

**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-140-2005-046 EA

**CASEFILE NUMBER:** Leases # COC-58675, COC-59629 & COC-64191

**PROJECT NAME:** Applications for Permit to Drill 3 Wells from 3 Proposed Pads (F8OU, G18OU & F21OU) in Orchard Federal Unit (Benefiting program, Fluid Minerals 1310)

**LEGAL DESCRIPTION:**

Orchard 8-6                      Surface location: T8S, R96W, Sec 8, SE $\frac{1}{4}$ NW $\frac{1}{4}$ , 6<sup>th</sup> P.M.  
(F8OU Pad)                      Bottom Hole: T8S, R96W, Sec 8, (1779' FNL, 2029' FWL)  
   Surface Owner: Steve Keinath  
   Federal Lease: COC-59629

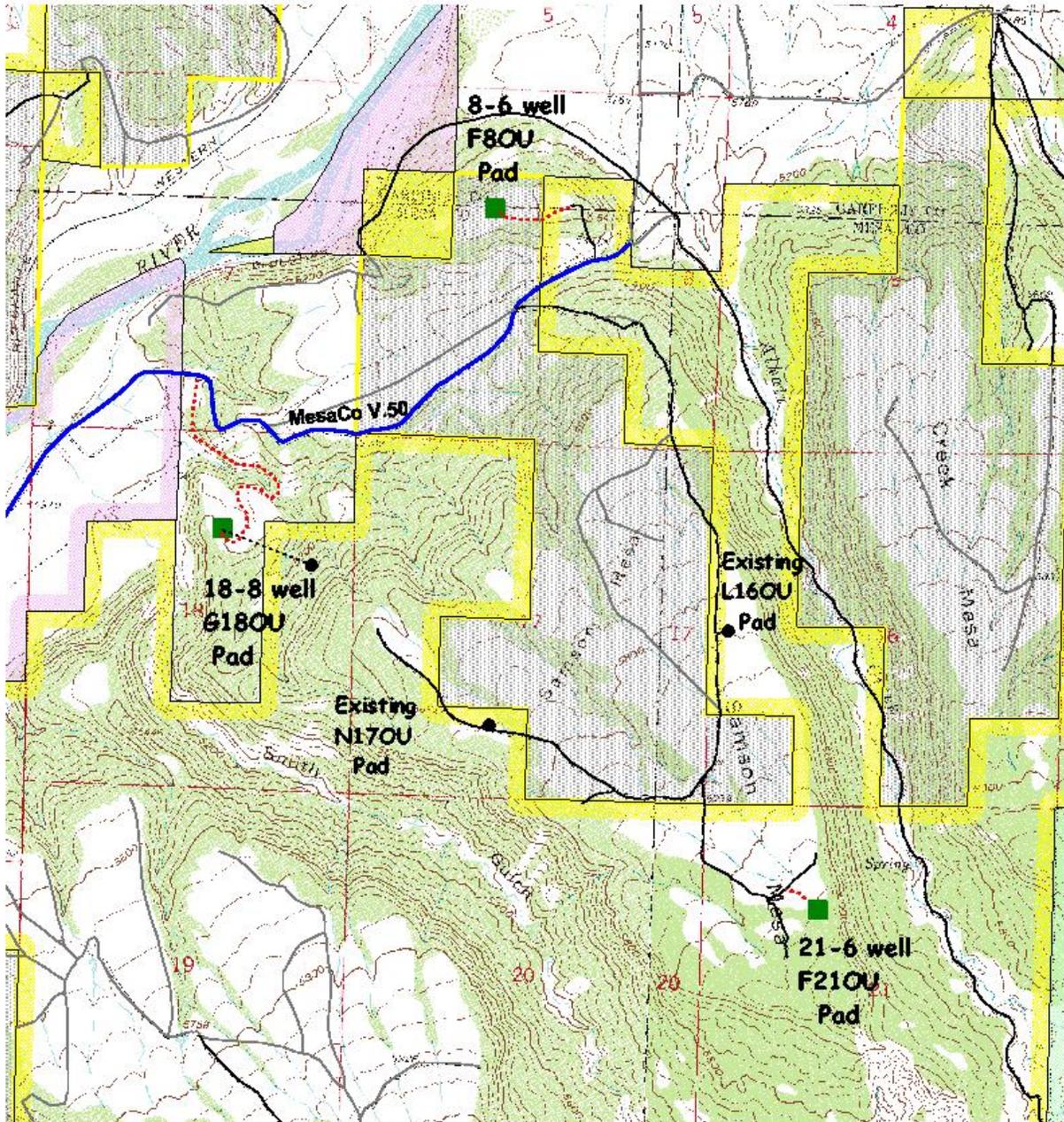
Orchard 18-8                      Surface location: T8S, R96W, Sec 18, SW $\frac{1}{4}$ NE $\frac{1}{4}$ , 6<sup>th</sup> P.M.  
(G18OU Pad)                      Bottom Hole: T8S, R96W, Sec 18, (1920' FNL, 660' FEL)  
   Surface Owner: Steve Keinath  
   Federal Lease: COC-58675

