

**U.S. Department of the Interior
Bureau of Land Management
Glenwood Springs Field Office
50629 Highway 6 & 24
Glenwood Springs, CO 81601**

ENVIRONMENTAL ASSESSMENT

NUMBER: CO-140-2006-003 EA

CASEFILE NUMBER: Lease # COC-43220

PROJECT NAME: Proposal to Drill 2 Directional Wells from the existing fee E20E Well Pad (Benefiting program, Fluid Minerals 1310)

LEGAL DESCRIPTION:

Shideler Federal 20-3 Surface location: T7S, R92W, Sec 20 SW $\frac{1}{4}$ NW $\frac{1}{4}$, 6th P.M.
(E20E Pad) Bottom Hole: T7S, R92W, Sec 20, NE $\frac{1}{4}$ NW $\frac{1}{4}$ (660' FNL, 1980' FWL)
Surface Owner: Barry Shideler
Federal Lease: COC-43220

Shideler Federal 20-4 Surface location: T7S, R92W, Sec 20 SW $\frac{1}{4}$ NW $\frac{1}{4}$, 6th P.M.
(E20E Pad) Bottom Hole: T7S, R92W, Sec 20, NW $\frac{1}{4}$ NW $\frac{1}{4}$ (660' FNL, 660' FWL)
Surface Owner: Barry Shideler
Federal Lease: COC-43220

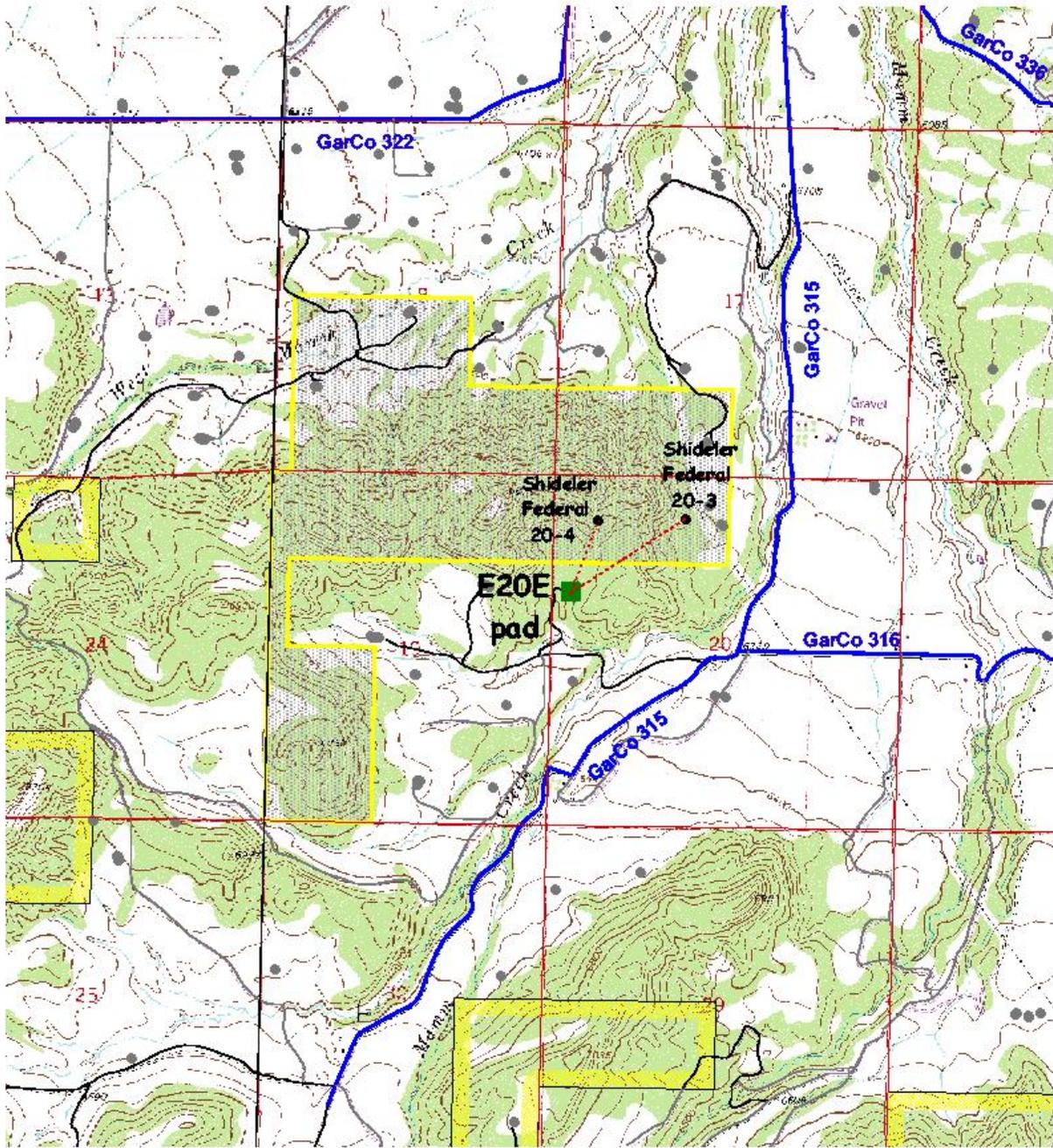
APPLICANT: EnCana Oil & Gas (USA) Inc.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Proposed Action: The proposed action is to directionally drill and develop 2 federal natural gas wells from the existing fee/fee well pad (E20E) listed above and shown on Project Map. Single fee vertical well (Shideler 20-5) was drilled by Mesa Hydrocarbons in the 1990's; the pad is presently in acceptable reclaimed state. The pad is proposed to be reconstructed generally within original area of disturbance with final disturbed area totaling 3.99 acres. No new road construction is proposed; road maintenance will be the operator's responsibility. The gathering system for these wells is in place and buried on private surface.

