

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

ENVIRONMENTAL ASSESSMENT

NUMBER: CO-140-2006-149 EA

CASEFILE NUMBER: Lease # COC-01523

PROJECT NAME: Applications for Permit to Drill 2 Directional Wells (Federal 20-10 & 20-12) from new Proposed Pad in South Parachute area (Benefiting program, Fluid Minerals 1310)

LEGAL DESCRIPTION:

Federal 20-10 (PN20 Pad) Surface location: T7S, R95W, Sec 20, SE $\frac{1}{4}$ SW $\frac{1}{4}$, 6th P.M.
Bottom Hole: T7S, R95W, Sec 20, NW $\frac{1}{4}$ SE $\frac{1}{4}$ (1780' FSL, 1980' FEL)
Surface Owner: BLM
Federal Lease: COC-01523

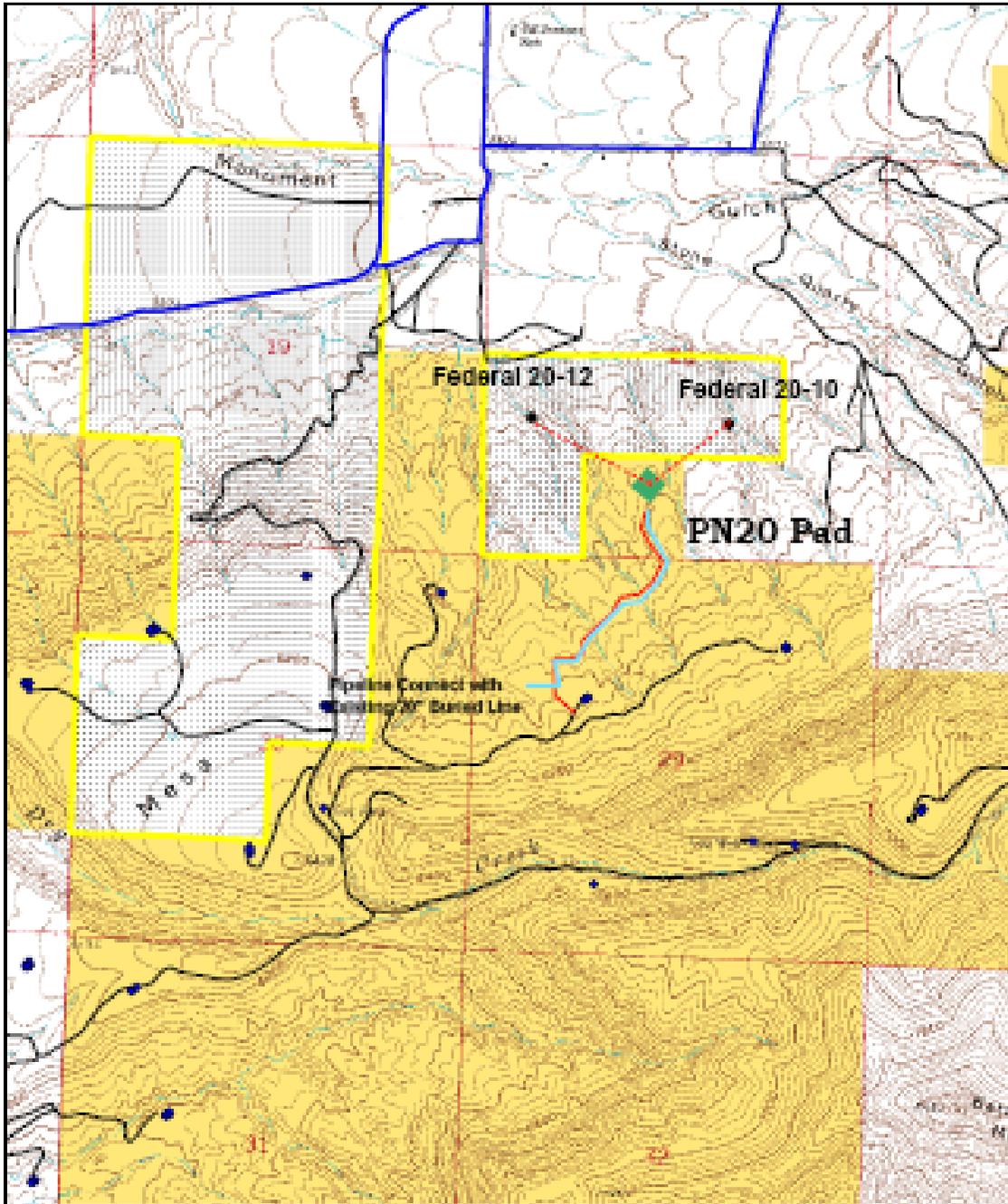
Federal 20-12 (PN20 Pad) Surface location: T7S, R95W, Sec 20, SE $\frac{1}{4}$ SW $\frac{1}{4}$, 6th P.M.
Bottom Hole: T7S, R95W, Sec 20, NW $\frac{1}{4}$ SW $\frac{1}{4}$ (1780' FSL, 660' FWL)
Surface Owner: BLM
Federal Lease: COC-01523

APPLICANT: EnCana Oil & Gas (USA) Inc.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Proposed Action: The proposed action would allow the operator to directionally drill and develop 2 directional natural gas wells from a proposed BLM well pad as listed above and shown on Project Map. The well pad, with a surface disturbance of 3.8 acres, would be situated in pinyon-juniper/sagebrush vegetative community (primarily within boundary of 1987 Battlement Mesa wildfire) on north-facing flats overlooking the community of Battlement Mesa and the Colorado River Valley. A new access road (approx 0.8 miles on BLM, 16-20 foot width, crowned and ditched road) would be constructed to the pad. Road grade would not exceed 10%. Sideslopes along the proposed road would average less than 30%. The flowline for the well would be buried in trench along access road for approximately 0.7 miles south of pad, then trenched another 250 feet trench off-road to connect to EnCana's existing 20" pipeline. Public motorized access is not available to the area.

