 Overacker Surface, Drilling into Federal Minerals



Bottom Hole Locations: -----
 Overacker 20-56 is 300' FSL, 1380' FWL, Sec. 20, T6S, R93W
 Overacker 20-58 is 340' FSL, 2070' FEL, Sec. 20, T6S, R93W



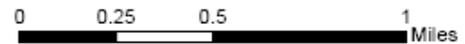
T6S, R93W, Sec. 29, 6th PM, Garfield County, Colorado
 Overacker Surface, Drilling into Federal Minerals



Bottom Hole Locations: -----
 Overacker 20-56 is 300' FSL, 1380' FWL, Sec. 20, T6S, R93W
 Overacker 20-58 is 340' FSL, 2070' FEL, Sec. 20, T6S, R93W



T6S, R93W, Sec. 29, 6th PM, Garfield County, Colorado
 Overacker Surface, Drilling into Federal Minerals



Bottom Hole Locations: -----
 Overacker 20-56 is 300' FSL, 1380' FWL, Sec. 20, T6S, R93W
 Overacker 20-58 is 340' FSL, 2070' FEL, Sec. 20, T6S, R93W

NOTE: Stipulations in Federal Lease COC 41916 remain in effect unless indicated otherwise in the Surface Use Conditions of Approval (COAs) to be attached to the individual APDs.

The proposed action will be implemented consistent with Federal regulations (43 CFR 3100), the Record of Decision and Resource Management Plan Amendment March 1999, and the operational measures included in the APDs, as well as the COAs attached to the APDs.

No Action Alternative: The proposed action involves Federal subsurface minerals that are encumbered with Federal oil and gas leases, which grants the lessee a right to explore and develop the lease. The No Action alternative constitutes denial of the proposed action and could be used to prevent unnecessary and undue degradation. Absent a non-discretionary statutory prohibition against drilling, BLM cannot deny the right to drill and develop the leasehold. Only Congress can completely prohibit development activities (Western Colorado Congress, 130 IBLA 244, 248 (1994), citing *Union Oil Co. of California v. Morton*, 512 F.2d 743, 750-51 (9th Cir. 1975). For this reason, the No Action alternative has been considered but eliminated.

NEED FOR THE ACTION:

The purpose and need is to authorize the subject APDs to satisfy Federal lease obligations that will in turn provide natural gas for commercial marketing to the public.

PLAN CONFORMANCE REVIEW:

The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: Glenwood Springs Resource Management Plan.

Date Approved: Amended November 1991 – Oil & Gas Leasing & Development Final Supplemental Environmental Impact Statement; amended November 1996 – Colorado Standards and Guidelines; amended March 1999 – Oil & Gas Leasing & Development Final Supplemental Environmental Impact Statement.

Decision Language: Federal Lease COC41916 pre-dates the BLM land use documents cited above. However, the documents provide guidance on BLM policies and approaches to resource protection in conjunction with new oil and gas development projects. The decision to declare the Glenwood Springs Resource Area open to oil and gas development was presented in the 1991 RMP amendment:

697,720 acres of BLM-administered mineral estate within the Glenwood Springs Resource Area are open to oil and gas leasing and development, subject to lease terms and stipulations.

Discussion: The proposed action is in conformance with the current land use plan with regard to oil and gas development because the area is open for this land use.

AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION MEASURES:

CRITICAL ELEMENTS

Air Quality

Affected Environment: The proposed action area (Garfield County) has been described as an attainment area under CAAQS and NAAQS (Colorado Ambient Air Quality Standards and National Ambient Air Quality Standards). An attainment area is an area where ambient air pollution amounts are determined to be below NAAQS standards. For further details, refer to the Roan Plateau RMPA & EIS, pages 3-21 to 3-23.

Environmental Consequences and Mitigation: The Roan Plateau RMPA & EIS, pages 4-26 to 4-37, describes potential effects from oil and gas development. Analysis was completed with regard to greenhouse gas emissions, a near-field and far-field analysis for carbon monoxide, particulate matter (PM₁₀ and PM_{2.5}), sulfur dioxide, and hazardous air pollutants including: benzene, ethylbenzene, formaldehyde, hydrogen sulfide, toluene, and xylenes. Sulfur and nitrogen deposition analysis, acid neutralizing capacity, and visibility screening-level analysis were also completed in the Roan Plateau RMPA & EIS. Findings indicate that no adverse long term effects would be realized under the Roan Plateau RMPA & EIS. It is anticipated that the proposed action in this document would not likely produce adverse effects to air quality when compared to the Roan Plateau plan.

Activities described in the proposed action would result in localized short-term increases in vehicle and equipment emissions. Concentrations of emissions would be below applicable ambient air quality standards as analyzed in the Roan Plateau RMPA & EIS mentioned above. However, it is anticipated that construction and production activities associated with the proposed action would likely produce high levels of dust in dry conditions without dust abatement. To mitigate dust generated by these activities, the operator shall implement dust abatement strategies as needed by watering the access road and construction areas and/or by applying a surfactant approved by the Authorized Officer.

Areas of Critical Environmental Concern

Affected Environment: No Areas of Critical Environmental Concern (ACECs) have been designated within the proposed action area.

Environmental Consequences/Mitigation: N/A

Cultural Resources

Affected Environment: Because the proposed two wells accessing Federal minerals are to be drilled on an existing well pad on private surface where no additional disturbance is anticipated, no cultural resource inventory is required. However, any additional disturbance outside the existing disturbance will require cultural resource inventory to assess the potential adverse

effects to historic properties. Although known cultural resources are present in the vicinity of the project, no historic properties eligible for listing on the National Register of Historic Places were identified within the project area. Therefore, no formal consultation with the Colorado State Historic Preservation Officer (SHPO) was needed, and a determination of “**No Historic Properties Affected**” was made in accordance with the National Historic Preservation Act (16U.S.C 470f), National BLM/SHPO Programmatic Agreement (1997), and Colorado Protocol (1998).

Environmental Consequences and Mitigation: Indirect long term cumulative impacts from increased access and personnel could result in a range of impacts to known and undiscovered cultural resources in the vicinity of the location, from illegal collection and excavation to vandalism.

Petroglyph and its contractors should be informed of their responsibilities to protect and report any cultural resources encountered on public land during operations under APDs for the individual wells. Specifically, any person who, without a [cultural resources] permit, injures, destroys, excavates, appropriates or removes any historic or prehistoric ruin, artifact, object of antiquity, Native American remains, Native American cultural item or archaeological resources on public lands is subject to arrest and penalty of law (16 USC 433, 16 USC 470, 18 USC 641, 18 USC 1170, and 18 USC 1361).

A standard Education/Discovery COA for cultural resource protection will be attached to the individual APDs.

Environmental Justice

Affected Environment: Review of 2001 data from US Census Bureau indicates the median annual income of Garfield County averages \$43,560 and is neither an impoverished or wealthy county. Median annual income of Eagle County averages \$51,578 and is not impoverished but is considered a wealthy county. U.S. Census Bureau data from July, 2002 show the minority population of Garfield and Eagle County comprises less than 3% of the total population¹.

Garfield County		Eagle County	
Median Household Income		Median Household Income	
Estimate	90% Confidence Interval	Estimate	90% Confidence Interval
\$43,560	\$40,491 to \$46,613	\$51,578	\$47,958 to \$55,177

Environmental Consequences and Mitigation: The proposed action and alternatives are not expected to create a disproportionately high and adverse human health impact or environmental effect on minority or low-income populations within the area.