These wells qualify as GAP waivers as defined in Appendix B of the 1999 SEIS, ROD since the wells would be drilled on existing pad served by existing road and pipeline.

The E20E pad lies within juniper woodlands and sagebrush vegetation about 12 miles southeast of Rifle. No public access is available to the site as travel is required across Shideler property west of County Road 315.



**EnCana's existing E20E fee/fee pad w/
2 federal directional wells**

**E20E pad: T7S R92W Sec 20 SW $\frac{1}{4}$ /NW $\frac{1}{4}$, Sixth P.M.
Garfield County, CO**

Surface Owner: Barry Shideler



Scale 1 : 24,000

10/12/05

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 Application for Permit to Drill (APD) includes a drilling program and a multi-point surface use and operations plan that describe details of well pad construction and interim reclamation. The proposed action will be implemented consistent with the oil and gas lease (listed above), federal regulations (43 CFR 3100), the Record of Decision and Resource Management Plan Amendment March 1999, and the operational measures included in the APD as well as the Conditions of Approval (COA) attached to the APD.

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 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.

Description of Lease Stipulations that apply to Proposed Action and/or Alternative:

E20E pad Lease #COC43220: N/A.

NEED FOR THE ACTION: The purpose and need is to authorize the Application for Permit to Drill (APD) 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 in November 1991 - Oil and Gas Leasing and Development - Final Supplemental Environmental Impact Statement;** amended Nov. 1996 - Colorado Standards and Guidelines; amended in August 1997 - Castle Peak Travel Management Plan; **amended in March 1999 - Oil and Gas Leasing & Development Final Supplemental Environmental Impact Statement;** amended in November 1999 - Red Hill Plan Amendment; and amended in September 2002 – Fire Management Plan for Wildland Fire Management and Prescriptive Vegetation Treatment Guidance.

Decision Number/Page: The proposed action is located on leases in area designated Open for oil and gas leasing in 1984 in the Glenwood Springs Resource Management Plan (page 14 and map 4).

Decision Language: The FSEIS described the environmental effects, including the cumulative effects, of oil and gas development, but did not authorize the construction of any individual well locations. This EA is more site-specific than the FSEIS and includes the results of the on-the-ground inventories for cultural resources and special status plant and animal species, if appropriate. This EA tiers to both the DSEIS and FSEIS and the information in the FSEIS is incorporated by reference. The EA will focus on specific issues and will not deal with the larger regional issues addressed in the FSEIS. The proposed action has been reviewed for and is in compliance with the FSEIS (43 CFR 1610.5, BLM 1617.3) - Page or Decision Number: Pages 1-5, Record of Decision dated March 24, 1999.

Standards for Public Land Health: In January 1997, Colorado Bureau of Land Management (BLM) approved the Standards for Public Land Health. The Glenwood Springs Field Office is in the ongoing process of completing Land Health Assessments on a landscape basis. At this time the landscape addressed in this EA has not had a formal Land Health Assessment completed. As such, no formal determination on conformance with the Standards will be made until a formal Land Health Assessment and Determination Document is completed. The tentative schedule for Land Health Assessment on this landscape is 2010. At the time this landscape is scheduled, a Land Health Assessment will be completed addressing all of the Land Health Standards. Based on the findings of these assessments, the authorized officer may take appropriate action to achieve conformance with the standards or implement further mitigating measures on future actions to maintain or prevent a further decline in land health.

The five standards cover upland soils, riparian systems, plant and animal communities, threatened and endangered species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, the impact analysis must address whether the proposed action or any alternatives being analyzed would result in impacts that would maintain, improve, or deteriorate land health conditions for that specific parameter. These analyses are located in specific elements listed below:

AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES / 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.

Environmental Consequences/Mitigation: The Draft Roan Plateau EIS, pages 4_31-4_48, 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, 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 Draft EIS. Findings indicate that no adverse long term effects would be realized under the Draft Roan Plateau EIS plan. It is anticipated that the proposed action would not likely produce adverse effects to air quality in light of the analysis from air quality modeling contained in the Roan Plateau plan.

However, truck traffic during road construction activities would likely produce high levels of dust in dry conditions without dust abatement.

- Emissions of particulate matter will be reduced through control of dust during road construction activities. The operator will water the road and/or use magnesium chloride for dust abatement or other approved surfactant by the authorized officer.

AREAS of CRITICAL ENVIRONMENTAL CONCERN, WILD AND SCENIC RIVERS and WILDERNESS

Affected Environment: There are no Wilderness Areas or Wilderness Study Areas, citizen proposed wilderness areas, ACECs, or Wild and Scenic Rivers within the proposed project area.

CULTURAL RESOURCES

Affected Environment: No cultural resource inventories have been conducted on this well location as it was originally a fee-fee well permitted by the Colorado Oil and Gas Commission. Since the Shideler 20-5 well pad is on previously disturbed land and no new pad disturbance (beyond original area) would occur, this action falls under environmental constraints precluding intensive Class III coverage according to the BLM/Colorado State Historic Preservation Office Protocol (1998) and Colorado State BLM guidance (Haas e-mail guidance Jan. 13, 2005).