Maximum cut proposed for pad would be 8.5 feet at southern edge with maximum fill of 10.5 feet also at southern edge of pad. Disturbed area for the project would include 3.8 acres for pad and 5.8 acres for access road and pipeline (maximum disturbed width of 60 feet for 4224 feet in length) totaling 9.6 acres.



EnCana's Proposed PN20 Pad with 2 Directional Wells

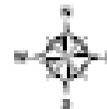
T7S R95W Sec 20, SESW 6th P.M.

Garfield County, CO

Surface Owner: BLM

Proposed Road shown in Solid Red

Proposed Pipeline in light Blue



Scale 1: 24,000

8/22/08

The exploratory wells qualify as a GAP waiver as defined in Appendix B of the 1999 SEIS.

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.

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

Summary of Lease Stipulations (#COC-01523) which would apply to Proposed Action:
No special stipulations are listed on the lease.

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. Furthermore, EnCana has successfully drilled wells to the NE and the SW of the PN20 pad and is requesting these additional wells prior to approval of the South Parachute GAP to gain additional geologic and engineering reservoir data to better understand this area of the South Parachute field. This improved understanding is required for planning a successful 2007 drilling program in South Parachute GAP area.

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 and in many cases 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 (Garfield County) has been described as an attainment area under CAAQS and NAAQS (Colorado Ambient Air Quality Standards and National Ambient Air Quality Standards). An attainment area is an area where ambient air pollution amounts are determined to be below NAAQS standards. For further details, refer to the Draft Roan Plateau RMPA EIS, page 3_20-22.

Environmental Consequences/Mitigation: The Draft Roan Plateau EIS, pages 4_31-48, describes potential effects from oil and gas development. Analysis was completed with regard to greenhouse gas emissions, a near-field and far-field analysis for carbon monoxide, particulate matter (PM₁₀ and PM_{2.5}), sulfur dioxide, and hazardous air pollutants including: benzene, ethylbenzene, formaldehyde, hydrogen sulfide, toluene, and xylenes. Sulfur and nitrogen deposition analysis, acid neutralizing capacity, and visibility screening-level analysis were also completed in the Draft EIS. Findings indicate that no adverse long term effects would be realized under the Draft Roan Plateau EIS plan. It is anticipated that the proposed action in this document would not likely produce adverse effects to air quality when compared to the Roan Plateau plan.

Activities described in the proposed action would result in localized short-term increases in vehicle and equipment emissions. Concentrations of emissions would be below applicable ambient air quality

standards as analyzed in the Draft Roan Plateau EIS mentioned above. However, it is anticipated that construction and production activities associated with the proposed action would likely produce high levels of dust in dry conditions without dust abatement. To mitigate dust generated by these activities, the operator will be required to implement dust abatement strategies as needed by watering the access road and construction areas and/or by applying a surfactant approved by the Authorized Officer.

AREAS of CRITICAL ENVIRONMENTAL CONCERN, 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: A Class III cultural resource inventory (5406-15) was conducted which encompassed the proposed well location, the proposed access road, and pipeline. No historic properties were identified that are eligible for listing on the National Register of Historic Places. Therefore, no formal consultation with the Colorado State Historic Preservation Officer (SHPO) was needed and a determination of “**No Historic Properties Affected** “ was made in accordance with the National Historic Preservation Act (16U.S.C 470f), National BLM/SHPO Programmatic Agreement (1997), and Colorado Protocol (1998).

Environmental Consequences/Mitigation: Indirect long term cumulative impacts from increased access and personnel could result in a range of impacts to known and undiscovered cultural resources in the vicinity of the 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:

- EnCana, their subcontractors, and/or their personnel need to be made aware that “Any person who, without a permit, injures, destroys, excavates, appropriates or removes any historic or prehistoric ruin, artifact, object of antiquity, Native American remains, Native American cultural item or archaeological resources on public lands is subject to arrest and penalty of law (16 USC 433, 16 USC 470, 18 USC 641, 18 USC 1170, and 18 USC 1361).
- A standard Education/Discovery Condition of Approval for Cultural Resource protection will be attached to the APDs.

ENVIRONMENTAL JUSTICE

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

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

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

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

FARMLANDS, PRIME AND UNIQUE

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

FLOODPLAINS, WETLANDS, RIPARIAN ZONES

Affected Environment: There would be no impact to these resources. There are no floodplains, riparian zones, or wetlands within the proposed action area.