¹ Table CO-EST2002-ASRO-02-08-County Population Estimates by Race Alone and Hispanic or Latino
Origin: July 1, 2002 Source: Population Division, U.S. Census Bureau. Release Date: September 18, 2003.

Farmlands, Prime and Unique

Affected Environment: The proposed action does not involve any prime or unique farmlands.

Environmental Consequences and Mitigation: N/A

Floodplains

Affected Environment: No floodplains are present within the proposed action area.

Environmental Consequences and Mitigation: N/A

Invasive Non-Native Species

Affected Environment: The pad lies within a pinyon/juniper community with some sagebrush. Two invasive non-native species—cheatgrass and Russian-thistle—are present in the project area.

Environmental Consequences and Mitigation: Surface-disturbing activities provide an opportunity for the invasion and establishment of noxious and invasive species, particularly when these species are already present in the surrounding area. Because no noxious weeds are present in the vicinity of the pad or road, the risk for noxious weed invasion following construction is moderate. However, invasive weeds are likely to increase following construction. The following measures are recommended to minimize the potential for invasion of weeds.

- All disturbed areas not needed for immediate access to the wells should be seeded with a mixture of native grasses and native or desirable non-native forbs. However, because this well pad is located on private surface, the private landowner would ultimately determine the seed mix to be used for reclamation. The recommended BLM seed mix designed for use in revegetating disturbed areas is presented in the Vegetation section of this EA.
- The seed should be certified free of noxious weeds.
- The operator should monitor for the presence of any Colorado-listed noxious weeds at least twice annually during the growing season until final reclamation of the pad is complete. The operator should promptly treat and control any noxious weeds. A Pesticide Use Proposal must be approved by BLM prior to the use of herbicides.

Migratory Birds

Affected Environment: The project area is dominated by pinyon/juniper woodlands with agricultural fields nearby. Understory vegetation consists of mostly native grasses and forbs with some cheatgrass. The project site and vicinity provide cover, forage, and nesting habitat for a variety of migratory birds. Of these migratory birds, four species are included on the U. S. Fish and Wildlife Service Birds of Conservation Concern (BCC) and may use the coniferous woodlands surrounding the well pad to nest. These species are the pinyon jay, gray vireo, black-

throated gray warbler, and Virginia's warbler. Other species that are not on the BCC list but associated primarily with this habitat type include year-round residents such as the juniper titmouse and Townsend's solitaire and migrants such as the blue-gray gnatcatcher. Although no birds of prey (raptors) are known to nest in the project area, the pinyon/juniper habitat provides perching, foraging, and potential nesting sites for several species, including one species on the BCC list, Swainson's hawk.

Other raptors potentially using the pinyon/juniper habitat for perching or nesting include the Cooper's hawk, sharp-shinned hawk, red-tailed hawk, and two small owls, the western screech-owl and northern pygmy-owl. Another species that would not be expected to nest onsite but could visit the area in search of prey is the golden eagle; this species is on the BCC list and protected by the Bald and Golden Eagle Protection Act.

Environmental Consequences and Mitigation: Habitat effectiveness would be reduced as a result of disturbance during natural gas development construction and completion activities. It is possible that during this period, individual birds could be displaced to adjacent habitats due to noise and human presence. Effects of displacement could include increased risk of predation or reproduction failure if adjacent habitat is unsuitable or at carrying capacity or if disturbance leads to nest abandonment. Effects from construction and completion activities would likely be temporary (<3 years) but some disturbance related effects could be expected to continue for the long term (>10 years) as a result of production and maintenance of the wells. Furthermore, impacts to birds at the species or local population level could include a change in abundance and composition as a result of cumulative habitat fragmentation from existing and increasing energy development in the area.

The development of reserve pits in the project area may be expected to attract waterfowl and other migratory birds for purposes of resting, foraging, or as a source of free water. The extent and nature of the problem is not well defined, but management measures must be conservative and relegated to preventing bird contact with produced water and drilling and completion fluids that may pose a problem (e.g., acute or chronic toxicity, compromised insulation). Raptors should not be negatively affected as upland foraging habitat is plentiful in the area.

It will be the responsibility of the operator to comply with the Migratory Bird Treaty Act with respect to "take" of migratory bird species. "Take" means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The operator is requested to prevent use by migratory birds of reserve pits, produced water pits, and evaporation pits. Surface storage of fluids during and after completion may pose a risk of injury or mortality to such birds (e.g., migratory waterfowl, shorebirds, wading birds, and raptors). Several established methods to prevent bird access are known to be effective. These may include but are not limited to netting, the use of bird-balls, or other methods that prevent bird access and use. Regardless of the method used, it will be applied within 24 hours after completion activities have begun. All lethal and non-lethal events that involve migratory birds will be reported to the Natural Resource Specialist immediately upon their discovery.

Native American Religious Concerns

Affected Environment: At present, BLM is unaware of any Native American concerns within the project area, and none was identified during site-specific inventories. The Ute Tribes claim

the area as part of their ancestral homeland. If new data are disclosed by the Ute Tribes, new terms and conditions may have to be negotiated to accommodate their concerns.

Environmental Consequences and Mitigation: Indirect impacts to cultural resources could result from the increased access and personnel. These could range from unintentional physical damage to illegal collection or vandalism. The importance of the Education/Discovery Stipulation needs to be stressed to Petrogulf and its contractors. A standard Education/Discovery COA for cultural resource protection will be attached to the APDs.

Threatened, Endangered, or Sensitive Species (includes an analysis on Standard 4)

Affected Environment: According to the latest species list from the U. S. Fish and Wildlife Service, the following Federally listed and candidate species may reside or be impacted by actions occurring in Garfield County: lynx, black-footed ferret, bald eagle, Mexican spotted owl, western yellow-billed cuckoo, razorback sucker, Colorado pikeminnow, bonytail chub, humpback chub, Uinta Basin hookless cactus, Parachute beardtongue, and DeBeque phacelia.

No Federally listed, proposed, or candidate threatened or endangered wildlife or plant species or their habitat occur within the proposed action area. Also, there is no sensitive plant habitat within the project area. BLM sensitive wildlife species with habitat or occurrence records in the vicinity include the milk snake, midget faded rattlesnake, and Great Basin spadefoot (toad). Designated Critical Habitat for the Colorado pikeminnow and razorback sucker is located within the Colorado River and its 100-year floodplain within 1.5 miles of the project area. In addition, three BLM sensitive fish species are known to inhabit the Colorado River near the project area, the flannelmouth sucker, bluehead sucker, and roundtail chub.

Environmental Consequences and Mitigation: Because suitable habitat for the milk snake, midget faded rattlesnake, and Great Basin spadefoot includes pinyon/juniper woodlands, the proposed action could cause direct effects such as injury or mortality as a result of vehicle traffic or increased exposure to predation. Effects associated with well development could occur during the active season for these species, as follows: milk snake – April through October; midget faded rattlesnake – March through October; Great Basin spadefoot – May through September. Given the relatively small area to be directly affected by the proposed action, and the low potential for occurrence of the three sensitive species, impacts to these species are possible but unlikely.