- When previously constructed well pad(s), access road(s), and other related improvements are used without additional expansion, no additional cultural inventory is required to assess the potential adverse effects to historic properties (Haas 2005).
- Previous natural ground disturbance that has modified the surface so extensively that the likelihood of finding cultural resources is negligible.
- Human activity within the past 50 years that has created a new land surface such that all traces of cultural resources have been eradicated.

Environmental Consequences/Mitigation: According to the 2001 revised regulations [36CFR 800.4(d)(1)] for Section 106 of the National Historic Preservation Act (16U.S.C 470f) a determination for the proposed wells is **“No Historic Properties Affected”**. No formal consultation with the Colorado State Historic Preservation Office (SHPO) was initiated in accordance with the Colorado BLM/SHPO Protocol (1998) and National Protocol (1997) for these well locations.

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.

The importance of the Education/Discovery Stipulation needs to be stressed to EnCana and their subcontractors informing them of their responsibilities to protect and report any cultural resources encountered on public land during operations under this permit.

Mitigation:

However, if in the future, any addition work outside the existing pad disturbance is anticipated, cultural resource inventory may be required (per BLM, Colorado State Office, State Archaeologist direction dated 1-13-05). A standard Education/Discovery Condition of Approval for Cultural Resource protection will be attached to the 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 shows the minority population of Garfield and Eagle County comprises less than 3 % of the total population¹.

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

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/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.

FARMLANDS, PRIME AND UNIQUE

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

FLOODPLAINS, WETLANDS, RIPARIAN ZONES

Affected Environment: There would be no impacts to floodplains, riparian vegetation, or wetlands since these resources are not present within the area of proposed action.

Analysis on the Public Land Health Standard for riparian systems: Not Applicable

INVASIVE, NON-NATIVE SPECIES

Affected Environment: The E20E pad lies within juniper woodlands and sagebrush with sparse understory vegetation. There have been no inventories for noxious weeds at the existing well location, however, due to the prevalence of cheatgrass in the vicinity, it is expected that a certain amount of cheatgrass is also present in the project area..

Environmental Consequences:

Surface-disturbing activities provide a niche for the invasion and establishment of noxious weeds, particularly when noxious weeds are already present in the vicinity. The APDs and Conditions of Approval include measures to re-vegetate the well site with native perennial grasses and shrubs and native or desirable, nonnative forbs. The project proponent will adhere to the specified seed mix and will continue with reclamation activities, including reseeding if necessary, until BLM’s interim reclamation objectives are achieved.

Mitigation: The project proponent will be responsible for monitoring the disturbed area at least once each year during the growing season (or as often as the Authorized Officer determines) for the presence of Garfield County or State-listed noxious weeds. A standard Condition of Approval is attached requiring the project proponent to promptly treat and control any invading noxious weeds. A Pesticide Use Proposal must be approved by BLM prior to commencing any herbicide spraying.

MIGRATORY BIRDS

Affected Environment: The project area is comprised mainly of juniper woodlands surrounded by expanses of sagebrush. Given this mix of vegetation, the project area provides both foraging and nesting habitat for a variety of migratory birds. A few species found on the U.S. Fish & Wildlife Service’s Birds

of Conservation Concern list may be present. Within the sagebrush vegetation, the sage sparrow may be found. Within the juniper woodlands, the black-throated gray warbler, gray vireo, and pinyon jay may be found. The sage sparrow is a ground nester that requires dense stands of intact sagebrush or mixed sagebrush & mountain shrub vegetation in which to nest. The remaining 3 species are all tree nesters that prefer pinyon-juniper woodlands.

A documented golden eagle nest is located within ¼ mile of the existing well pad location. No other raptor nests are known to occur in the immediate vicinity of the existing well pads, roads, or pipelines. It is likely that golden eagles and other raptors forage in the general project area.

Environmental Consequences/Mitigation: The proposed action will involve re-disturbance to an existing, reclaimed well pad that will be re-entered to drill 2 new directional wells. The re-entry of the surface pad will re-disturb approximately 3.99 acres of reclaimed foraging habitat. No nest habitat will be impacted as the reclaimed portions of the pad do not provide sufficient nesting substrate. It is likely that during any pad reconstruction and drilling and completion activities, individual birds may be displaced to adjacent habitats due to noise and commotion associated with construction and human presence. Limited public access into the pad location will reduce some indirect impacts.

The documented golden eagle nest located in the NE/NE ¼ of Section 19, Township 7 South, Range 92 West is located within ¼ mile of the existing well pad. Assuming that the nest is still active, timing of well pad re-construction, drilling, and all completion work if conducted during the breeding/nesting season could disrupt nesting activity and result in nest abandonment or nest failure due to noise, human presence, and commotion.

Mitigation:

The TL-6 (raptor timing limitation) will be implemented. This means that no well pad construction, well drilling, or completion activities will be allowed to occur from February 1 to August 15.

Exception: During years when the nest is not active by May 15, the seasonal limitation may be suspended. It may also be suspended once the young have fledged and dispersed from the nest (as determined and documented by a qualified biologist).

NATIVE AMERICAN RELIGIOUS CONCERNS

Affected Environment: At present, no Native American concerns are known by the GSFO for the well locations. The Ute Tribes currently claim the area as part of their ancestral homeland. If new data is disclosed, new terms and conditions may have to be negotiated to accommodate their concerns.

Environmental Consequences/Mitigation: Indirect impacts from increased access and personnel could result in a range of impacts to unknown cultural resources from illegal collection to vandalism. The importance of the Education/Discovery Stipulation needs to be stressed to EnCana and their subcontractors. See Cultural Section.