Orchard 21-6                      Surface location: T8S, R96W, Sec 21, SE $\frac{1}{4}$ NW $\frac{1}{4}$ , 6<sup>th</sup> P.M.  
(F21OU Pad)                      Bottom Hole: T8S, R96W, Sec 21 (1666' FNL, 1727' FWL)  
   Surface Owner: BLM.  
   Federal Lease: COC-64191

**APPLICANT:** EnCana Oil & Gas (USA) Inc.

**DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES**

**Proposed Action:** The proposed action is to drill and develop 3 federal natural gas wells from 3 new proposed well pads (F8OU and G18OU pads on private surface owned by Steve Keinath and F21OU pad on BLM) as listed above and shown on Project Map. The 8-6 and 21-6 wells would be vertically drilled from the proposed pads while the 18-8 well would be directionally drilled into BLM minerals from the private G18 pad surface. EnCana has requested that these APDs be analyzed separately from the pending Orchard Unit Geographic Area Plan (GAP), allowing the operator the opportunity to continue steady drilling progress in the unit while the GAP is being prepared during spring, 2005. These wells qualify as GAP waivers as defined in Appendix B of the 1999 SEIS as the 8-6 well (F8OU pad) and 18-8 well (G18OU pad) are exploratory and the 21-6 well (F21OU pad) lies in close proximity (300 feet) to an existing road. These well pads will be analyzed in the Orchard GAP for additional directional wells and cumulative impacts.



**Orchard Unit wells: 8-6 well (F80U pad),  
18-8 well (G180U pad) & 21-6 well (F210U pad)**

*T8S R96W Sec 8, SE<sup>1</sup>/<sub>4</sub>NW<sup>1</sup>/<sub>4</sub>, 6th P.M.*

*T8S R96W Sec 18, SW<sup>1</sup>/<sub>4</sub>NE<sup>1</sup>/<sub>4</sub>, 6th P.M.*

*T8S R96W Sec 21, SE<sup>1</sup>/<sub>4</sub>NW<sup>1/<sub>4</sub>, 6th P.M.</sup>*

**Mesa County, CO**

**Surface Owners: F80U & G180U- Kelnath, F210U - BLM**



Scale 1 : 24,000

2/22/05

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 Applications for Permit to Drill (APD) include 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.

The surface disturbance associated with the F8OU site would involve 5.0 acres for the fee pad and 3.5 acres representing 3030 feet of road improvement and pipeline construction totaling 8.5 acres. Approximately 1500 feet of existing road with new pipeline would impact BLM land, representing 1.7 acres of the 8½ acre total . The F21OU disturbed area would total 6.9 acres with nearly 4.5 acres attributed to the pad construction and 2.4 acres related to road and flowline upgrades. Disturbance for the G18OU well would total 8.0 acres with 4.5 acres attributed to pad disturbance and 3.5 acres related to road and flowline impacts.

Public access is available to the Samson Mesa portion of the Orchard Unit via Mesa County Road V.50 east of I-70, DeBeque interchange along the south side of the Colorado River. It is important to note that the road crossing BLM and private (Keinath) in Section 17 into Section 21 on Samson Mesa has historically been managed as a “public road” after court intervention by the Colorado Division of Wildlife (Communication with John Broderick, CDOW). The gathering lines for the proposed wells would be located directly adjacent to the pad access roads with pipeline tie-ins occurring at the existing Excel pipeline on private land for the F8OU and G18OU wells and into the E28OU surface pipeline south of the L16OU pad on BLM to serve the F21OU well.

The F8OU and G18OU well pads lie within open sagebrush vegetation surrounded by juniper woodlands, and the F21OU pad sets within juniper woodlands with open sagebrush park located directly adjacent. Access roads and pipelines fall within varying degrees of sagebrush and juniper.

**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 (9<sup>th</sup> 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 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. A formal Land Health Assessment was completed on the lands affected by the actions addressed in this EA in 2001. Portions of these lands were found not to be meeting the Standards. Specific concerns related to the condition of the sagebrush and pinyon-juniper habitats that comprise important big game winter range. Many sagebrush stands were in poor condition with old, decadent and severely hedged shrubs and little recruitment and establishment of younger age-class plants. In some sagebrush and pinyon-juniper stands, understory vegetation was lacking or was dominated by cheatgrass. Based on the findings of this assessment, specific mitigation and reclamation practices will be required on the proposed action to move toward achieving conformance with the standards.

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 (Mesa and Garfield Counties) have been described as attainment areas under NAAQS (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: As described in the FSEIS, approval of the APDs will result in localized short-term increases in particulate matter, carbon monoxide, nitrogen dioxide, ozone and sulfur dioxide concentrations, but will be well below applicable ambient air quality standards.