Colorado Pikeminnow and Razorback Sucker – Although Designated Critical Habitat for these fishes is located in proximity to the proposed action, the well pad, road, and pipelines already exist and are located above and outside the 100-year floodplain on a mesa away from the river. Due to re-disturbance of the area, it is likely that the action will result in small increases in sediment reaching the river over time. However, the Colorado River carries a large volume of sediment, and additional sediment attributable to the proposed action would be within background levels and would not represent a detectable increase. Furthermore, these fishes are adapted to the high sediment loads historically carried by the Colorado River. Therefore, the proposed action will have “**No Effect**” on the Colorado pikeminnow or razorback sucker or their habitat.

Flannelmouth Sucker, Bluehead Sucker, and Roundtail Chub – Although habitat and occurrence records for these fishes is located in proximity to the proposed action, the well pad, road, and

pipeline already exist and are located on a mesa top well above the river. It is likely that the action will result in small increases in sediment reaching the river over time, but the Colorado River already carries a large volume of sediment, and the minor amount of additional sediment attributable to the proposed action would be within background levels and would not represent a detectable increase. Furthermore, these fishes are well adapted to the high sediment loads historically carried by the Colorado River. The action should have no impacts to these native fishes or their habitat.

Analysis on the Public Land Health Standard 4 for Threatened & Endangered species:

Habitat conditions in 2005 within the Rifle West Watershed area appeared suitable for those species which are known or likely to occur there. Potential habitat for some BLM sensitive species occurs within or near the proposed action area but the likelihood for occurrence is low. This consideration, in combination with additional conditions of approval, is expected to result in no adverse effect on any special status species. BLM sensitive aquatic species should be minimally affected as potential increases in sediment should have no impact on these native fishes. Therefore, the proposed action should not result in a failure of the area to achieve Standard 4 for these species.

Water Quality, Surface and Ground (includes an analysis on Standard 5)

Surface Water

Affected Environment: The existing access road and well pad are located south of the City of Rifle within the 4,602 acre Helmer Gulch subwatershed. The existing access road crosses the ephemeral Helmer Gulch and one of its ephemeral tributaries to the east. The existing well pad is located approximately 500 feet from Helmer Gulch. North of the proposed action area, Helmer Gulch joins the Colorado River near the City of Rifle.

The State of Colorado has developed *Stream Classifications and Water Quality Standards* (CDPHE, Water Quality Control Commission, Regulation No. 37) that identify beneficial uses of water and numeric standards used to determine allowable concentrations of water quality parameters. Helmer Gulch is within the Lower Colorado Basin segment 4a, which includes all tributaries to the Colorado River from the confluence with the Roaring Fork River to a point immediately below the confluence with Parachute Creek. This segment is classified aquatic life cold 2, recreation 2, water supply, and agriculture. Aquatic life cold class 2 refers to waters not capable of sustaining a wide variety of cold or warm water biota due to habitat, flows, or uncorrectable water quality conditions. Recreation class 2 refers to waters that are not suitable or intended to become suitable for primary contact recreation. The water supply class refers to waters suitable or intended to become suitable for potable water supplies. The agriculture class refers to waters that are suitable for irrigation or livestock use. Numeric standards include a comprehensive list of physical, biological, inorganic, and metal standards that have been established to protect the designated uses above. At this time there is no water quality data for Helmer Gulch.

The State of Colorado has developed a *303(d) List of Water Quality Limited Segments Requiring TMDLS* (CDPHE, Water Quality Control Commission, Regulation No. 93) that identifies stream segments that are not currently meeting water quality standards with technology based controls alone. Helmer Gulch is within the Lower Colorado River Basin segment COLCLC04a, which

includes tributaries to the Colorado River from the Roaring Fork to Parachute Creek. This segment is listed as impaired due to selenium and has been given medium priority by the State.

The State of Colorado has developed a *Monitoring and Evaluation List* (CDPHE, Water Quality Control Commission, Regulation No. 94) that identifies water bodies suspected to have water quality problems. Helmer Gulch is within the Lower Colorado River Basin segment COLCLC04a, which includes tributaries to the Colorado River from the Roaring Fork River to Parachute Creek. At this time, the only water bodies listed within this segment as impaired are Mamm Creek and South Canyon Creek.

Environmental Consequences and Mitigation: Increased traffic, production, and maintenance activities would result in an increase in erosion potential and offsite sedimentation. With measures to control runoff water in place, reestablishment of vegetation, and proper road maintenance, the potential for sediment transport into Helmer Gulch would be minimized. The following mitigation measures will be implemented to protect surface water.

- The operator will consult with the State of Colorado Water Quality Control Division regarding stormwater discharge permits prior to commencing construction activities. All construction activities that disturb one acre or greater require a stormwater discharge permit.
- Roads will be crowned, ditched, surfaced, and maintained to BLM Gold Book standards.
- Fill slopes will be seeded to minimize erosion and protected with silt fences to prevent sediment from leaving the site.

Analysis on the Public Land Health Standard for Water Quality: The proposed action with associated mitigation would not likely prevent standard 5 for water quality from being met.

Groundwater

Affected Environment: The surface formation is the Wasatch Formation overlain by Quaternary landslide deposits. The casing and cementing program are adequate to protect downhole resources including fresh water. There is 1500 feet of surface casing with cement behind pipe. According to the COGCC database, the closest water wells are approximately 600 feet to the north and south of the surface location. The Helmer Gulch drainage lies approximately 500 feet to the northwest of the surface location.

Environmental Consequences and Mitigation: With the use of proper construction practices, drilling practices, and with best management practices no significant adverse impact to groundwater aquifers and quality is anticipated to result from the proposed action. A geologic and engineering review was performed on the Geologic and Drilling Prognosis submitted with the individual APDs to ensure that the cementing and casing programs adequately protect the downhole resources.

No additional mitigation will be required.

Analysis on the Public Land Health Standard for Water Quality: The proposed action with associated mitigation would not likely prevent Standard 5 for water quality from being met.

Wetlands and Riparian Zones (includes a analysis on Standard 2)

Affected Environment: No wetlands or riparian zones are present within the proposed action area.

Environmental Consequences and Mitigation: The proposed access road and pad are not anticipated to affect any riparian vegetation. However, if the proposed access road impacts riparian vegetation, the operator will be responsible for replacing any damaged or removed riparian vegetation at a 1:1 ratio.

Analysis on the Public Land Health Standard for Riparian Systems: Not Affected.

Wild and Scenic Rivers

Affected Environment: No unstudied rivers, rivers found to be eligible, or designated Wild and Scenic Rivers occur within the proposed project area.

Environmental Consequences and Mitigation: N/A

Wilderness

Affected Environment: No designated Wilderness, Wilderness Study Areas, or citizen-proposed wilderness areas occur within the proposed project area.

Environmental Consequences and Mitigation: N/A

NON-CRITICAL ELEMENTS

Soils (includes a analysis on Standard 1)

Affected Environment: The soil map from the *Soil Survey of Rifle Area, Colorado: Parts of Garfield and Mesa Counties* (USDA Soil Conservation Service [Natural Resources Conservation Service] 1985) indicates that the proposed well pad is located on the Potts loam mapping and that the proposed access road is located on both the Potts loam and the Torriorthents-Rock Outcrop Complex, Steep mapping unit. Following is a brief description of these two units:

- Potts loam – This deep, well-drained soil is found on mesas, benches, and the sides of valleys at elevations ranging from 5,000 to 7,000 feet and on slopes of 3 to 6 percent. Parent material for this soil includes sandstone, shale, and basalt. Surface runoff for this soil is slow and the erosion hazard is moderate. Primary uses for this soil include irrigated crops and dryland farming.
- Torriorthents-Rock Outcrop Complex, Steep – This complex consists of stony soils and exposed outcrops of Mesa Verde sandstone and Wasatch shale that occur on slopes of 15 to 70 percent. Approximately 60 percent of this complex is Torriorthents, and 25 percent is Rock Outcrop. Torriorthents are clayey to loamy and contain gravel, cobbles, and stones, many of which are basaltic in origin. They are found on mountainsides below the Rock

Outcrop. Erosion hazard for this complex varies from moderate to severe. Primary uses for this complex include limited grazing, wildlife habitat, and recreation.