THREATENED, ENDANGERED, AND SENSITIVE SPECIES (includes 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: bald eagle, Canada lynx, Mexican spotted owl, black-footed ferret, Uinta Basin hookless cactus, Parachute beardtongue, DeBeque phacelia, yellow-billed cuckoo, razorback sucker, Colorado pikeminnow, bonytail chub, and humpback chub.

Specific to the project location, no federal or state listed species or federal candidate or proposed species or their habitat occur within the project area. Only those BLM sensitive species with habitat or the potential to occur within the project area will be discussed.

The BLM Sensitive plant species, *Penstemon harringtonii*, is generally found in sagebrush and sagebrush/mixed mountain shrub habitats between 6,400 and 9,200 feet in elevation. Although the existing pad is located at 6,400 feet, the soil type at the pad is different from any known locations of *Penstemon harringtonii*. Therefore, the project area is not considered potential habitat for *P. harringtonii*.

Environmental Consequences/Mitigation: Due to a lack of habitat, the proposed action should have “No Effect” to any listed species and no impact to any other special status species.

Analysis on the Public Land Health Standard for Threatened & Endangered species: Since there is no suitable habitat for any special status species in the project area and no known occurrences in the vicinity, the proposed action will have no effect on special status species. With implementation of the reclamation measures proposed in the COAs, the proposed action should not result in a failure of the area to achieve Standard 4 for special status, threatened and endangered species.

WASTES, HAZARDOUS OR SOLID

Affected Environment: All wastes will be managed in accordance with the applicable Oil and Gas regulations and On-Shore Orders.

WATER QUALITY, SURFACE AND GROUND (includes analysis on Standard 5)

Affected Environment:

Surface Water: The road to the well-pad crosses an ephemeral or intermittent branch of Middle Mamm Creek. The proposed action lies within the Middle Mamm Creek Sub-watershed, which drains into the Mamm Creek Watershed that subsequently drains into the Colorado River. This section of the Colorado River is classified as aquatic life cold class 1, recreation class 1a, water supply and agriculture. The proposed action does not lie near any known drainages that could potentially reach the Colorado River.

The state of Colorado has developed the 303(d) list which identifies impaired water bodies, waters not meeting water quality standards with technology based controls alone. No streams within the proposed action watershed area are known to be listed on the 303(d) list; suggesting water quality standards are currently being met.

Ground Water

The nearest water well is located about ¼ mile to the southeast along Middle Mamm Creek (depth not reported). Several other water wells within a mile have depths of less than 120'. Usable ground water occurs within unconsolidated surficial deposits overlying the Wasatch and also within lenticular sands of the Wasatch. Sandstones in the Williams Fork are too deep to contain usable ground water. No "regional" continuous bedrock aquifer is known to be present.

Environmental Consequences/Mitigation:

Surface Water: Pad reconstruction would result in minimal removal of additional vegetation and disturbance of soils that would increase sediment and salinity in surface water in the area. There is some risk that the impact to surface waters would be greater than anticipated should a high intensity thunder storm hit immediately following the surface disturbing activity and before mitigating measures are in place. With measures to control runoff water in place, reestablishment of vegetation, and proper

engineering of roads, the increase in the amount of sediment in surface waters would be minimized. Culverts in road crossings of drainages would be required to pass a 25 year 6 hour storm event and would be installed during no flow or low flow conditions. Water produced during drilling activity would be contained in an engineered pit on the pad site and hauled to a disposal facility.

Negative impacts to surface waters would be expected to be minor and last for the most part for 3 years following the initial disturbance. Mitigating activity should be initiated as quickly as possible following construction to avoid unnecessary degradation of surface water quality. There would be some minor long term negative impacts to surface water quality from an increase in sediment coming from working surfaces that would not be rehabilitated until the wells are no longer producing and facilities are removed and the area rehabilitated.

Analysis on the Public Land Health Standard for water quality: A formal land health assessment is not planned for completion in the project area until 2010. Although a determination has not been formalized, there is no indication that the proposed action would prevent Standard 5 from being met.

Ground Water

The operator proposes to set and cement surface casing to 1500 feet, which is adequate for isolating and protecting all water zones which are currently being utilized. In addition, the operator is required to isolate and protect any usable water zones encountered below the surface casing.

NON-CRITICAL ELEMENTS

The following elements must be addressed due to the involvement of Standards for Public Land Health:

SOILS (includes analysis on Standard 1)

Affected Environment: The descriptions below are summarized from the Soil Survey of Rifle Area, Colorado (SCS 1977). The well-pad and the associated road south to the drainage crossing covers the Torriorthents-Rock outcrop complex (steep) map unit. This map unit is a highly variable map unit with Torriorthents soils being described as shallow and moderately deep with the rock outcrop unit being comprised of Mesa Verde sandstone and Wasatch shale with small pockets of limestone and exposed gypsum. Erosion hazards for this complex are moderate to severe depending on slope. Uses occurring on this complex are limited grazing, wildlife habitat (mule deer winter range), and recreation.

The remaining portions of the road, south of the drainage crossing, cover the Vale silt loam (6-12% slopes) map unit. This unit is a moderately sloping to rolling soil typically found on mesas, benches, and alluvial fans. Surface runoff is described as medium and erosion hazards are moderate. This unit is typically used for irrigated cropland and haying.

Environmental Consequences/Mitigation: There would be some loss of soil, some loss of soil productivity, and an increase in sedimentation resulting from construction of the well pads. The extent of these impacts on soils would not be great and would be expected to last for a relatively short period of time. The proposed action includes measures to prevent direct placement of fill material in drainages, limits reclaimed slopes to 3:1, and to re-vegetate disturbed areas. Reclamation measures such as contouring disturbed areas, roughing the soil surface, re-vegetating, and controlling runoff would help to limit soil erosion. The loss of soil and sedimentation would occur after the construction phase for a short term of from 1 to 3 years until re-vegetation occurs. There would be some minor permanent loss of soil.