Emissions of particulate matter will be reduced through control of dust during construction and completion activities. Hazardous air pollutant concentrations will be well below standards and the related short-term and long-term cancer risks to well rig operators and nearby residents would be below significant levels. Though no significant, adverse impacts to air quality will result, it is recognized that some people will find the operations annoying and irritating. Those with certain chemical sensitivities or breathing difficulties may find the operations unhealthy. Completion activities may result in odors emanating from the frac pit.

Truck traffic during the initial rig-up, well completion and rig-move will likely produce high levels of dust in dry conditions without dust abatement. The operator intends to water the road and/or use magnesium chloride for dust abatement

#### Mitigation:

The operator is required to and responsible for applying dust abatement measures. The type of treatment may be changed and must be approved by the Authorized Officer to control dust; either by watering, application of various dust agents, surfactants, and/or application of road surfacing materials.

### **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: An Orchard Unit GAP interim report (GSFO# 5405-7) has been submitted covering the three well locations, access roads and flowlines. No historic properties eligible for listing on the National Register of Historic Places were identified during the inventories.

Environmental Consequences/Mitigation: As no historic properties were found, a determination for the proposed wells is “**No Historic Properties Affected**”, according to the 2001 revised regulations [36CFR 800.4(d)(1)] for Section 106 of the National Historic Preservation Act (16U.S.C 470f). 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 the proposed action.

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 locations, 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:

- 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 population<sup>1</sup>.

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 would not involve any prime or unique farmlands.

**FLOODPLAINS, WETLANDS, RIPARIAN ZONES**

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

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

**INVASIVE, NON-NATIVE SPECIES**

Affected Environment: The pads lie within sagebrush vegetation (F8OU and G18OU) or at the edge of a sagebrush park and old-age juniper woodlands (F21OU). The sagebrush shrublands have sparse understory vegetation characterized by several native bunchgrasses and the noxious weed, cheatgrass. The juniper woodland has a very sparse understory characterized by a few native forbs and cheatgrass.

Environmental Consequences/Mitigation:

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, non-native 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. In addition, 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 primarily of sagebrush vegetation with some pinyon-juniper woodlands present nearby. Given this mix of vegetation, the project area provides both foraging and nesting habitat for a variety of migratory birds. Two species characteristic of pinyon/juniper woodlands, the pinyon jay and black-throated gray warbler, are listed on the USFWS's Bird of Conservation Concern List. Additional pinon/juniper birds that may nest in the vicinity include the black-

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<sup>1</sup> 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

chinned hummingbird, gray flycatcher and juniper titmouse. Within the sagebrush vegetation, the sage sparrow, and Brewer's sparrow may occur.

No raptor nests are known to occur in the immediate vicinity of the proposed well pad, road, or pipeline locations. However, golden eagles are known to nest in the nearby vicinity. It is likely that these and other raptors forage in the area where the new well pads, roads, and pipeline facilities will be placed.

**Environmental Consequences/Mitigation:** The proposed action will involve new disturbance of approximately 23.4 acres of upland vegetation (habitat) associated with well pad, pipeline, and road construction. Although portions of the disturbed acreage will be reseeded/reclaimed, habitat will cease to function in its current capacity as shrubs and trees will be replaced with herbaceous grasses and forbs. The proposed action will result in the loss of nesting, breeding, roosting, perching, and foraging habitat for migratory birds. Individual birds will be impacted as trees, shrubs, and understory vegetation is removed to accommodate natural gas infrastructure. It is possible that individual nests will be destroyed, and if constructed during the nesting season, it is likely that reproduction will be curtailed. In addition, currently intact habitats will be fragmented. This fragmentation will result in reduced habitat patch size which negatively impacts bird species that require large expanses of intact habitat. In addition to the physical loss of habitat and fragmentation, it is likely that during all construction activities, individual birds will be displaced to adjacent habitats due to noise and human presence. Limited public access into the area due to private surface ownership will reduce some indirect impacts associated with human use. Despite the impacts to individual birds, it is unlikely that whole species or populations would be severely impacted by implementation of the proposed action. Raptors should not be negatively affected as upland foraging habitat is plentiful in the area.

## **NATIVE AMERICAN RELIGIOUS CONCERNS**

**Affected Environment:** At present, no Native American concerns are known by the GSFO within the project area and none were identified during the inventories. The Ute tribes currently claim this 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. A standard Education/Discovery Condition of Approval for Cultural Resource protection will be attached to the APD.

## **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, boreal toad, yellow-billed cuckoo, razorback sucker, Colorado pikeminnow, bonytail chub, and humpback chub.