Environmental Consequences and Mitigation: Some loss of soil, loss of soil productivity, and increase in sediment available for transport would result from construction activities. Due to the moderate to severe erosion hazard of the soil types present, the following mitigation measures are intended to minimize potential negative impacts associated with soil loss and transport.

- Reclamation measures will be implemented to minimize soil erosion and transport by stabilizing areas and capturing sediment. Reclamation measures will include contouring disturbed areas to stable configuration, roughening the soil surface, covering with suitable topsoil, preparing the seedbed, seeding the specified seed mix, and controlling runoff.
- The proposed access road will be crowned, ditched, and graveled and will include drainage features in accordance with BLM Gold Book standards. In addition, the proposed well pad will be constructed to BLM Gold Book standards and include Best Management Practices (BMPs) designed to minimize erosion and offsite sedimentation.
- Roads should be periodically regaveled when ruts exceed 6 inches in depth or as directed by the Authorized Officer. Initial gravel application will be a minimum lift of 4 inches.

Analysis on the Public Land Health Standard for Upland Soils: The proposed action would not likely prevent Standard 1 from being achieved.

Vegetation (includes an analysis on Standard 3)

Affected Environment: The pad lies within a pinyon/juniper community with some sagebrush.

Environmental Consequences and Mitigation: The proposed action will disturb an estimated 5.4 acres of private land. To accommodate access to the well (if production occurs), about 1.4 acres would not be reclaimed during the life of the well. With implementation of reclamation practices identified in the COAs, establishment of desirable herbaceous vegetation on the unused portions of the pad could be restored within 2 to 3 years, and shrubs could be restored within 5 to 25 years. However, because of the periodic workovers and the potential for additional well bores to be drilled from this pad, it is likely that vegetation would remain in an early seral stage for the life of the wells.

The following steps will be taken to successfully reclaim the disturbed area:

1. A BLM seed mix designed to meet interim reclamation standards using a mixture of native grasses and native or desirable non-native forbs is recommended. However, because the well pad and the proposed road are located on private surface, the landowner would ultimately determine the seed mix to be used for reclamation. Revegetating the area will help prevent erosion, help prevent the establishment of noxious and other invasive weeds, and provide food and cover for wildlife. The following seed mix and rates are recommended for use on all disturbed surfaces within the project area:

Species	Variety	Percent	PLS lbs/acre
Basin big sagebrush		13	0.1
Bottlebrush squirreltail		23	2.3
Bluebunch wheatgrass	P-7	22	3.7
Thickspike wheatgrass	Critana	22	2.8
Western wheatgrass	Arriba	10	1.8
Scarlet globemallow		10	0.4
TOTAL		100	11.1

The application rate shown above is based on 45 pure live seeds (PLS) per square foot, drill-seeded to a depth of 0.25 to 0.5 inch, which is the method that should be used where feasible. In areas that cannot be drill-seeded, the mix should be broadcast-seeded at twice the rate shown in the table and covered 0.25 to 0.5 inch deep with a harrow or drag bar. Sagebrush should be seeded through a separate drill box at a depth of 1/16 inch.

2. Following seeding, the proposed action area will be fenced to exclude livestock grazing for the first two growing seasons or until the seeded species or native volunteer species become firmly established. The seeded species will be considered firmly established when at least 50% of the new plants are producing seed.

Analysis of the Public Land Health Standard for Plant and Animal Communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): The Rifle West Land Health Assessment determined that this portion of the landscape was not meeting Standard 3. Problems noted were the widespread invasion of cheatgrass with a corresponding loss of other functional groups such as perennial native grasses and forbs. Also, sagebrush communities were dominated by old, decadent sagebrush with poor recruitment. The surface disturbance associated with the proposed action has the potential to encourage expansion and dominance of the site by cheatgrass. The surface use conditions of approval include provisions to revegetate the disturbances with native vegetation and to control noxious weeds. If successfully revegetated, the proposed action may result in a localized improvement in vegetative conditions by improving the density, frequency and composition of native plant species.

Wildlife, Aquatic (includes an analysis on Standard 3)

Affected Environment: The existing well pad and access road are located on a bench consisting of scattered pinyon-juniper and sagebrush. The project area is located between two ephemeral drainages that feed Helmer Gulch which eventually reaches the Colorado River approximately 1.5 miles downstream. Helmer Gulch contains no aquatic wildlife, but the Colorado River near the project area contains a variety of fishes and aquatic insects in addition to those special status fishes previously discussed in the **Threatened, Endangered, or Sensitive Species** section.

Environmental Consequences and Mitigation: The proposed action calls for the drilling of up to 11 new wells from an existing well pad location. The site will be re-disturbed and will increase the potential for sediment to enter nearby ephemeral drainages and eventually the Colorado River. Sediment-intolerant species such as trout and some species of aquatic insects may be affected as spawning habitats are subjected to increased siltation and decreased water

quality. Reductions in the abundance and diversity of aquatic insect larvae due to deposition of fine sediments on gravels and cobbles can reduce the quantity and quality of this important fish preybase.

The following mitigation measures, consistent with BLM Gold Book standards and Best Management Practices (BMPs), are recommended to minimize impacts to sediment-intolerant fish and aquatic insect species by reducing soil erosion and offsite transport to streams:

- Construct the access road with a crown, drainage ditches, and other drainage features and cover the road surface with a suitable depth of gravel.
- Promptly seed fill slopes and construct silt fences to minimize soil erosion and offsite transport of sediments.
- Implement interim reclamation as soon as practicable following completion of wells on the pad. Reclamation measures should include contouring of disturbed areas to a stable configuration, roughening the soil surface, covering with suitable topsoil, preparing the seedbed, seeding with an appropriate seed mix, controlling runoff, controlling weed infestations, monitoring revegetation success, and initiating corrective actions as needed.

Analysis on the Public Land Health Standard for Plant and Animal Communities (partial, see also Vegetation and Wildlife, Terrestrial): A formal land health assessment was completed in 2005. The proposed action in conjunction with large amounts of similar activity occurring throughout the watershed is trending the area away from meeting Standard 3 for sediment sensitive species. This is due to ever increasing potential for soil erosion and sedimentation of onsite and offsite aquatic habitats.

Wildlife, Terrestrial (includes an analysis on Standard 3)

Affected Environment: The project area consists primarily of pinyon/juniper woodlands with agricultural fields nearby. Understory vegetation surrounding the pad consists of mostly native grasses and forbs with some cheatgrass. Given the vegetation at the project site, the area provides cover, forage, breeding, and nesting habitat for a variety of big game, small game, and nongame mammals, as well as nongame birds and reptiles. The pad is located within winter range and severe winter range for both mule deer and Rocky Mountain elk (CDOW 2001).