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

INVASIVE, NON-NATIVE SPECIES

Affected Environment: The pad lies within a previously burned pinyon-juniper/sagebrush habitat. There was an infestation of Canada thistle present on the pad. This infestation was treated with herbicide on August 31, 2006. There was also tamarisk present in the second drainage that the proposed road and flowline cross. Cheatgrass was a dominant component in the herbaceous layer. Bindweed was also present on the proposed pad.

Environmental Consequences: Surface-disturbing activities provide a niche for the invasion and establishment of noxious and non-native species, particularly when these species are already present in the surrounding area. Because Canada thistle, cheat grass and tamarisk are already present in the vicinity of the pad and road, the potential for noxious weed invasion following construction is extremely high.

Mitigations: In order to minimize the high potential for invasion of noxious and invasive weeds, these steps will be taken:

- All disturbed areas not needed for immediate access to the wells will be seeded with a mixture of native shrubs and grasses, and native forbs. The seed mix designed to reclaim the disturbed areas can be found in the Vegetation section. The project proponent will adhere to the specified seed mix and will continue with reclamation activities, including additional reseeding if necessary, until interim reclamation objectives are achieved.
- The seed will be certified free of noxious weeds. All seed to be applied to public land must have a valid seed test, within one year of the acceptance date, from a seed analysis lab by a registered seed analyst (Association of Official Seed Analysts). The seed lab shall show no more than 0.5 percent by weight of “other weed” seeds; and the seed lot shall contain no “noxious, prohibited, or restricted weed” seeds according to the All States Noxious Test. Seed may contain up to 2.0 percent of “other crop” seed by weight which includes the seed of other agronomic crops and native plants; however, a lower percent of other crop seed is recommended. Seed tags shall be

supplied to the Glenwood Springs BLM Energy Office Ecologist at least 14 days prior to the date of proposed seeding for acceptance. Seed which does not meet the above criteria shall not be applied to public lands.

- A Standard Condition of Approval is attached requiring the project proponent to monitor for the presence of any Colorado-listed noxious weeds at least once or twice annually during the growing season until final reclamation of the pad is complete. The project proponent will promptly treat and control any noxious weeds. A Pesticide Use Proposal must be approved by BLM prior to the use of herbicides.

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

MIGRATORY BIRDS

Affected Environment: The project area is comprised primarily of sagebrush and pinyon-juniper woodlands. Understory vegetation consists of some native grasses and forbs, and some cheatgrass. Canada thistle and bind weed are also prevalent. The area is located in an area burned by a wildfire back in 1987. The project site and larger area provide cover, forage, and nesting habitat for a variety of migratory birds. A few species found on the U. S. Fish and Wildlife Service's Birds of Conservation Concern (USFWS 2002) may be present. Within the sagebrush the sage sparrow may occur. Within the pinyon-juniper woodlands the black-throated gray warbler, pinyon jay, and gray vireo may reside.

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

Environmental Consequences/Mitigation: The proposed action will involve initial removal of approximately 9.6 acres of sagebrush and pinyon-juniper vegetation. Portions of the disturbed acreage will be reclaimed which will reduce long-term habitat loss. The proposed action will result in a loss of nesting, breeding, roosting, perching, and foraging habitat for migratory birds. Individual birds will be impacted where trees, shrubs, and understory vegetation is removed to accommodate natural gas infrastructure. It is possible that individual nests could be destroyed if the well pad and road are constructed during the spring nesting season. 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. Despite the impacts to individual birds, it is unlikely that birds would be impacted at the species or population level. The development of reserve pits in the project area may be expected to attract waterfowl and other migratory birds for purposes of resting, foraging, or as a source of free water. The extent and nature of the problem is not well defined, but management measures must be conservative and relegated to preventing bird contact with produced water and drilling and completion fluids that may pose a problem (e.g., acute or chronic toxicity, compromised insulation). Raptors should not be negatively affected as upland foraging habitat is plentiful in the area.

Mitigation:

It will be the responsibility of the operator to comply with the Migratory Bird Treaty Act with respect to “take” of migratory bird species. As such, the operator is requested to prevent use by migratory birds of reserve pits, produced water pits, and evaporation pits, that store or are expected to store fluids which may pose a risk to such birds (e.g., migratory waterfowl, shorebirds, wading birds and raptors) during completion and after completion activities have ceased. Several established methods to prevent bird access are known to work. Methods may include but are not limited to netting, the use of bird-balls, or other alternative methods that effectively prevent bird access/use. Regardless of the method used, it will be applied within 24 hours after completion activities have begun. All lethal and non-lethal events that involve migratory birds will be reported to the Natural Resource Specialist immediately upon their discovery.

NATIVE AMERICAN RELIGIOUS CONCERNS

Affected Environment: At present, no Native American concerns are known by the GSFO within the project area and none were identified during the inventory. 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, 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 pad is mapped as bald eagle winter range. In addition, a known bald eagle roost site is located within 1.5 miles of the proposed pad. Designated Critical Habitat for the Colorado pikeminnow and razorback sucker is located within the Colorado River and its 100-year floodplain within 1.5 miles of the pad. In addition, three BLM sensitive fish species are known to inhabit the Colorado River near the project area, the flannelmouth sucker, bluehead sucker, and roundtail chub.

A floristic inventory of the project area was completed on August 25, 2006 by the BLM Energy Ecologist. No special status plant species were found, nor was there suitable habitat present for any special status plant species.