Specific to the project location, no federal or state listed species, federal proposed or candidate species, or BLM Sensitive species (collectively called special status species) or their habitat occur directly within the project area footprint. The Colorado River in close proximity to the proposed F8OU pad and G18OU pad is mapped as general bald eagle winter range. In addition, a known bald eagle roost site is located within ¼ mile of the G18OU pad. Designated Critical Habitat for the Colorado pikeminnow and razorback

sucker is located within the Colorado River and its 100-year floodplain within ½ mile of the F8OU and G18OU pads.

Complete inventories have not been conducted at the proposed well site locations. The area of the proposed action does not contain potential habitat for any known special status plant species. Although, the special status plants, Debeque phacelia, Debeque milkvetch, and Rocky Mountain thistle are all known to occur within two miles of the project area, the geology upon which these species depend is not found at the proposed wells or access road locations.

#### Environmental Consequences/Mitigation:

##### *Bald eagle*

Based on the lack of potential habitat or occurrence records for any special status species, the proposed action should have “No Effect” on any listed species or their habitats and no impact on any Sensitive species.

##### *Colorado pikeminnow & razorback sucker*

Although Designated Critical Habitat for these fish is located in close proximity to the proposed action, the well pads, roads, and pipelines will be constructed well above the river on a mesa away from the river. It is possible that the action will result in small increases in sediment reaching the river over time, but the Colorado River carries a tremendous amount of sediment and the minor amount of additional sediment will be within background levels currently carried by the river. No detectible increase in sediment will occur. Furthermore, these fish are well adapted to the high sediment loads traditionally carried by the Colorado River. Periodic flooding and sediment have always played a part in the maintenance of these fish’s habitats.

The action will have “No Effect” to either the razorback sucker or Colorado pikeminnow or its habitat.

Analysis on the Public Land Health Standard for Threatened & Endangered species: Since there is no potential habitat for special status species in the project area and no offsite or indirect impacts are anticipated, the proposed action should have no effect on any special status species. The proposed action should not result in a failure of the area to achieve Standard 4 for special status, threatened or 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 proposed well pads lie on Samson Mesa south of the Colorado River between Smith Gulch and Alkali Gulch about 5 miles east of DeBeque, Colorado. The potentially affected drainages are subject to flow events from short duration, high intensity thunderstorms during summer months. Winter and spring runoff also plays a role in these watersheds depending on snowfall and spring rain events.

##### Ground Water

The nearest water well is located about 1 mile to the south (92’ depth). Other water wells are located along the Colorado River about 1-2 miles to the northwest. Usable ground water may occur in the unconsolidated surficial deposits, and lenticular sands in the Wasatch and upper part of the Mesaverde.

## Environmental Consequences/Mitigation:

### Surface Water

Pad, road and pipeline construction would result in the removal of 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 will 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 was completed in the project area in 2001. There is no indication that the proposed action would prevent Standard 5 from being met.

### Ground Water

Surface casing will be set to 800' and the production casing cemented back to surface casing, which will provide adequate protection for any potential usable water zones.

## **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 proposed action would include construction of road, pipeline and pads. Soil Surveys of Rifle Area, Colorado and the Douglas Plateau indicate that 3 soil map units would be affected by the proposed action area. Soil descriptions that follow are summarized from their respective surveys.

The F8OU pad is located on the Barx loam map unit in Mesa County (Douglas Plateau survey) and the Potts loam unit in Garfield County. The Barx loam (3-12% slopes) is a soil map unit that is typically found on structural benches. This map unit is described as having medium surface runoff characteristics and severe erosion potential. The Potts loam (3-6% slopes) is a deep well drained moderately sloping soil typically found on benches and valley sides. Erosion hazard is described as moderate and runoff is considered slow. Primary uses on this map unit include irrigated pasture, dry-land farming, with small areas used for grazing.

The G18OU pad is located on the Barx loam map unit described above.

The F21OU pad is located on the Barx-Clapper complex (3-12% slopes). This complex is found on dissected plateaus and is approximately 60% Barx loam (see above description) with 25% being Clapper very stony loam (12-25% slopes). The remaining soils vary widely and are integrated into the complex. The Clapper portion of this complex is described as having rapid runoff potential and severe erosion potential

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 proposed pads would be constructed within old-age juniper woodland habitat (F21OU pad) or sagebrush vegetation (F8OU and G18OU pads). An Ips beetle infestation has been noted in the general area. The combined stress of the recent drought and attack by Ips beetles has resulted in mortality of numerous pinyon pines in the broader landscape. After field review, it was determined that removal of live pinyon trees would not be necessary for construction of the pad so the pinyon ips beetle problem would not be exacerbated by this action.

Environmental Consequences: The proposed action would result in a short-term loss of some herbaceous and shrubby vegetation and a long-term loss of mature to old-growth woodland vegetation on those portions of the pads and roads that will be revegetated following completion of drilling activities. In addition there would be a long term loss of herbaceous and shrubby vegetation and some woodland vegetation associated with the access roads and operating facilities for the wells. Total acreage associated with the disturbance will be approximately 23.4 acres. With implementation of reclamation practices identified in the COAs, desirable vegetative establishment on the temporary disturbed areas can be expected. Monitoring of the reclamation would occur as identified in COAs.