Analysis on the Public Land Health Standard for upland soils: The proposed action would not likely prevent health standard 1 from being met.

VEGETATION (includes analysis on Standard 3)

Affected Environment: The original pad was built within juniper woodland/sagebrush vegetation. Reclamation potential on this site is satisfactory as evidenced from current reclamation efforts on the pad. Pinyon Ips beetle has infested the general area and pinyon mortality is prevalent. No destruction or removal of live pinyon trees would be necessary during the pad reconstruction so the Ips beetle problem would not be exacerbated by this action.

Environmental Consequences: The planned disturbed areas will lie almost entirely within the surface disturbance of the original pad. The proposed action would result in a short-term loss of early seral (herbaceous) vegetation in the temporary disturbed areas and a long-term loss of vegetation on the portions of the pad needed for ongoing production activities. With implementation of reclamation practices identified in the COAs, desirable herbaceous vegetation can be expected to establish on the sites within 2-3 years following construction of the last well. Revegetation of shrub species, such as sagebrush, would take at least 7-8 years (and perhaps, longer if not included in the seed mix), while pinyon pine and Utah juniper could take more than 100 years to successfully re-establish.

Mitigation: The pad will be fenced to exclude livestock grazing until the seeded species are established and firmly rooted and 55% of seeded species are reproducing. (This will require a minimum of two growing seasons but may take longer depending on site-specific conditions.)

Analysis on the Public Land Health Standard for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): A formal land health assessment is not planned for completion in the project area until 2010. Since the proposed action would utilize an existing surface location with no additional surface disturbance, the action should not result in a further deterioration of the ability of the landscape to maintain or meet Standard 3 for healthy plant communities. Proper and timely reclamation will help to minimize any trend away from meeting this Standard.

WILDLIFE, AQUATIC (includes **analysis** on Standard 3)

Affected Environment: There are no aquatic systems at the proposed project sites. However, the well pad is located less than ½ mile from Middle Mamm Creek, a perennial stream which drains directly into the Colorado River, which contains a variety of fishes and aquatic insects.

Environmental Consequences/Mitigation:

The well pad currently exists and has been reclaimed. The site will be re-disturbed to accommodate additional directional wells. Given that the pad exists, it is unlikely that erosion and sediment concerns will be an issue. It is possible that until such time as the well pad is reclaimed, erosion from thunderstorm activity could add sediment into Middle Mamm Creek and eventually the Colorado River. However, any sediment that eventually reaches the Colorado River through rain and snowmelt events will be well within the background levels of the Colorado River and minor potential increases in sediment would be undetectable and should have no impact to aquatic wildlife.

Analysis on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Terrestrial): A formal Land Health Assessment is not planned for completion in the project area until 2010. Although a determination has not been formalized, assuming proper, timely

well pad reclamation, the proposed action should result in minimal effects to aquatic wildlife and will have no negative effects on the ability to maintain or meet Standard 3 for aquatic wildlife.

WILDLIFE, TERRESTRIAL (includes **analysis** on Standard 3)

Affected Environment: The proposed well pad would be located within juniper woodlands and sagebrush community with an understory comprised of grasses and forbs. A variety of wildlife species may be found in the area. The area contains habitat for many species of big game, small game, and nongame mammals and birds. The area is also mapped as crucial big game winter range.

The Big Game Winter Habitat Timing Limitation (TL-1) is stipulated on the nearby Federal lease for the downhole location in federal mineral estate. However, because the surface location of this pad is on private land, there is no specific language or legal description identifying the private well pad as binding to this timing limitation.

Environmental Consequences/Mitigation: General impacts (short term, long term, and cumulative) to terrestrial wildlife were adequately addressed in 1999 FSEIS. Standard measures are incorporated into the APD along with other measures (i.e., automatic well reporting, and reclamation) to conform to the FSEIS that will help to mitigate wildlife impacts. Public access and use of the roads to the well sites will be prevented due to controlled access on private lands. This will minimize disturbance and reduce effective habitat loss.

Because the Big Game Winter Habitat Timing Limitation (TL-1) does not apply because the surface location is on private lands underlying private mineral estate, construction, drilling, and completion activities would likely impact wintering big game if conducted anytime between December 1 and April 30. Specifically, displacement of animals would result in use of less preferred habitats and would result in increased energy consumption during the critical winter months. This could result in decreased winter survival of individual animals and result in a reduction in herd productivity over time.

Mitigation:

To minimize impacts to wintering wildlife, the operator is encouraged to voluntarily comply with the full Big Game Winter Habitat Timing Limitation (TL-1 December 1 to April 30), with respect to all construction, drilling, and completion activities.

Analysis on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Aquatic): A formal Land Health Assessment is not planned for completion until 2010. Since the proposed action calls for the use of existing surface locations, the action should result in no further deterioration of the ability of the landscape to maintain or meet Standard 3 for terrestrial wildlife species. Proper and timely reclamation will help to minimize the potential failure to meet this Standard.