Environmental Consequences/Mitigation:

Bald eagle

Although close, the known bald eagle roost site and mapped winter range habitats are located below and outside of the project sites area of influence. The action will have “**No Effect**” to bald eagles or their habitats

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 their habitat.

Flannelmouth sucker, roundtail chub, bluehead sucker:

Although habitat and occurrence records for these fish is located in close proximity to the proposed action, the well pad, road, and pipeline 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 impacts to these native fishes or their habitat.

Based on the lack of potential habitat or occurrence records for any other special status species, the proposed action should have “**No Effect**” on any other listed or BLM sensitive species or their habitats. In addition, no indirect or offsite impacts are anticipated.

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 if the COAs are implemented, 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 action area is located southeast of the town of Parachute within the Colorado River below Rifle sub-watershed that is approximately 17,893 in size. Proposed activities would involve crossing several sizeable ephemeral drainages along the proposed access road on its way to the proposed PN20 Pad. The drainages encountered in the proposed action area are characterized by steep banks and high channel gradients and may transport large amounts of sediment, rock material, and woody debris during

precipitation and high run off events. North of the proposed action area, these drainages join a large ephemeral drainage that then heads west to join the Colorado River.

The State of Colorado has developed *Stream Classifications and Water Quality Standards* (CDPHE, Water Quality Control Commission, Regulation No. 37) that identify beneficial uses of water and numeric standards used to determine allowable concentrations of water quality parameters. The ephemeral drainages within the proposed action area are within the Lower Colorado River Basin segment 13a that includes all tributaries to the Colorado River from a point immediately below the confluence of Parachute Creek to the Colorado/Utah border. This segment has been designated as a use-protected stream segment. The use-protected designation refers to waters that the State of Colorado has determined do not warrant the level of protection provided by the outstanding waters designation or the antidegradation rule (CDPHE, Water Quality Control Commission, Regulation No. 31).

Waters within segment 13a are classified aquatic life warm 2, recreation 1b, and agriculture. Aquatic life warm class 2 refers to waters not capable of sustaining a wide variety of cold or warm water biota due to habitat, flows, or uncorrectable water quality conditions. Recreation class 1b refers to stream segments where there is a potential for primary contact recreation. The agriculture class refers to waters that are suitable for irrigation or livestock use. Numeric standards include a comprehensive list of physical, biological, inorganic, and metal standards that have been established to protect the designated uses above. At this time there is no water quality data for the ephemeral drainages in the proposed action area.

The State of Colorado has developed a *303(d) List of Water Quality Limited Segments Requiring TMDLS* (CDPHE, Water Quality Control Commission, Regulation No. 93) that identifies stream segments that are not currently meeting water quality standards with technology based controls alone. The ephemeral drainages in the proposed action area are within the Lower Colorado River Basin segment COLCLC13a that includes tributaries to the Colorado River below Parachute Creek. At this time these ephemeral drainages are not listed for any impairment.

The State of Colorado has developed a *Monitoring and Evaluation List* (CDPHE, Water Quality Control Commission, Regulation No. 94) that identifies water bodies suspected to have water quality problems. The ephemeral drainages in the proposed action area do not fall into any listed segment. However, the Colorado River from Parachute Creek to the Gunnison River (segment COLCLC02) is listed for sediment.

Environmental Consequences/Mitigation: Proposed activities would temporarily remove soil and vegetation resulting in an increase in erosion potential and offsite sedimentation. With measures to control runoff water in place, reestablishment of vegetation, and proper engineering of roads; the potential for sediment transport to the ephemeral drainages would be minimized. The proposed access road would involve several drainage crossings that would require adequately sized and installed culverts. The following mitigation measures will be implemented to protect surface water.

The operator will consult with the State of Colorado Water Quality Control Division regarding Stormwater Discharge Permits prior to commencing construction activities. All construction activities that disturb one acre or greater require a Stormwater Discharge Permit. The operator will consult with the US Army Corps of Engineers to obtain approval prior to discharging fill material into waters of the US in accordance with Section 404 of the Clean Water Act. Waters of the US are defined in 33 CFR Section 328.3.

- Culverts will be installed during no flow or low flow conditions at drainage crossings and will be required to pass a 25-year or greater storm event. The 25-year storm event for the proposed action area is approximately 1.6 inches of precipitation in 6 hours.
- Roads will be crowned, ditched, surfaced, and constructed to BLM Gold Book standards.
- Well pads will be constructed to BLM Gold Book standards. Fill slopes will be seeded to minimize erosion and protected with silt fences or an adequate alternative to prevent sediment from leaving the site.
- An engineered frac pit would be constructed on the well pad after drilling is completed to store fracing material and other byproducts of production activities.

Groundwater:

Affected Environment:

The surface formation is the Wasatch Formation. The casing and cementing program are adequate to protect downhole resources including fresh water. There is 1500 feet of surface casing with cement behind pipe and the top of cement for the production casing is 200 feet above the Mesaverde. According to the COGCC database, the closest water well is ~2590' to the northwest of the surface location. Most of the water wells are shallower than 300 feet in this area. The closest drainage is ephemeral and is located ~1800 feet to the north of the proposed location.