Mitigation: The F21OU pad, and the F8OU and G18OU pads if livestock grazing is authorized on the private land, will be fenced to exclude livestock grazing until the seeded species are established and well-rooted and 55% of seeded species are reproducing. (This will require a minimum of 2 growing seasons but may be longer depending on climatic conditions.)

Analysis on the Public Land Health Standard for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): The Battlement Mesa Land Health Assessment determined that this portion of the landscape was functioning but that problems were evident. Problems noted were dominance of the area by cheatgrass, heavily hedged and decadent sagebrush and conifers that appeared stressed. The ongoing drought is probably a contributing factor in the susceptibility of the stand to Ips beetle infestation. The proposed action would not remove any pinyon trees so it would not contribute to expansion of the Ips beetle infestation. The surface disturbance associated with the proposed action has the potential to encourage expansion and dominance of the site by cheatgrass. The Invasive, Non-native Species section includes provisions to revegetate the disturbances with native vegetation and to control

noxious weeds. The proposed action with mitigation should not result in a failure of the landscape to meet Standard 3 for healthy plant communities. If successfully revegetated, the proposed action may result in an improvement in vegetative conditions by improving the density, frequency and composition of native plant species.

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

Affected Environment: There are no perennial aquatic systems at any of the 3 proposed well pads. The F8OU and G18OU pads lie on mesas directly south of the Colorado River which contains a variety of fishes and aquatic insects, while the F21OU pad is located on Samson Mesa overlooking Alkali Creek, which is ephemeral and generally only runs water during snowmelt and thunderstorm activity.

Environmental Consequences/Mitigation:

It is likely that site-specific erosion potential will be increased due to clearing of vegetation to accommodate the new well pads, access roads, and transmission pipelines required. This will be the case until such time as adequate vegetation establishment is obtained on reclaimed portions of disturbed areas. Roads will increase the chance for erosion and sedimentation indefinitely. Increased sediment can reduce aquatic insect productivity as streams become silted and clean gravels and cobbles are covered. Sediment that ultimately reaches the Colorado River will have no impacts to fisheries as sediment levels are projected to be well within the background levels for the Colorado River and minor potential increases in sediment would be undetectable.

**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 2001. The proposed action should result in no negative 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 pads would be located within juniper woodlands or sagebrush vegetation directly adjacent to juniper woodlands with an understory comprised of grasses and forbs. Although some native grasses are present, cheatgrass is dominant in the understory. 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 proposed F8OU and G18OU pads have a big game winter timing limitation stipulation on the leases restricting surface uses (other than operation and maintenance of production facilities) from December 1 through April 30.

The proposed F21OU pad is located in mapped big game winter range that has been identified as High Value habitat. The Big Game Winter Habitat Timing Limitation (TL-1) is mapped for the area. However, the federal lease contains no winter timing limitations for big game. In addition to big game, a variety of small game and non-game wildlife, and birds are found in the vicinity of these proposed wells. General impacts (short term, long term, and cumulative) to terrestrial wildlife were adequately addressed in the 1999 FSEIS. At this time a site-specific habitat assessment has not been conducted to determine the quality of the habitat. However, based on existing data and maps, the diversity of habitats, and the relatively undisturbed nature of the area, the habitat is considered to be high quality.

Environmental Consequences/Mitigation: Because the federal lease related to the 21-6 well on the F21OU pad contains no big game winter timing limitation, a 60-day Condition of Approval (COA) will be invoked in order to provide some protection to wintering big game in the area. Compliance with this

timing limitation will minimize impacts to wintering big game by limiting construction during a 60-day period of the critical winter months – January 15 through March 15.

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 for all the proposed well sites will be prevented due to controlled access on private lands. This will minimize disturbance and reduce effective habitat loss.

**Mitigation:**

For the F21OU pad, no road or pad construction, drilling, or completion work including all surface completion, pipeline construction, movement of equipment, etc., will be allowed from January 15 to March 15, in order to protect wintering big game. For the F8OU and G18OU pads, the winter timing stipulation placed on the leases will apply from December 1 through April 30, with the applicable exception criteria.

**Analysis** on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Aquatic): A formal land health assessment was completed in 2001. The action should result in no further deterioration of the ability of the landscape to maintain or meet Standard 3 for terrestrial wildlife species.

**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 such offsite or replacement mitigation measures to reduce impacts to wildlife are not currently being considered. However, as future activity increases in the area, and a Geographical Area Plan (GAP) is initiated, it is possible that mitigation will be sought to offset habitat loss and fragmentation. Cumulative impacts will be addressed in greater detail within the GAP and mitigation opportunities will be identified and pursued.