THRESHOLD ANALYSIS FOR WILDLIFE AND WILDLIFE HABITAT MITIGATION: In the FSEIS Record of Decision (March 1999) on page 14 it states that: *“Within high value or crucial big game winter range, the operator is required to implement specific measures to reduce impacts of oil and gas operations on wildlife and wildlife habitat.. Measures to reduce impacts would generally be considered when well density exceeds four wells per 640 acres, or when road density exceeds three miles of road per 640 acres.”* Furthermore, Lease Notice GS-LN-05 states: *“Within high value or crucial big game winter range, the operator is required to implement specific measures to reduce impacts of oil and gas operations on wildlife and wildlife habitat.”*

The road and well density thresholds will not be exceeded via implementation of the proposed action, as no new road or well pad construction will occur. As such offsite or replacement mitigation measures to reduce impacts to wildlife are not currently being considered. However, as future activity increases in the area, it is possible that mitigation will be sought to offset habitat loss and fragmentation. Cumulative impacts will be monitored over time and as future development increases mitigation opportunities will be identified and pursued.

OTHER NON-CRITICAL ELEMENTS:

ACCESS AND TRANSPORTATION

Environmental Consequences/Mitigation: Existing road access to the well pad is through privately owned lands with no legal public access. Truck traffic will be the heaviest during rig-up, completion activities, and the rig-move to the next location. The proposed drilling and completion activities on the federal wells will likely commence in fall, 2005.

GEOLOGY AND MINERALS

Affected Environment/Environmental Consequences/Mitigation:

The target gas zones for the proposed directional wells are sands within the middle and lower part of the Williams Fork Formation (Mesaverde Group). The shallower Wasatch G sands may contain gas but are currently not an economic target. The wells will reach total depth in the Rollins Sandstone (base of Williams Fork). All coal zones are too deep for underground mining. The operator would be required to cement the production casing from total depth to about 200' above the top of the Mesaverde, which would isolate the gas-producing Williams Fork from other formations and zones.

NOISE:

Environmental Consequences/Mitigation: There will be increased levels of noise during the construction, drilling, and completion phases of the proposed action. The noise will 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).

PALEONTOLOGY

Affected Environment: The proposed wells and access road fall within a Condition I area for possible sites of paleontological or scientific value. However, dense soil and vegetation cover rock outcrops and as a result a paleontological survey would not be required for those specific potentially fossiliferous areas prior to BLM project authorization. If scientifically important fossils are discovered during construction activities and cannot be avoided, mitigation may be necessary.

All persons associated with operations under this authorization should be informed that any objects or sites of paleontological value, such as vertebrate or scientifically important invertebrate fossils, should not be destroyed, damaged or removed.

Environmental Consequences/Mitigation: A standard Education/Discovery Condition of Approval for Paleontology Resource protection will be attached to the APDs.

VISUAL RESOURCES

Affected Environment: The existing well pad is located on private surface in an area classified as VRM Class II in the GSRA 1984 Resource Management Plan. The objective of VRM Class II is to retain the

existing characteristic landscape. The level of change in any of the basic landscape elements (line, form, color, texture) due to management activities should be low and not evident.

Visual resource management objectives do not apply to non-BLM lands, but visual concerns may be addressed on split estate where federal minerals occur. VRM classes shown for non-public lands are an indication of the visual values for those lands, and those values are only protected by landowner discretion.

The protection of VRM classes, landscape character and scenic quality on private lands and split estate is discussed on pages 3-41 through 3-45 of the FSEIS. The impacts of development are also discussed on pages 4-49 through 4-54 of the FSEIS. The proposed action will not affect any of the key viewing areas or viewsheds described in the FSEIS. In particular, the proposed action will not be seen from the key viewing areas of the 1-70 corridor or the town of Rifle

Environmental Consequences/Mitigation: The proposed action is likely to lengthen the long term visual modifications due to the reconfiguration of the existing well pads where removal of sagebrush or hayfield has previously occurred. The location lies within relatively open, flat vegetation and creates contrast in color, line, shape and texture. Cuts and fills, although relatively minor, also create contrast by introducing new colors, shapes and forms into the existing landscape. Interim reclamation of the well pads with seeded shrub and grass species would reduce the contrast after two to three growing seasons. After completion and reclamation, long term impacts are expected due to the removal of vegetation and the presence of production facilities.

The production facilities to be located on the pads will be painted conforming environmental colors as specified in the COAs or lease terms. The well facilities including the metal containment ring will be painted Shale Green, based on on-site recommendations. Efforts should be made to leave as much existing vegetation as possible to screen the excavated disturbance. The facilities should be placed against the cut side of the pad, where feasible.

For the following elements, those brought forward for analysis will be formatted as shown above.

Non-Critical Element	NA or Not Present	Applicable or Present, No Impact	Applicable & Present and Brought Forward for Analysis
Travel/Access			X
Cadastral Survey	X		
Fire/Fuels Management		X	
Forest Management		X	
Geology and Minerals			X
Hydrology/Water Rights	X		
Law Enforcement	X		
Paleontology			X
Noise			X
Range Management	X		
Realty Authorizations		X	
Recreation	X		
Socio-Economics		X	
Transportation		X	

Visual Resources			X
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CUMULATIVE IMPACTS SUMMARY:

The 2004 Draft Roan Plateau Resource Management Plan Amendment & Environmental Impact Statement released in November, 2004 (DEIS, 2004) analyzed 5 alternatives for within the Roan Plateau planning area. These alternatives assessed impacts, including cumulative impacts, for oil and gas development scenarios ranging from 855 to 1582 new gas wells on public lands. The drilling of the wells addressed in this Environmental Assessment is well below the low range of development analyzed in the DEIS.