Environmental Consequences/Mitigation: General impacts (short term, long term, and cumulative) to terrestrial wildlife were adequately addressed in the 1999 FSEIS. Impacts include, but are not limited to, displacement into less suitable habitat, increased stress and direct loss of habitat. These impacts are more significant during critical seasons, such as winter or reproduction. Natural gas well development indirectly affects wildlife as a result of noise and human activity. Indirect habitat loss generally includes habitat within an eighth of a mile of a road or well pad.

Standard measures are incorporated into the APD along with other measures (i.e., automatic well reporting, and reclamation) to conform to the FSEIS that would help to mitigate wildlife impacts. Public access and use of the roads for all the proposed well sites would be prevented due to

controlled access on private lands. This would minimize disturbance and reduce indirect habitat loss associated with disturbance.

The surface location of the developments is on private land and the lease under which rights to minerals is held (COC41916) contains a big game winter timing limitation from January 15 through April 30. However, given that two Federal wells and one fee well would be drilled as part of this project, a timing limitation to protect wintering big game would be ineffective, as operations would shift to private well development during the limitation period and disturbance related effects to big game would continue. Therefore, no winter timing limitation on the development of the federal wells is required. Consequently, any drilling that occurs during the winter will likely displace animals from preferred habitats and increase stress and energy consumption by resident animals. This can impact over winter survival, as big game using winter range are likely to be disturbed by noise and human activity associated with development activities.

Analysis on the Public Land Health Standard 3 for Plant and Animal Communities (partial, see also Vegetation and Wildlife, Aquatic): A formal land health assessment for the watershed where this project occurs was completed in 2005. In summary, the assessment found that all eleven of the assessed sites located south of the interstate are at least marginally meeting Standard 3 with regard to vegetation. Terrain is generally steep and rugged with many ridges, benches, and large drainages that break up the country and help to lessen the influence of increased human activity on some wildlife. Vegetative shielding is also helping to reduce the influence of increased human activity on species such as mule deer and elk. However, fragmentation is increasing in the area, and the ability of this portion of the larger watershed to meet the needs of key wildlife species will become increasingly difficult and appears to be in a downward trend.

The proposed action will result in indirect loss of habitat, further fragment remaining habitats, and result in increased human use in the area. Given the level of activity in the greater area, the Proposed Action may further trend the watershed away from meeting Standard 3 for some terrestrial wildlife species.

OTHER NON-CRITICAL ELEMENTS

Access and Transportation

Affected Environment: Access Description – From the intersection of Taugenbaugh Boulevard and Garfield County Road 320 in Rifle, Colorado, proceed west along CR320 (designated as “Preferred Haul Routes” by the county) \pm 3.0 miles to the intersection with CR317, proceed left in a southwesterly direction \pm 0.1 miles to an intersection with a dirt/gravel road being the Johnson driveway, proceed left in a southerly to easterly direction \pm 0.6 miles along said driveway to an intersection with a newly constructed access road, proceed left in a northeasterly direction \pm 0.1 miles to the Overacker drill pad location.

Both CR320 and CR317 have a weight limit of 80,000 lbs. or less for 5-axle vehicles and 54,000 lbs. or less for 3- or 4-axle vehicles. A permit from Garfield County is required for overweight vehicles. Average Daily Traffic counts on these roads, since the County’s 2002 transportation

study, has probably increased in the last four years. Existing road access from CR317 to the well pad is through privately owned land with no legal public access.

Environmental Consequences and Mitigation: Truck traffic would be heaviest during rig-up, completion activities, and the rig-move to the next location. The proposed drilling and completion activities would likely commence in the winter 2007 and continue until these three wells have been drilled. This period is estimated to be approximately three months. Total project related traffic would not represent a substantial increase in local traffic levels that are already high. Ongoing weekly traffic by well-service vehicles would occur for the life of the wells.

Geology and Minerals

Affected Environment: The proposed action is located within the Rulison Field and can be considered step-out wells. These wells will penetrate the Wasatch, and Mesaverde Group Cameo coals and Rollins Sandstone. In these wells conventional sands will be explored for possible economic gas recovery in the Mesaverde Group. The casing and cementing programs are adequate to protect downhole resources as identified. However, TOC cement is estimated at 500 feet above the top of gas. Low yield gas zones have been recognized, in well logs, to exist in the Mesaverde above the top of gas. The Cameo coals with more than seven thousand feet of overburden can be found in the lower Williams Fork Formation. There mineable value is low. Nonetheless the above identified seams will be isolated by the proposed casing and cementing program.

Environmental Consequences and Mitigation: All coal seams and fresh water zones will be protected with casing and cement behind pipe. However, gas zones may exist between the estimated top of gas and the Mesaverde top. If this zone is not isolated or protected according to the Onshore Orders, then potential resources could be lost.

The production string top-of-cement must be raised to cover 200 feet above the top of the Mesaverde Group, which is the Williams Fork formation in this area.

Noise

Affected Environment: The general area of the project is agricultural with sporadic natural gas drilling activity and ongoing traffic associated with natural gas production. A number of residences are located in the general area of the project, particularly along CR320 and Johnson driveway. The residences nearest to the project area are less than 0.25 mile away from the proposed well location. Ambient noise in the area is largely related to traffic on nearby roads.

Environmental Consequences and Mitigation: The noise generated by the Proposed Action would fluctuate with the alternate construction and operation phases of the project. The construction, drilling, and completion phases would generate noise for 2 to 4 months or longer, depending on the success of initial operations. The noise would be most noticeable along the roads used to haul equipment and at the well site. Drilling activities are subject to noise abatement procedures as defined in the Colorado Oil and Gas Conservation Commission Rules

and Regulations (Aesthetic & Noise Control Regulations), generally a limit of 55 decibels db(A) during the day and 50 db(A) during the night, measured at a distance of 350 feet.

Range Management

Affected Environment: The Overacker pad is located on private land that is not included in any BLM grazing allotment.

Environmental Consequences and Mitigation: N/A

Paleontology (Fossil Resources)

Affected Environment: The surface formation is the Wasatch Formation which is a class 1 formation with areas known or likely to produce abundant scientifically important fossils vulnerable to surface-disturbing activities. The Paleocene Wasatch Formation may contain early horses, rare primates, rhinoceroses, birds, crocodiles, rodents, fish, turtles, fresh water clams, snails, and plants. There are paleontological sites located near the proposed action. After reviewing the photos of the proposed action and the topographic map it appears that the area is flat and covered in sagebrush. An existing access road will be used and upgraded.

Environmental Consequences and Mitigation: Since the locations are relatively flat, located on Quaternary landslide deposits and covered with sagebrush, paleontological resources should not be impacted by new well pad construction. Also an existing road will be used for access.

No new surveys will be required. The standard paleontology condition of approval shall be applied to the APDs.

Visual Resources

Affected Environment: The proposed action is located on private property in an area classified as VRM Class IV in the 1984 Resource Management Plan. The objective of this class is to provide for management activities which require major modifications of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

Visual resource management objectives do not apply to non-BLM lands, but visual concerns may be addressed on split estate lands (i.e., private surface and Federal minerals). VRM classes shown for non-public lands are an indication of the visual values for those lands, and those values are protected solely at the discretion of the landowner and any applicable local or county land use regulations. The protection of VRM classes, landscape character, and scenic quality on private and public lands and split estate is discussed on pages 3-41 through 3-45 of the 1999 FSEIS. The impacts of development are discussed on pages 4-49 through 4-54 of the FSEIS. The proposed action will not directly affect any of the key viewing areas or the I-70 viewshed described in the FSEIS. However, the portions of the pad will be visible from County Road 317. The key observation point (KOP) used for this analysis is I-70.