**OTHER NON-CRITICAL ELEMENTS:**

**ACCESS AND TRANSPORTATION**

**Affected Environment:** For the F8OU and G18OU pads, road access to the wells is through privately owned (Keinath) lands with no legal public access. Public access is available to the F21OU pad over County (Mesa V.50) road and public road.

**Environmental Consequences:** 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 summer, 2005.

**Mitigation:** During on-site visit to the proposed F8OU pads, ranch manager of Keinath property, Gene Olson, indicated desire to have EnCana install steel frame gate on BLM to control motorized access onto neighboring ranch property near the pad. The site of the proposed gate was chosen as the most defensible

location. Additionally segments (less than 100 feet in length) of a new drift fence would be installed by EnCana on either side of the gate to further inhibit motorized use beyond the gate.

Since the new road to the G18OU site is across private land, a locked gate would be installed along that route to inhibit motorized travel along the private road.

Enhanced visitor information regarding public motorized access on Samson Mesa was also requested along County Road V.50 at the boundary of Bureau of Reclamation/Keinath property and at the proposed F8OU gate location noted above. BLM will have responsibility of posting this information.

## **GEOLOGY AND MINERALS**

### Affected Environment/Environmental Consequences/Mitigation:

Proposed target gas zones for the directional wells are sands within the middle and lower part of the Williams Fork Formation and sands within the underlying Iles Formation. The shallower Wasatch G sands may be present but have low potential for producible gas. The wells are proposed for a target depth near the base of the Corcoran Sandstone (Iles Formation). All coal zones are too deep for underground mining. The operator proposes to cement the production casing from total depth back to the base of the surface casing, which would isolate the formation and producible gas zones 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: These proposed pads 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.

## **RANGE MANAGEMENT:**

Affected Environment: The F8OU and G18OU well pads would be located on private surface owned by Steve Keinath which is not included in any BLM range allotment nor is actively grazed. The proposed F21OU pad would be located on public land within the Alkali Gulch Allotment # 08131. The table below summarizes the permitted grazing use on the allotment.

<b>Allotment</b>	<b>Permittee</b>	<b>Livestock Kind &amp; NO.</b>	<b>Season of Use</b>	<b>% PL</b>	<b>AUMs</b>
Alkali Gulch # 08131	Malcolm Jolley	Sheep 200	12/17 – 2/15	100	80

Environmental Consequences: With the estimated 6.9 acres of surface disturbance related to the F21OU pad, construction activities would result in minimal loss (< 1 AUM) of forage available to livestock. Rehabilitation of vegetation on the location would result in reestablishment of forage which usually takes about 3 years. Livestock may also be minimally disturbed by the increase in human activity during pad and pipeline construction and maintenance of the gas facilities.

Mitigation: It is not anticipated that the level of impacts from implementation of the proposed action would require adjustment of the livestock stocking rate. The level of forage utilization will be monitored on the allotment. If necessary, adjustments in livestock use will be made to protect land health. Fencing of the F21OU pad will be required to deter grazing impacts to the reclaimed pad area.

## **VISUAL RESOURCES**

Affected Environment: The proposed F8OU site would be located on split estate with private surface ownership and the G18OU pad is on fee/fee lands. Visual Resource objectives do not apply to non-BLM lands, but visual concerns may be addressed on split estate where federal minerals occur. Visual Resource Management (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 proposed F8OU pad lies within an area classified as VRM Class II in the 1984 Glenwood Springs Resource Management Plan. The objective of Class II areas is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

The proposed G18OU well pad is located in an area classified as VRM Class III in the 1984 Resource Management Plan. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

The F21OU well pad would be located within an area classified as VRM Class IV in the 1984 Glenwood Springs 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.

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 Parachute/Battlement Mesa although a portion of the G18OU access road may be visible from the Colorado River corridor.

Environmental Consequences/Mitigation: The construction of the well pads will create contrast by removing the existing juniper and sagebrush vegetation and exposing bare ground. Interim reclamation of the pads with seeded shrub and grass species would reduce the contrast after two to three growing seasons. After completion of interim reclamation work, the well sites would be visible from the immediate vicinity and nearby mesas due to the production facilities. The proposed sites, however, are not visible from nearby Interstate 70 nor the Colorado River. On the proposed F8OU pad, while long term changes to the characteristic landscape would be moderate, mitigation suggested by the surface landowner have been incorporated, the pad would not be visible from any transportation corridor, and would not attract the attention of the casual observer. The remaining pads conform to VRM Class Objectives.

The production facilities located on the pads in support of the existing wells have been painted conforming environmental colors as specified in the COAs or lease terms. The additional well facilities including the metal containment ring will be painted Shale Green, as determined by 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
Realty Authorizations		X	
Recreation	X		
Socio-Economics		X	
Transportation		X	
Visual Resources			X

**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 oil and gas development in 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 has 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.