Since the completion of the 1999 Oil and Gas Leasing and Development FSEIS, the number of wells analyzed in subsequent NEPA documents has exceeded the 230 federal wells forecast in the RFD for lands outside the NOSR Production Area. However, drilling technology advancements has drastically reduced the expected surface disturbance of 3.4 acres per well or 1,020 acres from Federal wells analyzed in the 1999 FSEIS. The FSEIS analysis was based on a reasonably foreseeable development scenario, including the numbers of wells, well spacing, equipment necessary, and assumed emission rates. Since completion of the FSEIS, the majority of new wells have been drilled directionally and, in many instances, are being drilled from existing well pads, thereby reducing the overall anticipated surface impact addressed in the 1999 FSEIS.

The air quality analysis conducted in the 2004 DEIS does assess the impacts to the airshed from oil and gas development within and around the Roan Plateau Planning Area. The proposed action addressed in this document, which could include well pad and/or road construction, well drilling and well completion work typical for oil and gas development, would not represent a significant increase in emissions relative to the emissions assumed in the 2004 DEIS.

PERSONS / AGENCIES CONSULTED:

RuthAnn Morss, Permit Agent, EnCana Oil & Gas (USA) Inc.

INTERDISCIPLINARY REVIEW:

<u>Name</u>	<u>Title</u>	<u>Area of Responsibility</u>
Jim Byers	Natural Resource Specialist	Team Leader
Cheryl Harrison	Archaeologist	Cultural Resources, Native American Religious Concerns
Tom Fresques	Wildlife Biologist	Terrestrial & Aquatic Wildlife, Special Status Wildlife Species
Carla Scheck	Ecologist	Special Status Plants, Vegetation, Invasive/Non-native Species
Bruce Fowler	Geologist	Ground Water/Minerals
Jim Wilkinson	Geologist	Paleontology
Mike Kinser	Rangeland Management Specialist	Riparian
Marty O'Mara	Petroleum Engineer	Downhole Conditions of Approval
Kay Hopkins	Outdoor Recreation Planner	Visual Resources
Mark Wimmer	Rangeland Management Specialist	Soil, Water and Air
Mike McGuire	Rangeland Management Specialist	Range

FONSI
CO-140-2006-003 EA

EnCana Oil & Gas (USA) Inc.
Permit to Drill 2 Directional Wells on Existing Well Pad
Shideler Federal 20-3 & 20-4 (E20E Pad)

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

DECISION RECORD

DECISION: It is my decision to approve the Applications for Permit to Drill the directional wells [Shideler Federal 20-3 & 20-4 (E20E Pad)] 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: Jim Byers, Natural Resource Specialist

SIGNATURE OF AUTHORIZED OFFICIAL:


Authorized Officer

DATE SIGNED: NOV 08 2005

CONDITIONS OF APPROVAL
APPLICATION FOR PERMIT TO DRILL

Company/Operator: **EnCana Oil & Gas(USA), Inc.**

PAD	E20E	Location	SWNW Sec 20, T07S, R92W	
Well Name	Well No.	API No.	Bottom Hole Location	Lease
Shideler Fed	20-3 (E20E)		NENW Sec 20 T07S, 92W	COC-43220
Shideler Fed	20-4 (E20E)		NWNW Sec 20 T07S, 92W	COC-43220

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) 947-2825 of the Glenwood Springs field office at least 24 hours prior to spud.

Please contact Carol Snyder (970) 244-3033, or Ed Fancher (970) 244-3039 of the Grand Junction 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
E20E PAD**

1. The TOC for the production casing needs to be a minimum of 200' above the Mesa Verde Formation either during the primary cement job or through remedial cementing. The TOC for each well must be a minimum depth of:

	Minimum TOC	
<u>Well No.</u>	<u>MD</u>	<u>TVD</u>
20-3 (E20E)	3212'	2896'
20-4 (E20E)	3181'	3046'

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.
4. Open hole logs (PEX) shall be run in the surface section of the hole to determine shallow gas and waters. This COA is necessary only for the first well drilled on a pad.

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 Petroleum Engineer	C: 970.319.5837 BLM Fax: 970.947.2829	W: 970.947.2825
Carol Snyder Petroleum Engineering Tech.	H: 970.255.9339 C: 970.216.6146	W: 970.244.3033
Ed Fancher Petroleum Engineering Tech.	H: 970.523.5771 C: 970.640.4590	W: 970.244.3039
Jim Byers Natural Resource Specialist	W: 970.947.2804	
BLM Fax: 970.244.3083		

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 paint color to be used on all surface facilities including the metal containment rings surrounding the tank batteries is Shale Green (5Y 4/2) .
2. The raptor timing limitation (TL-6) identified in BLM's 1999 Glenwood Springs Oil & Gas Leasing and Development SEIS will be implemented to protect a golden eagle nest which lies within ¼ mile of the E20E pad . No well pad construction, well drilling, or completion activities will be allowed to occur from February 1 to August 15.

Exception: During years when the nest is not active by May 15, the seasonal limitation may be suspended. It may also be suspended once the young have fledged and dispersed from the nest (as determined and documented by a qualified biologist).

3. The operator is responsible for applying dust abatement measures as needed or directed by the Authorized Officer. The level and type of treatment (watering or application of various dust 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 heavy plumes of dust from road use that create safety problems and disperses heavy amounts of particulate matter on adjacent vegetation.
4. The operator is responsible for monitoring the project area for the presence of any Garfield County or State-listed noxious weeds at least once annually during the growing season. Noxious weeds, which may be introduced due to soil disturbance associated with the proposed lease operations, will be promptly treated by methods to be approved by the Authorized Officer. A Pesticide Use Proposal (PUP) is required prior to use of any pesticide.
5. Remote monitoring will be conducted during the winter months to minimize site visits to pad locations and reduce traffic impacts to wintering big game wildlife. 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.