Environmental Consequences:

With the use of proper construction practices, drilling practices, and with best management practices no significant adverse impact to groundwater aquifers and quality is anticipated to result from the proposed action. A geologic and engineering review was performed on the 10-point drilling plan with supporting information contained in the Encana South Parachute GAP Master APD dated January, 2006 to ensure that the cementing and casing programs adequately protect the downhole resources.

Mitigation: No addition mitigation will be required.

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

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 soil map from the *Soil Survey of Rifle Area, Colorado: Parts of Garfield and Mesa Counties* (USDA Soil Conservation Service, 1985) indicates that the proposed pad and access road are located on the soil map unit Ildefonso stony loam. This deep, well drained, hilly soil is found on mesas, sides of valleys, and alluvial fans at elevations from 5,000 to 6,500 feet and on slopes of 6 to 45 percent. This soil is derived primarily from basalt and may contain a small amount of eolian material at the top of the unit. Surface runoff for this soil is medium and erosion hazard ranges from moderate to severe depending on the slope angle. Primary uses for this soil include grazing and wildlife habitat.

Environmental Consequences/Mitigation: There would be some soil loss, loss of soil productivity, and an increase in sediment available for transport resulting from construction activities. Due to the close proximity of the proposed activities to nearby drainages and the moderate to severe erosion potential of

this soil, the following mitigation measures will be implemented to minimize potential negative impacts associated with soil loss and transport.

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

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

VEGETATION (includes analysis on Standard 3)

Affected Environment: The vegetation within the project area consists of pinyon-juniper and sagebrush. The multiple drainages that the road and pipeline will cross are dominated by greasewood, with some tamarisk. The pad lies within a previously burned area dominated by weeds like cheatgrass, bindweed and Canada thistle. There is also a large amount of galleta grass and rubber rabbitbrush.

Environmental Consequences: The well pad would result in an estimated 3.8 acres of disturbance, and a new access road and gathering pipeline would result in additional disturbance of 5.8 acres, for a total of 9.6 acres of disturbance. With implementation of reclamation practices identified in the COA’s, establishment of desirable herbaceous vegetation on the unused portions of the pad, pipeline and road could be restored within 2 to 3 years. The establishment of mature shrubs could take from 5 to 25 years, and the establishment of trees would take even longer; however, because of the periodic workovers and the potential for additional well bores to be drilled from this pad, it is likely that vegetation would remain in an early seral stage for the life of the wells.

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

- A specified seed mix designed to meet interim reclamation standards using a mixture of native shrubs and grasses, and native forbs will be used. Revegetating the area will help prevent noxious and invasive weed establishment, maintain big game winter range habitat and prevent erosion. The following seed mix and rates will be used on all disturbed surfaces within the project area:

<u>Species of Seed</u>	<u>Variety</u>	<u>Drilled Application Rate* (PLS lbs/acre)</u>
Mountain big sagebrush		0.1
Bottlebrush squirreltail		2.2
Galleta grass	Viva	1.5
Slender wheatgrass	San Luis	1.6
Western wheatgrass	Arriba	5.0
Scarlet globemallow		0.4

TOTAL		PLS lbs/acre
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* In areas that cannot be drilled, broadcast seed at twice the application rate and cover ¼ to ½ deep with a harrow or drag bar.

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

Analysis of the Public Land Health Standard for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): Analysis of the Public Land Health Standard for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): The Battlement Mesa Area Land Health Assessment, completed in 2000, determined that portions of these lands were found not to be meeting the Standard 3. Specific concerns related to the condition of the sagebrush and pinyon-juniper habitats that comprise important big game winter range as well as habitat fragmentation, loss of habitat, and increased human use associated with natural gas exploration and development. The Invasive, Non-native Species section includes provisions to revegetate the disturbances with native vegetation and to control noxious weeds. If successfully revegetated, the proposed action may result in a localized improvement in vegetative conditions by improving the density, frequency and composition of native plant species.

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

Affected Environment: The well pad, access road, and pipeline are to be placed between two small ephemeral drainages that feed a larger ephemeral wash that eventually enters the Colorado River approximately 1.5 miles to the west. The Colorado River contains a variety of fishes and aquatic insects.

Environmental Consequences/Mitigation:

It is likely that site-specific erosion potential will be increased due to clearing of vegetation to accommodate the new well pad, access road, and pipeline. 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 impact sediment intolerant fish species such as trout by reducing aquatic insect productivity as streams become silted and clean gravels and cobbles are covered. Sediment can also fill in important spawning substrates. 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. Cut and fill measurements are fairly equal, but to minimize soil loss and sedimentation the following mitigation is recommended.

Mitigation:

- Culverts will be installed during no flow or low flow conditions at drainage crossings and will be required to pass a 25-year or greater storm event. The 25-year storm event for the proposed action area is approximately 1.6 inches of precipitation in 6 hours.
- Roads will be crowned, ditched, surfaced, and constructed to BLM Gold Book standards. Roads will be periodically re-graveled when ruts exceed 6 inches in depth or as directed by the AO.
- Well pads will be constructed to BLM Gold Book standards. Fill slopes will be seeded to minimize erosion and protected with silt fences or an adequate alternative to prevent sediment from leaving the site.