Joe Schmid, Construction Foreman, 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, Noxious Weeds
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-140-2005-046 EA**

**EnCana Oil & Gas (USA) Inc. Permits to Drill Wells on 3 Proposed Well Pads**  
**Vertically Drill the Orchard 8-6 (F8OU Pad) & Orchard 21-6 (F21OU Pad)**  
**and**  
**Directionally Drill the Orchard 18-8 well (G18OU 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 2 vertical wells [Orchard 8-6 (F8OU Pad) and Orchard 21-6 (F21OU Pad)] and directionally drill a single well [Orchard 18-8 (G18OU 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.

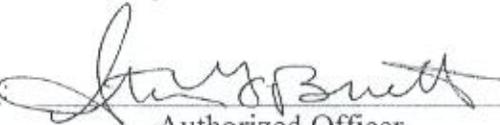
RATIONALE:

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:

5-23-05

Well: Orchard 8-6  
F8OU Pad  
Operator: EnCana Oil & Gas (USA) Inc.

CONDITIONS OF APPROVAL  
APPLICATION FOR PERMIT TO DRILL

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

<b>PAD</b>	<b>F8OU</b>	<b>Location</b>	<b>SEnw Sec 8, T08S, R96W</b>	
<b>Well Name</b>	<b>Well No.</b>	<b>API No.</b>	<b>Bottom Hole Location</b>	<b>Lease</b>
Keinath Fed	8-6(F8OU)		SEnw Sec 8 T08S, 96W	COC-59629

**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  
KEINATH FED 8-6 (F8OU) WELL**

1. The TOC for the production casing needs to be at the base of the surface casing either during the primary cement job or through remedial cementing. This is to protect the potential for Wasatch gas below the surface casing. The TOC for the well must be a minimum depth of:

<b>Well No.</b>	<b>Minimum TOC</b>	
	<b>MD</b>	<b>TVD</b>
8-6(F8OU)	1500'	1500'

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.
5. The PEX open-hole logs shall be run from TD to surface casing in this well.

**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.**

Well: Orchard 8-6  
F8OU Pad  
Operator: EnCana Oil & Gas (USA) Inc.

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: 970.201.6792 C: 970.201.6792	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, spend 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. Existing trees along north side of pad will be protected from disturbance. Silt fencing will be installed at toe of all fillslopes and material piles.
3. The operator will install steel frame gate with lock and range fence for minimum 100 feet either side of gate near new access road junction with County Road V.50. Specific gate location will be identified with flagging prior to installation of gate. Installation of gate and fence will be completed within 1 week after construction activities for road and flowline are finished.
4. Access road across private property will be constructed along the southern edge of sagebrush opening. Existing trees along southern edge of sagebrush opening will be protected from disturbance.
5. 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.
6. Noxious weeds, which may be introduced due to soil disturbance associated with the proposed lease operations, will be treated by methods to be approved by the Authorized Officer. A Pesticide Use Plan (PUP) is required prior to use of any pesticide.
7. 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.
8. 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.

9. 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.

10. 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>
Winterfat		1.0
4-wing Saltbush	Rincon	2.0
Shadscale		2.0
Western wheatgrass	Arriba	3.0
Bluebunch wheatgrass	P7	3.0
Indian ricegrass	Paloma	2.0
<u>Galleta</u>	Viva	<u>1.0</u>
<b>Total:</b>		<b>14.0 lbs. PLS/acre Total</b>

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.

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 after September 1 and prior to ground frost. Spring seeding will be done after the frost leaves the ground and no later than May 15<sup>th</sup>. If the seeding is unsuccessful, operator will

Well: Orchard 8-6  
F8OU Pad  
Operator: EnCana Oil & Gas (USA) Inc.

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.

CONDITIONS OF APPROVAL  
APPLICATION FOR PERMIT TO DRILL

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

<b>PAD</b>	<b>F8OU</b>	<b>Location</b>	<b>SWNE Sec 18, T08S, R96W</b>	
<b>Well Name</b>	<b>Well No.</b>	<b>API No.</b>	<b>Bottom Hole Location</b>	<b>Lease</b>
Keinath Fed	18-8(G18OU)		SENE Sec 18 T08S, R96W	COC-58675

**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  
KEINATH FED 18-8 (G18OU) WELL**

1. The TOC for the production casing needs to be at the base of the surface casing either during the primary cement job or through remedial cementing. This is to protect the potential for Wasatch gas below the surface casing. The TOC for the well must be a minimum depth of:

<u>Well No.</u>	<u>Minimum TOC</u>	
	<u>MD</u>	<u>TVD</u>
18-8(G18OU)	1500'	1500'

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.
5. The PEX open-hole logs shall be run from TD to surface casing in this well.