6. Cultural Resource Education/Discovery Stipulation

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 43CFR10.4(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 43CFR10.4 (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 project proponent, 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 or prehistoric ruins, graves or grave markers, fossils, or artifacts, the proponent 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 U.S.C. 470h-3, 36CFR800.112). 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;
- the mitigation measures the holder will likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and,
- a time frame for the authorized officer to complete an expedited review under 36 CFR 800.11, or any agreements in lieu thereof, to confirm through the State Historic Preservation Officer that the findings of the authorized officer are correct and the mitigation is appropriate.

The proponent 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 proponent will be responsible for mitigation costs. The authorized officer will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the authorized officer that the required mitigation has been completed, the proponent will then be allowed to resume construction.

Antiquities, historic, prehistoric ruins, or objects of scientific interest that are outside of the authorization boundaries but directly associated with the impacted resource will also be included in this evaluation and/or mitigation.

Antiquities, historic, prehistoric ruins, or objects of scientific interest, identified or unidentified, that are outside of the authorization and not associated with the resource within the authorization will also be protected. Impacts that occur to such resources, which are related to the authorizations activities, will be mitigated at the proponent's cost including Native American consultation cost.

7. 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 proponent 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 proponent 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 proponent shall work around or set the discovery aside in a safe place to be accessed by the BLM-permitted paleontologist.

8. Reclamation Plan. Refer to Appendix I. Surface Reclamation of the 6/98 GSFO's Draft Supplemental EIS for Oil & Gas Leasing Development (pages I-1 through I-8) for specific reclamation goals, objectives, timelines, measures and monitoring methods. These guidelines will be followed in completing the reclamation of disturbed surfaces on well pads, access roads and pipelines.

Some effective practices that will be implemented during reclamation include, but are not limited to: proper siting of the well pad to minimize impacts, the immediate seeding of disturbed areas after construction, proper storage and redistribution of topsoil, reshaping cut and fill slopes, seeding with specified seed mix within the first available growing season after disturbance, deep ripping (>18 inches

on 2 foot centers), fencing reclaimed areas to protect from livestock use, and the use of riprap, slash or other erosion control structures to help control sediment loss.

The 4 Reclamation Categories defined on Page I-8 of Appendix I (6/98 GSFO's Draft Supplemental EIS for Oil & Gas Leasing Development) will be used in gauging the progress of reclamation monitoring.

Seed Mix Application Practices

A specified seed mix designed to meet interim reclamation standards while providing forage and browse for wintering elk and deer using a mixture of shrub, grass and forb species shall be applied. The following seed mix and rates will be used on all disturbed surfaces, including pipelines unless otherwise noted in the specific APD:

<u>Species of Seed</u>	<u>Variety</u>	<u>Application Rate (lbs/acre)</u>
Four-wing saltbush	Rincon	2.0
Wyoming big sagebrush		0.5
Western wheatgrass	Arriba	3.0
Bluebunch wheatgrass	P7	3.0
Indian ricegrass	Paloma	2.5
Sainfoin		1.0
Small Burnet		1.0
Total:		13.0 lbs. PLS/acre Total

The above rate of application is listed in pounds of pure live seed (PLS)/acre. The seed will be certified and there will be no primary or secondary noxious weeds in the seed mixture. The operator shall notify the Authorized Officer 24 hours prior to seeding and shall provide seed tags and evidence of certification of the seed mix to the Authorized Officer within 30 days of completion of the seed application.

The seed mix may be modified with approval from the BLM based on site-specific conditions, the identification of additional useful species for site stabilization, cheatgrass competition, and winter wildlife habitat needs, species success in past revegetation efforts, and seed availability and cost. Native species will be used unless they are proven unsuitable for meeting BLM's reclamation objectives. Reclamation would be considered successful when the objectives described in the Glenwood Springs Resource Area Reclamation Policy are achieved. Refer to Appendix I. Surface Reclamation of the 6/98 GSFO's Draft Supplemental EIS for Oil & Gas Leasing & Development (pages I-1 through I-8).

Upon completion of backfilling, leveling, ripping to minimum 18 inch depth on 2 foot centers, and recontouring, the stockpiled topsoil will be evenly spread over the reclaimed areas(s). Prior to reseeding, all disturbed surfaces will be scarified and left with a rough surface. No depressions will be left that would trap water and form ponds.

The prepared seedbed will be seeded within 24 hours after completing dirt work unless a change is requested by the operator and approved by the Authorized Officer. Prepare the seedbed by contour cultivating 4-6 inches deep. **Drill seed ¼ to ½ inch deep** following the contour. In areas that cannot be drilled, broadcast seed at 1½ times the application rate and cover ¼ to ½ deep with a harrow or drag bar. All seeding will be conducted between September 1st and May 1st. If the seeding is unsuccessful, operator will be required to make subsequent seedings until the reclamation objectives identified in Appendix I. Surface Reclamation of the 6/98 GSFO's Draft Supplemental EIS for Oil & Gas Leasing Development are met.

Erosion Control Practices

The cut and fill slopes will be protected against rilling and 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 will be used on cuts and fill slopes to protect against soil erosion.

Topsoil Practices

During well pad, road and/or pipeline construction, topsoil will be stripped to a minimum depth of 6 inches and segregated from other subsurface material piles, ie. excess material from reserve pit construction. If topsoil is less than 6 inches, the top 6 inches of surface material will be stripped and piled.

Site Protection Practices

Reclaimed areas will be fenced to exclude livestock until seeded species have established. The Authorized Officer will approve the type of fencing. Fencing shall be to BLM standards

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