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 2000. The proposed action should result in no negative effects to aquatic wildlife and should 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 project area is comprised primarily of sagebrush and pinyon-juniper vegetation with an understory of some native grasses and forbs and a lot of cheatgrass. Canada thistle and bind weed is also present. The project site and larger area provide cover, forage, and breeding habitat for a variety of big game, small game, and non-game mammals, birds, and reptiles. The area is also mapped as crucial big game winter range, however, the lease does not address a big game winter timing limitation stipulation.

Environmental Consequences/Mitigation: General impacts (short-term, long-term, and cumulative) to terrestrial wildlife were adequately addressed in the 1999 FSEIS. The action will result in the direct loss of 9.6 acres of upland habitat and will indirectly impact more habitat as human use, noise, and commotion increase in the area. Habitats will be fragmented and habitat patch size will be reduced. This will negatively impact some terrestrial wildlife species.

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:

Although there is no specific Timing Limitation for Big Game Winter Habitats listed in the Lease, 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.”

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.

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 2000. The action will result in direct and indirect losses of habitat, further fragment remaining habitats, and result in increased human use in the area. Given the level of activity in the greater area, the proposed action will further trend the watershed away from meeting Standard 3 for some 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.”

This proposed well is exploratory. As such, 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: Existing road access to the well pad is through privately owned lands with no legal public access. Truck traffic will be the heaviest during rig-up, completion activities, and the rig-move to the next location. The proposed drilling and completion activities on the federal wells will likely commence in fall, 2006.

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 fall, 2006.

GEOLOGY AND MINERALS

Affected Environment: The proposed action will consist of two wells being drilled from a single wellpad. These wells will penetrate the Wasatch, Williams Fork and Iles Formations. In these well conventional sands will be explored for possible economic gas recovery in the Mesaverde Group. The casing and cementing programs are adequate to protect downhole resources. Coals with nearly six thousand feet of overburden can be found in the lower Williams Fork Formation. There mineable value is low. Nonetheless the above identified seams will be isolated by the proposed casing and cementing program.

Environmental Consequences: All coal seams and fresh water zones will be protected with casing and cement behind pipe.

Mitigation: No additional mitigation will be required.

NOISE:

Affected Environment: Proposed pad lies within ½ mile of community of Battlement Mesa. Noise levels at the site are presently created by traffic serving the wells in the South Parachute Field.

Environmental Consequences/ Mitigation:

There will be increased levels of noise during the construction, drilling, and completion phases of the proposed action. The noise will be most noticeable along the roads used to haul equipment and at the well site. Drilling activities are subject to noise abatement procedures as defined in the Colorado Oil and Gas Conservation Commission Rules and Regulations (Aesthetic & Noise Control Regulations).

PALEONTOLOGY

Affected Environment: The surface formation is the Wasatch Formation which is a class 1 formation with areas known or likely to produce abundant scientifically important fossils vulnerable to surface-disturbing activities. The Paleocene Wasatch Formation may contain early horses, rare primates,

rhinoceroses, birds, crocodiles, rodents, fish, turtles, fresh water clams, snails, and plants. There are paleontological sites identified near the proposed action. The proposed wellpad, access road, and pipeline, are located in an area with thick grass and burned over dense stands of pinion/juniper with very poor ground visibility. The soil cover is relatively thick

Environmental Consequences/Mitigation: Constructing a new access road, pipeline, and wellpad could result in the uncovering or destruction of paleontological resources. Since the proposed action construction is located in an area with dense soil and vegetation cover, a paleontological survey will not be required for this potentially fossiliferous area prior to BLM authorization of the APDs. If any fossils are noticed at anytime, the AO must be notified so the resource can be recorded, evaluated, stabilized, or mitigated. The standard paleontology condition of approval shall be applied to the APDs.

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 proposed gas wells would be located on public land on the Dry Creek Pete & Bill Allotment # 08125. The table below summarizes the permitted grazing use on the allotments.

Allotment	Permittee	Livestock Kind & NO.	Season of Use	% PL	AUMs
Dry Creek Pete & Bill # 08125	Sharon Gardner	Cattle 36	05/01 – 06/15	100	54
		Cattle 36	10/01 – 10/31	3	1
		Cattle 10	10/01 – 10/31	100	10
		Cattle 10	10/01 – 10/31	100	10
	John & Phyllis Hyrup	Cattle 182	05/01 – 06/15	100	51
		Cattle 182	06/16 – 10/15	3	22

Environmental Consequences: Since 2 wells would be developed from the proposed PN20 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 pad will be required to deter grazing impacts to the reclaimed pad area.

VISUAL RESOURCES

Affected Environment: The proposed action would be 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 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. With modifications identified on on-site reviews and the subsequent mitigation the disturbances would not be expected to dominate the viewshed from the I-70 corridor or the town of Parachute/Battlement Mesa.

Environmental Consequences/Mitigation: The construction of the well pad, pipeline, and access road will create contrasts by removing pinyon, juniper, sage, and shrub vegetation and exposing bare ground. Contrasts to color, form, line, and texture will be present within the existing landscape in the short term. Interim reclamation of the pad, access road and pipeline with seeded shrub and grass species would reduce contrasts after two to three growing seasons. The proposed pad and access road would meet VRM Class III objectives and not dominate the views from nearby Interstate 70 or Battlement Mesa with the following mitigation.