**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
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Carol Snyder Petroleum Engineering Tech.	H: 970.255.9339 C: 970.216.6146	W: 970.244.3033
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Ed Fancher Petroleum Engineering Tech.	H: 970.201.6792 C: 970.201.6792	W: 970.244.3039
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Jim Byers Natural Resource Specialist	W: 970.947.2804
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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. Juniper trees cleared during pad and road construction will be windrowed and placed at toe of fillslope.
3. The operator will install steel frame gate with lock (and range fence for minimum 100 feet either side of gate) near new access road junction with County Road V.50. Specific gate location will be identified with flagging prior to installation of gate. Installation of gate and fence will be completed within 1 week after construction activities for road and flowline are finished.
4. 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.
5. Noxious weeds, which may be introduced due to soil disturbance associated with the proposed lease operations, will be treated by methods to be approved by the Authorized Officer. A Pesticide Use Plan (PUP) is required prior to use of any pesticide.
6. 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.
7. 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.

8. 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.

9. 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>
Winterfat		1.0
4-wing Saltbush	Rincon	2.0
Shadscale		2.0
Western wheatgrass	Arriba	3.0
Bluebunch wheatgrass	P7	3.0
Indian ricegrass	Paloma	2.0
<u>Galleta</u>	Viva	<u>1.0</u>
<b>Total:</b>		<b>14.0 lbs. PLS/acre Total</b>

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.

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 after September 1 and prior to ground frost. Spring seeding will be done after the frost leaves the ground and no later than May 15<sup>th</sup>. 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.

CONDITIONS OF APPROVAL  
APPLICATION FOR PERMIT TO DRILL

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

<b>PAD</b>	<b>F21OU</b>	<b>Location</b>	<b>SENW Sec 21, T08S, R96W</b>	
<b>Well Name</b>	<b>Well No.</b>	<b>API No.</b>	<b>Bottom Hole Location</b>	<b>Lease</b>
Orchard Unit	21-6 (F21OU)		SENW Sec 21, T08S, R96W	COC-64191

**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  
ORCHARD UNIT (F21OU) WELL PAD**

1. The TOC for the production casing needs to be at the base of the surface casing either during the primary cement job or through remedial cementing. This is to protect the potential for Wasatch gas below the surface casing. The TOC for the well must be a minimum depth of:

<u>Well No.</u>	<u>Minimum TOC</u>	
	<u>MD</u>	<u>TVD</u>
21-6 (F21OU)	1500'	1500'

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.
5. The PEX open-hole log shall be run from TD to surface casing in at least one of the wells on the 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: 970.201.6792 C: 970.201.6792	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. Trees cleared during pad construction will be windrowed along south or west side of pad. Surface disturbance including tree removal will not exceed staked limits of pad along edge of Samson Mesa between PT4 and PT12.

Fencing to control grazing livestock within the BLM range allotment will be installed around the area of pad disturbance including the perimeter of excess material. This fencing will be of standard and type to keep livestock from penetrating the fenced perimeter. Fencing will be installed after dirtwork and seed application is completed for interim reclamation and prior to livestock turnout on the allotment.

3. Although there is no specific Timing Limitation for Big Game Winter Habitats listed in the Lease #COC-46029, the 60 day Condition of Approval for Big Game Habitat identified in Appendix D-1 in the GSRA Oil & Gas Final SEIS (approved March 24, 1999) will be invoked. This COA states: “To protect crucial big game winter range on leases without timing restrictions, construction and drilling activities are prohibited from January 15 through March 15.”

Exception language: “If local (as close to the project area as possible) long-range weather data/forecasts that supports winter conditions as being or projected to be below the 10-year average based on snow depth, and mean daily temperature, is provided to the Authorized Officer, an exception to the TL may be granted. In the event weather conditions change within the project area and become more severe (prolonged and frequent snow events and colder than average daily mean temperatures for 3 consecutive weeks), the operator upon written notice, will have 7 working days to move off of occupied federal well site locations and the 60-day TL will be reinitiated. This measure does not apply to any emergency maintenance or operation activities.”

The rationale for invoking this COA is based on field review and the updated Colorado Division of Wildlife Big Game Winter Habitat mapping which clearly identifies the well location and access road within these crucial winter ranges.

4. 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.

5. Noxious weeds, which may be introduced due to soil disturbance associated with the proposed lease operations, will be treated by methods to be approved by the Authorized Officer. A Pesticide Use Plan (PUP) is required prior to use of any pesticide.

6. 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.

7. 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.

8. 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.

9. 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>
Winterfat		1.0
4-wing Saltbush	Rincon	2.0
Shadscale		2.0
Western wheatgrass	Arriba	3.0
Bluebunch wheatgrass	P7	3.0
Indian ricegrass	Paloma	2.0
<u>Galleta</u>	Viva	<u>1.0</u>
<b>Total:</b>		<b>14.0 lbs. PLS/acre Total</b>

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.

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 after September 1 and prior to ground frost. Spring seeding will be done after the frost leaves the ground and no later than May 15<sup>th</sup>. 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.