Environmental Consequences/Mitigation: The proposed action will not affect current visual resources, because the pad has already been built, and the disturbances and subsequent visual contrast have already occurred. However, the proposed action does affect the overall landscape character and could lengthen the short-term visual contrasts due to the pad being open longer before final reclamation activities occur. The existing pad and road lie within pinyon/juniper woodland and sagebrush and consequently have introduced new contrasts in color, line, form, and texture into the landscape. Reclamation work on the cut slopes and fill slopes with seeded shrub and grass species would reduce the contrast after two to three growing seasons. After construction and reclamation, long-term impacts are expected due to the removal of the trees and the evidence of the large cuts and fill slopes of the pad. VRM Class IV allows for major modification of the landscape; therefore, no mitigation is recommended.

CUMULATIVE IMPACTS SUMMARY:

PERSONS / AGENCIES CONSULTED:

INTERDISCIPLINARY REVIEW:

<u>Name</u>	<u>Title</u>	<u>Area of Responsibility</u>
Rick Haskins	Natural Resource Specialist	Team Leader
Isaac Pittman	Rangeland Specialist	Range Management
Beth Brenneman	Ecologist	Special Status Plants, Vegetation, Invasive Non-native Species
Kay Hopkins	Outdoor Recreation Planner	VRM, ACEC, Wilderness, WSR
Jeff O'Connell	Hydrologist	Soil, Air, Water, Riparian
Jeff Cook	Wildlife Biologist	Migratory Birds, Special Status Wildlife, Terrestrial Wildlife
John Brogan	Archaeologist	Cultural Resources and Native American Religious Concerns
Fred Conrath	Geologist	Groundwater, geology and minerals, paleontology
Tom Fresques	Fisheries Biologist	Aquatic Wildlife, T&E Fish

FONSI

CO-140-2007-013 EA

Petrogulf Corporation
Proposal to drill two (2) Federal wells from an existing well pad located on private surface.
Overacker 20-56 and Overacker 20-58

The environmental assessment, analyzing the environmental effects of the Proposed Action, has been reviewed. The approved mitigation measures result in a Finding of No Significant Impact on the human environment. Therefore, an environmental impact statement to further analyze the environmental effects of the Proposed Action is not necessary.

DECISION RECORD

DECISION: It is my decision to approve the Overacker 20-56 and Overacker 20-58 as outlined in the Environmental Assessment with the Conditions of Approval in order to provide for the orderly, economical and environmentally sound exploration and development of oil and gas resources on valid oil and gas leases.

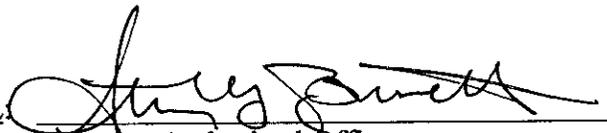
RATIONALE:

1. Approval of the proposed action is validating the rights granted with the federal oil and gas leases to develop the leasehold to provide commercial commodities of oil and gas.
2. The environmental impacts have been mitigated with measures included in the Surface Use Plan and the attached Conditions of Approval.

MITIGATION MEASURES: Mitigation measures are included in the Surface Use Plan and Conditions of Approval for both surface and drilling operations.

NAME OF PREPARER: Richard Haskins, Natural Resource Specialists

SIGNATURE OF AUTHORIZED OFFICIAL


Authorized Officer

DATE SIGNED: DEC 07 2006

Attachments: maps, Conditions of Approval

Petrogulf APDs for new wells in Federal Lease COC41916 to be drilled from private surface (Overacker).

CONDITIONS OF APPROVAL
APPLICATION FOR PERMIT TO DRILL

Company/Operator: **Petrogulf Corp**

Well Name	Well No.	Surface Hole Location	Bottom Hole Location	Lease
Overacker	20-56	NWNW Sec 29 T06S, 93W	SESW Sec 29 T06S, 93W	COC-41916
Overacker	20-58	NWNW Sec 29 T06S, 93W	SWSE Sec 29 T06S, 93W	COC-41916

NOTIFICATION REQUIREMENTS

- Location Construction - at least forty-eight (48) hours prior to construction of location and access roads.
- Spud Notice - at least twenty-four (24) hours prior to spudding the well.
- Casing String and Cementing - at least twenty-four (24) hours prior to running casing and cementing all casing strings.
- BOP and Related Equipment Tests - at least twenty-four (24) hours prior to initiating pressure tests.
- First Production Notice - within five (5) business days after new well begins, or production resumes after well has been off production for more than ninety (90) days.
- Reclamation - At least (24) hours prior to re-shaping the well pad.

For more specific details on notification requirements, please check the Conditions of Approval for Notice to Drill and Surface Use Program.

APD approval is valid for a period of one (1) year from the signature date. An extension period may be granted, if requested, prior to the expiration of the original approval period.

Please contact Marty O'Mara (970) 947-5221 of the Glenwood Springs field office at least 24 hours prior to spud.

Please contact **Steve Ficklin (970) 947-5213, or Jennifer Gallegos (970) 947-5220 of the Glenwood Springs** field office at least 24 hours prior to running the surface and production casing and conducting the BOP test.

DOWNHOLE CONDITIONS OF APPROVAL FOR NOTICE TO DRILL

1. The TOC for the production casing needs to be **at least** 200' above the top of the Mesa Verde formation either during the primary cement job or through remedial cementing. This cement top was received on sundry notices by Petrogulf on November 24, 2006.
2. A cement bond log (CBL) will be run from the production casing shoe to **TOC** and shall be utilized to determine the bond quality for the production casing.
3. Any usable water zones encountered below the surface casing shall be isolated and or protected by cementing across the zone. The minimum requirement is to cement from 50 feet above to 50 feet below each usable water zone encountered. Contact BLM – Glenwood Springs, CO upon encountering any usable water zones.
4. In addition to the Onshore Order No. 2 BOP testing requirements, for safety concerns, please test BOP to 250 psi for 5 minutes.
5. Open hole production logs shall be run from TD to the base of the surface casing.
6. Any change to this APD must be done in writing and must be approved by the Glenwood Springs field office petroleum engineer. An Incident of Non-compliance will be issued if this is overlooked. For instance, each APD shows a total depth of 9,200 feet. The chance of this occurring is highly unlikely.

REGULATORY REMINDERS

Approval of this application does not warrant or certify that the applicant holds legal or equitable title to those rights in the subject lease which would entitle the applicant to conduct operations thereon.

All drilling operations, unless otherwise specifically approved in the APD, must be conducted in accordance with Onshore Oil and Gas Order No. 2.

All lease and/or unit operations will be conducted in such a manner that full compliance is made with applicable laws, regulations (43 CFR 3100), Onshore Oil and Gas Orders, and the approved plan of operations. The operator is fully responsible for the actions of his subcontractors.

A copy of the approved application for permit to drill (APD), including the conditions of approval and accompanying surface use plan will be furnished to the field representative by the operator to insure compliance and will be available to authorized personnel at the drillsite whenever active construction or drilling operations are underway.

Be aware fire restrictions may be in effect when location is being constructed and/or when well is being drilled. Contact the appropriate Surface Management Agency for information.