Mitigation:

The production facilities, including the metal containment ring, located on the pad in support of the proposed well would 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 within the Southern ¼ of the pad (North of center line 8). In order to reduce visibility resulting from removal of more trees, corner #2 and corner #9 should be rounded off.

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

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

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.
 Dayton Slauch, Surveyor, Tri-State Land Surveying , Inc.
 Brenda Linster Herndon, Permit Agent - Gathering, EnCana Oil & Gas (USA) Inc.
 Preston Nelson, Permit Coordinator - Gathering, 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
Beth Brenneman	Ecologist	Special Status Plants, Vegetation, Noxious Weeds
Fred Conrath	Geologist	Ground Water/Minerals
Harley Armstrong	Paleontologist	Paleontology
Marty O'Mara	Petroleum Engineer	Downhole Conditions of Approval
Kay Hopkins	Outdoor Recreation Planner	Visual Resources, ACEC, WSR,
Jeff O'Connell	Hydrologist	Air, Riparian, Surface Water, Soil
Isaac Pittman	Rangeland Management Specialist	Range

FONSI
CO-140-2006-149 EA

EnCana Oil & Gas (USA) Inc. Proposal to Drill 2 Wells on Proposed Well Pad
Directionally Drill the Federal 20-10 & 20-12 wells (PN20 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 Application for Permit to Drill to directionally drill a single well [Federal 20-10 and 20-12 wells on PN20 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.

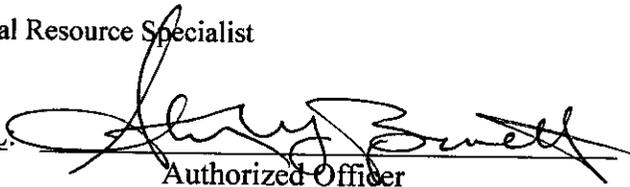
RATIONALE:

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:

SEP 28 2006

CONDITIONS OF APPROVAL
APPLICATION FOR PERMIT TO DRILL

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

PAD	PN20	Location	SESW Sec 20, T07S, R95W	
Well Name	Well No.	API No.	Bottom Hole Location	Lease
Federal	20-10 (PN20)		NWSE Sec 20 T07S, 95W	COC-01523
Federal	20-12 (PN20)		NWSW Sec 20 T07S, 95W	COC-01523

NOTIFICATION REQUIREMENTS

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

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

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

Please contact Marty O’Mara (970) 947-5221 of the Glenwood Springs Energy Office at least 24 hours prior to spud.

Please contact Steve Ficklin (970) 947-5213 or Jennifer Gallegos (970) 947-5220 of the Glenwood Springs Energy 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
FEDERAL (PN20) PAD**

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

<u>Well No.</u>	<u>MD</u>	<u>Minimum TOC</u> <u>TVD</u>
20-10 (PN20)	3574'	3365'
20-12 (PN20)	3643'	3335'

2. A cement bond log (CBL) will be run from the production casing shoe to TOC and shall be utilized to determine the bond quality for the production casing.
3. Any usable water zones encountered below the surface casing shall be isolated and or protected by cementing across the zone. The minimum requirement is to cement from 50 feet above to 50 feet below each usable water zone encountered.
4. Open hole logs (PEX) shall be run in the surface section of the hole to determine shallow gas and waters. This COA is necessary only for the first well drilled on a pad.

REGULATORY REMINDERS

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

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

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

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

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

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

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

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

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

Steve Ficklin	W: 970.947.5213
Petroleum Engineering Tech.	C: 970.319.2509

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

Jim Byers	W: 970.947.5222
Natural Resource Specialist	

BLM Fax: 970.947.5267

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. At least forty-eight (48) hours prior to construction of access road, pipeline and/or well pad, operator will notify BLM representative of construction startup plans.
2. 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). EnCana's storage tank(s) on the pad will be placed within the southern corner of pad with production pack set no more than 100 feet from well heads or tanks. Tank placement will be conducted in manner so that tanks are not placed directly against the cutslope – suitable space between cutslope and tanks must be provided for maximum reclaimed area.
3. Round off Corner 2 and 9 to minimize pad area that is visible from valley floor. All live trees along edge of pad between Corners 2 and 9 will be left standing in fillslope to provide maximum “live tree” buffer to minimize visibility from the valley floor.
4. Move access road entry onto pad about 50 feet south toward Corner 7 instead of bringing the road onto pad at Corner 8 where there is 10.5 feet of fill.
5. Although there is no specific Timing Limitation for Big Game Winter Habitats listed in the Lease, 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.”

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.

6. To avoid adversely affecting visibility from the valley floor, retain as many standing trees along the proposed access road and pipeline corridor as feasible. No sidelaying of material during road construction will be allowed for 300 foot segment of new road within the Battlement Mesa wildfire (approximately 0.1 mile south and west of proposed pad. Furthermore, the edge of well pad will be constructed to avoid sidelaying of material into dry gulches an east and west sides of pad.
7. To minimize overall surface disturbance of project within the viewshed, the maximum allowable width for new access road and parallel buried pipeline will be limited to total of 60 feet. The 250-300 feet of pipeline corridor connecting from new access road to 20” pipeline will be buried in corridor not to exceed 40 feet width of surface disturbance.
8. Roads will be crowned, ditched, surfaced, and constructed to BLM Gold Book standards. Roads should be periodically re-graveled when ruts exceed 6 inches in depth or as directed by the Authorized Officer. Initial gravel application will be a minimum lift of **6 inches**.
9. 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.