Section 102(b)(3) of the Federal Oil and Gas Royalty Management Act of 1982, as implemented by the applicable provisions of the operating regulations at Title 43 CFR 3162.4-1(c), requires that "not later than the 5th business day after any well begins production on which royalty is due anywhere on a lease site or allocated to a lease site, or resumes production in the case of a well which has been off production for more than 90 days, the operator shall notify the authorized officer by letter or sundry notice, Form 3160-5, or orally to be followed by a letter or sundry notice, of the date on which such production has begun or resumed."

If you fail to comply with this requirement in the manner and time allowed, you shall be liable for a civil penalty of up to \$10,000 per violation for each day such violation continues, not to exceed a maximum of 20 days. See Section 109(c)(3) of the Federal Oil and Gas Royalty Management Act of 1982 and the implementing regulations at Title 43 CFR 3162.4-1(b)(5)(ii).

In the event after-hours approval or notification is necessary, please contact one of the following individuals:

Marty O'Mara	C: 970.319.5837
Petroleum Engineer	W: 970.947.5221

Jennifer Gallegos	W: 970.947.5220
Petroleum Engineering Tech.	C: 970.319.2211

Steve Ficklin	W: 970.947.5213
	C: 970.319.2509

BLM Fax: 970.947.2829

EPA'S LIST OF NONEXEMPT EXPLORATION AND PRODUCTION WASTES

While the following wastes are nonexempt, they are not necessarily hazardous.

- Unused fracturing fluids or acids
- Gas plant cooling tower cleaning wastes
- Painting wastes
- Oil and gas service company wastes, such as empty drums, drum rinsate, vacuum truck rinsate, sandblast media, painting wastes, spent solvents, spilled chemicals, and waste acids
- Vacuum truck and drum rinsate from trucks and drums, transporting or containing nonexempt waste
- Refinery wastes
- Liquid and solid wastes generated by crude oil and tank bottom reclaimers
- Used equipment lubrication oils
- Waste compressor oil, filters, and blowdown
- Used hydraulic fluids
- Waste solvents
- Waste in transportation pipeline-related pits
- Caustic or acid cleaners
- Boiler cleaning wastes
- Boiler refractory bricks
- Incinerator ash
- Laboratory wastes
- Sanitary wastes
- Pesticide wastes
- Radioactive tracer wastes
- Drums, insulation and miscellaneous solids.

SURFACE USE CONDITIONS OF APPROVAL

1. The Authorized Officer or his representative shall be contacted at least 48 hours prior to the anticipated start of construction.
2. Noxious Weeds. The operator shall monitor for the presence of any Colorado-listed noxious weeds at least twice annually during the growing season until final reclamation of the pad is complete. The operator shall promptly treat and control any noxious weeds. A Pesticide Use Proposal must be approved by BLM prior to the use of herbicides.
3. Reclamation. Refer to Appendix I (Surface Reclamation) of the 1998 Draft Supplemental EIS (DSEIS) for specific reclamation goals, objectives, timelines, measures, and monitoring methods. These guidelines shall be followed in completing the reclamation of disturbed surfaces on well pads, access roads, and pipelines. The four Reclamation Categories defined in Appendix I of the 1998 DSEIS will be used in gauging the progress of reclamation monitoring.

- a. Seedbed Preparation. Initial seedbed preparation shall consist of backfilling, leveling, and ripping all areas to be seeded to a minimum depth of 18 inches with a furrow spacing of 2 feet, followed by recontouring the surface and then spreading the stockpiled topsoil evenly. Prior to seeding, the seedbed shall be scarified and left with a rough surface. No depressions shall be left that would trap water and form ponds.

Final seedbed preparation shall consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding. An interval of more than 24 hours between final seedbed preparation and seeding must be approved by the Authorized Officer.

- b. Seeding. BLM generally specifies use of a seed mix consisting of diverse native grasses and native or desirable non-native forbs. However, because the well pad and the proposed road are located on private surface, the private landowner would ultimately determine the seed mix to be used for reclamation. An adapted mix that would serve to reduce the potential for erosion and establishment of weeds while providing forage for big game is as follows:

Common Name	Variety	Percent	PLS lbs/acre
Basin big sagebrush		13	0.1
Bottlebrush squirreltail		23	2.3
Bluebunch wheatgrass	P-7	22	3.7
Thickspike wheatgrass	Critana	22	2.8
Western wheatgrass	Arriba	10	1.8
Scarlet globemallow		10	0.4
TOTAL		100	11.1

The application rate shown in the table is based on 45 pure live seeds (PLS) per square foot, drilled-seeded to a depth of 0.25 to 0.5 inch, which is the method that should be employed where feasible. In areas that cannot be drilled, the mix should be broadcast-seeded at twice the application rate shown in the table and covered 0.25 to 0.5 inch deep with a harrow or drag bar. The sagebrush should be seeded to a shallower depth (1/16 inch) from a separate seedbox.

Fall seeding shall be conducted after September 1 and prior to ground frost. Spring seeding shall be conducted after the frost leaves the ground and no later than May 15. If the seeding is

unsuccessful, the operator will be required to make subsequent seedings until the reclamation objectives identified in Appendix I. Surface Reclamation of the 1998 DSEIS are met.

Note: Because cheatgrass is already abundant in the general vicinity, it may not be feasible to completely eliminate it from the project area. Therefore, if the area adjacent to the project site contains less than a 50-percent cover of cheatgrass, interim reclamation will be considered acceptable when the cover of cheat grass on the project site does not exceed 5 percent. If the area adjacent to the project site contains more than a 50-percent cover of cheatgrass, interim reclamation will be considered acceptable when the cover of cheat grass on the project site does not exceed 50 percent.

- c. Erosion Control. The cut-and-fill slopes shall be protected against erosion with measures such as water bars, lateral furrows, or other measures approved by the Authorized Officer. Weed-free straw bales, straw “wattles,” straw matting, or a well-anchored fabric silt fence shall be used on cuts and fill slopes and along drainages to protect against soil erosion. Additional BMPs shall be employed as necessary to ensure reduced off-site erosion and to protect drainages from sediment.
- d. Site Protection. The pad shall be fenced to BLM standards to exclude livestock grazing for the first two growing seasons or until seeded species become firmly established, whichever comes later. The seeded species shall be considered firmly established when at least 50 percent of the new plants are producing seed. The Authorized Officer shall approve the type of fencing.

The operator shall submit an annual reclamation report by December 31 to the Authorized Officer. The report shall document compliance with all aspects of the reclamation objectives. The report shall specify if the reclamation objectives are likely to be achieved and actions needed to meet these objectives.

4. Dust Abatement. The operator shall implement dust abatement measures as needed or directed by the Authorized Officer. The level and type of treatment (watering or application of various dust-control agents, surfactants, and road surfacing material) may be changed in intensity and must be approved by the Authorized Officer. Dust control is needed to prevent plumes of dust from road use that create safety problems and disperse particulate matter onto adjacent vegetation.
5. Reserve Pit. A minimum of 2 feet of freeboard shall be maintained in the reserve pit. Freeboard is measured from the highest level of drilling fluids and cuttings in the reserve pit to the lowest surface elevation of ground at the reserve pit perimeter.
6. Cultural Education/Discovery. All persons in the area who are associated with this project must be informed that if anyone is found disturbing historic, archaeological, or scientific resources, including collecting artifacts, the person or persons will be subject to prosecution.

Pursuant to 43 CFR 10.4(g), the BLM Authorized Officer must be notified by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4 (c) and (d), activities must stop in the vicinity of the discovery and the discovery must be protected for 30 days or until notified to proceed by the Authorized Officer.

If in connection with operations under this contract the operator, his contractors, subcontractors, or the employees of any of them, discovers, encounters or becomes aware of any objects or sites of cultural or paleontological value or scientific interest such as historic ruins or prehistoric ruins, graves or grave markers, fossils, or artifacts, the operator shall immediately suspend all operations in the vicinity of the cultural or paleontological resource and shall notify the BLM Authorized Officer of the findings (16 USC 470h-3, 36 CFR 800.112). Operations may resume at the discovery site upon receipt of written instructions and authorization by the Authorized Officer. Approval to proceed will be based upon evaluation of the resource. Evaluation shall be by a qualified professional selected by

the Authorized Officer from a Federal agency insofar as practicable. When not practicable, the holder shall bear the cost of the services of a non-Federal professional.

Within five working days the Authorized Officer will inform the holder as to:

- whether the materials appear eligible for the National Register of Historic Places;
- what mitigation measures the holder will likely have to undertake before the site can be used (assuming *in situ* preservation is not necessary); and
- the timeframe for the Authorized Officer to complete an expedited review under 36 CFR 800.11, or any agreements in lieu thereof, to confirm through the SHPO State Historic Preservation Officer that the findings of the Authorized Officer are correct and the mitigation is appropriate.

The operator may relocate activities to avoid the expense of mitigation and/or the delays associated with this process, as long as the new area has been appropriately cleared of resources and the exposed materials are recorded and stabilized. Otherwise, the operator shall be responsible for mitigation costs. The Authorized Officer will provide technical and procedural guidelines for relocation and/or to conduct mitigation. Upon verification from the Authorized Officer that the required mitigation has been completed, the operator will then be allowed to resume construction.

Antiquities, historic ruins, prehistoric ruins, and other cultural or paleontological objects of scientific interest that are outside the authorization boundaries but potentially affected, either directly or indirectly, by the proposed action shall also be included in this evaluation and/or mitigation. Impacts that occur to such resources as a result of the authorized activities shall be mitigated at the operator's cost, including the cost of consultation with Native American groups.

7. Big Game Winter Range. Remote monitoring shall be utilized during the winter months to minimize site visits to the pad and reduce traffic impacts to wintering big game. In addition, scheduled winter visits (those other than for emergency purposes), should be scheduled between 10 a.m. and 3 p.m. to further minimize disturbance to wintering big game wildlife.

Note: Although Federal Lease COC 41916 contains a seasonal timing limitation (TL) from January 15 to April 30, an exception to the TL is granted to Federal wells drilled from this pad with regard to big game winter range. The basis for this exception is that extensive oil and gas development is occurring on adjacent fee leases on a year-round basis. Limiting well pad construction, drilling, and completion activities during the winter on the Federal wells would therefore have minimal benefit to wintering big game.

8. Migratory Birds. It shall be the responsibility of the operator to comply with the Migratory Bird Treaty Act with respect to “take” of migratory bird species. Specifically, the operator is requested to prevent use by migratory birds of reserve pits, produced water pits, and evaporation pits. Areas used to store or otherwise contain fluids may pose a risk of injury or mortality of protected species (e.g., migratory waterfowl, shorebirds, wading birds, and raptors) during and after completion activities have ceased. Several established methods to prevent bird access are known to work. Methods may include but are not limited to netting, the use of bird-balls, or other alternative methods that effectively prevent bird access and use. Regardless of the method used, it shall be applied within 24 hours after completion activities have begun. All lethal and non-lethal events that involve migratory birds shall be reported to the Natural Resource Specialist immediately upon their discovery.
9. Stormwater. The operator shall consult with the State of Colorado Water Quality Control Division (contact Matt Czahor at 303-692-3575 or matthew.czahor@state.co.us) regarding Stormwater Discharge Permits prior to commencing construction activities. All construction activities that disturb one acre or greater require a Stormwater Discharge Permit. Written documentation to the BLM Authorized Officer is required within 30 days of the APD approval date to indicate that appropriate permits have been obtained. Written documentation may be a copy of the Stormwater Discharge

Permit or an official verification letter from the State Water Quality Control Division to the operator that includes the Permit Certification Number. For further information contact Jeff O'Connell, Hydrologist of the Glenwood Springs Energy Office at 970-947-5215 or jeffrey_o'connell@blm.gov. Appropriate documents may be sent to Mr. O'Connell via regular mail, electronic mail, or facsimile (970-947-5267).

10. Wetlands and Other Waters of the U.S. The operator shall consult with the U.S. Army Corps of Engineers (contact Sue Nall at 970-243-1199 x16 or susan.nall@usace.army.mil) to obtain approval prior to discharging fill material into waters of the U.S. in accordance with Section 404 of the Clean Water Act. Waters of the US are defined in 33 CFR Section 328.3. Written documentation to the BLM Authorized Officer is required within 45 days of the APD approval date to indicate that the U.S. Army Corps of Engineers has been notified prior to construction or that 404 Permits have been obtained or are not required by the permitting agency. Written documentation may be a copy of the Pre-Construction Notification (PCN) Form or an official verification letter from the U.S. Army Corps of Engineers to the operator stating that a permit has been issued or is not required for the activities in question. For further information contact Jeff O'Connell, Hydrologist of the Glenwood Springs Energy Office at 970-947-5215 or at jeffrey_o'connell@blm.gov. Appropriate documents may be sent to Mr. O'Connell via regular mail, electronic mail, or facsimile (970-947-5267).
11. Culverts. Culverts shall be installed during no flow or low flow conditions at drainage crossings and shall be required to pass a 25-year or greater storm event. The 25-year, 6-hour precipitation event for the proposed action area is approximately 1.5 inches and the 25-year, 24-hour precipitation event is approximately 2.1 inches.
12. Fossil Resources. All persons associated with operations under this authorization must be informed that any objects or sites of paleontological or scientific value, such as vertebrate or scientifically important invertebrate fossils, shall not be damaged, destroyed, removed, moved or disturbed. If in connection with operations under this authorization any of the above resources are encountered the operator shall immediately suspend all activities in the immediate vicinity of the discovery that might further disturb such materials and notify the BLM authorized officer of the findings. The discovery must be protected until notified to proceed by the authorized officer.

As feasible, the operator shall suspend ground-disturbing activities at the discovery site and immediately notify the BLM authorized officer of any finds. The BLM authorized officer will, as soon as feasible, have a BLM-permitted paleontologist check out the find and record and collect it if warranted. If ground-disturbing activities cannot be immediately suspended, the operator shall work around or set the discovery aside in a safe place to be accessed by the BLM-permitted paleontologist.
13. Road Maintenance. The operator shall provide timely year-round maintenance and cleanup on the access road. A regular schedule for maintenance shall include, but not be limited to, blading, ditch and culvert cleaning, road surface replacement and dust abatement. The road shall be crowned, ditched, and drained with culverts and/or water dips. Initial gravel application shall be a minimum of 4 inches. When rutting within the traveled way becomes greater than 6 inches, gravel shall be applied as approved by the Authorized Officer.
14. Visual Impacts. The paint color used on all surface facilities, including metal containment rings surrounding the tank batteries and pipeline risers, shall be Shale Green (5Y4/2).

Notice to Operator: Check the lease for stipulations concerning Timing Limitations, No Surface Occupancy, and Controlled Surface Use.