10. The project proponent is required to monitor for the presence of any Colorado-listed noxious weeds at least once or twice annually during the growing season until final reclamation of the pad is complete. The project proponent will promptly treat and control any noxious weeds. A Pesticide Use Proposal must be approved by BLM prior to the use of herbicides.
11. The operator will consult with the State of Colorado Water Quality Control Division (contact Matt Czahor at: 303-692-3575 or matthew.czahor@state.co.us) regarding Stormwater Discharge Permits prior to commencing construction activities. All construction activities that disturb one acre or greater require a Stormwater Discharge Permit. Written documentation to the BLM Authorized Officer is required within 30 days of the APD approval date to indicate that appropriate permits have been obtained. Written documentation may be a copy of the Stormwater Discharge Permit or an official verification letter from the State Water Quality Control Division to the operator that includes the Permit Certification Number. For further information contact Jeff O'Connell, Hydrologist of the Glenwood Springs Energy Office at 970-947-5215 or Jeffrey_O'Connell@blm.gov. Appropriate documents may be sent via electronic mail, faxed (970-947-5267), or mailed to Jeff O'Connell at the Glenwood Springs Energy Office.
12. The operator will consult with the US Army Corps of Engineers (contact Sue Nall at: 970-243-1199 x16 or Susan.Nall@usace.army.mil) to obtain approval prior to discharging fill material into waters of the US in accordance with Section 404 of the Clean Water Act. Waters of the US are defined in 33 CFR Section 328.3. Written documentation to the BLM Authorized Officer is required within 45 days of the APD approval date to indicate that the US Army Corps of Engineers has been notified prior to construction or that 404 Permits have been obtained or are not required by the permitting agency. Written documentation may be a copy of the Pre-Construction Notification (PCN) Form or an official verification letter from the US Army Corps of Engineers to the operator stating that a permit has been issued or is not required for the activities in question. For further information contact Jeff O'Connell, Hydrologist of the Glenwood Springs Energy Office at 970-947-5215 or Jeffrey_O'Connell@blm.gov. Appropriate documents may be sent via electronic mail, faxed (970-947-5267), or mailed to Jeff O'Connell at the Glenwood Springs Energy Office.
13. Culverts will be installed during no flow or low flow conditions at drainage crossings and will be required to pass a 25-year or greater storm event. The 25-year storm event for the proposed action area is approximately 1.6 inches of precipitation in 6 hours.
14. 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.
15. It will be the responsibility of the operator to comply with the Migratory Bird Treaty Act with respect to "take" of migratory bird species. As such, the operator is requested to prevent use by migratory birds of reserve pits, produced water pits, and evaporation pits, that store or are expected to store fluids which may pose a risk to such birds (e.g., migratory waterfowl, shorebirds, wading birds and raptors) during completion and after completion activities have ceased. Several established methods to prevent bird access are known to work. Methods may include but are not limited to netting, the use of bird-balls, or other alternative methods that effectively prevent bird access/use. Regardless of the method used, it will be applied within 24 hours after completion activities have begun. All lethal and non-lethal events that involve migratory birds will be reported to the Natural Resource Specialist immediately upon their discovery.

16. 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.

17. 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.

18. 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 native shrubs and grasses and native or desirable non-native forbs shall be applied. The following seed mix and rates will be used on all disturbed surfaces:

Species of Seed	Variety	Drilled Application Rate* (PLS lbs/acre)
Mountain big sagebrush		0.1
Bottlebrush squirreltail		2.2
Galleta grass	Viva	1.5
Slender wheatgrass	San Luis	1.6
Western wheatgrass	Arriba	5.0
Scarlet globemallow		0.4
TOTAL		PLS lbs/acre

* In areas that cannot be drilled, broadcast seed at 2 times the application rate and cover ¼ to ½ deep with a harrow or drag bar.

The above rate of application is listed in pounds of pure live seed (PLS)/acre. The seed will be certified free of noxious weeds. All seed to be applied to public land must have a valid seed test, within one year of the acceptance date, from a seed analysis lab by a registered seed analyst (Association of Official Seed Analysts). The seed lab shall show no more than 0.5 percent by weight of “other weed” seeds; and the seed lot shall contain no “noxious, prohibited, or restricted weed” seeds according to the All States Noxious Test. Seed may contain up to 2.0 percent of “other crop” seed by weight which includes the seed of other agronomic crops and native plants; however, a lower percent of other crop seed is recommended. Seed tags or other official documentation shall be supplied to the Glenwood Springs BLM Energy Office Ecologist at least 14 days prior to the date of proposed seeding for acceptance. Seed which does not meet the above criteria shall not be applied to public lands.

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 reseeded, 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. 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 15th. 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. Topsoil pile will be seeded with sterile cover crop (ReGreen) or BLM specified seed mix identified herein within 48 hours of stripping the topsoil.

Site Protection Practices

The project area will be fenced to exclude livestock grazing for the first two growing seasons or until the seeded species or native volunteer species become firmly established. The seeded species will be considered firmly established when at least 50% of the new plants are producing seed. 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 what additional actions were taken or are needed to meet these objectives.