

U.S. Department of the Interior  
Bureau of Land Management  
White River Field Office  
220 E Market St  
Meeker, CO 81641

## ENVIRONMENTAL ASSESSMENT

**NUMBER:** DOI-BLM-CO-N05-2014-0074-EA

**CASEFILE/PROJECT NUMBER:** COC – 76070X

**PROJECT NAME:** Encana CBU O15 1100 proposed wellpad (O15 1100 pad) with CBU DV16C-15 O151100 natural gas well and DHS3B-27O151100 natural gas well

**LEGAL DESCRIPTION:** T1S, R100W, SESE S15

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

**PURPOSE & NEED FOR THE ACTION:**

The purpose of the action is to provide the applicant the opportunity to develop oil and gas resources consistent with their federal oil and gas lease. The need for the action is established by the BLM's responsibility under the Mineral Leasing Act of 1920 (MLA), as amended [30 USC 181 et seq.], the Onshore Oil and Gas Leasing Reform Act of 1987, and the Energy Policy Act of 2005. The MLA authorizes the BLM to issue oil and gas leases for the exploration of oil and gas and permit the development of those leases. It is the policy of the BLM to make mineral resources available for disposal and to encourage development of mineral resources to meet national, regional, and local needs while protecting other natural resources. The existing lease is a binding legal contract that allows development of the mineral by the lessee.

**Decision to be Made:** The Bureau of Land Management (BLM) will decide whether to approve the two APDs on the CBU O15 1100 well pad, and if so under what conditions.

**SCOPING, PUBLIC INVOLVEMENT, AND ISSUES:**

**Scoping:** Scoping was the primary mechanism used by the BLM to initially identify issues. Internal scoping was initiated when the project was presented to the White River Field Office (WRFO) interdisciplinary team on 08/05/2014. External scoping was conducted by posting this project on the WRFO's on-line National Environmental Policy Act (NEPA) register on 8/19/2014.

**Issues:** The O15 1100 pad is proposed to be located within a Visual Resource Management (VRM) Class II area. No issues were identified during public scoping.

**DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:**

**Background/Introduction:** The WRFO received a Notice of Staking (NOS) for the O15 1100 pad on May 6, 2014. An onsite was conducted on May 7, 2014. On July 30, 2014, two Applications for Permit to Drill (APDs) were received, the CBU DV16C-15 O151100 (DV16C-15) and the CBU DHS3B-27 O151100 (DHS3B-27). Both APDs are complete in accordance with Onshore Order #1 (BLM 2007).

Encana has notified the BLM that this (DV16C-15 O151100) is their Unit Obligation Well with construction needing to start in mid-September 2014 with the well to be drilled in October 2014.

In addition, Encana has requested the BLM include an analysis of environmental impacts related to the construction and development activities for an additional eight wells on the O15 1100 pad for a total of 10 wells.

**Proposed Action:** Encana has proposed to construct one new wellpad, access road, and drill two natural gas wells.

**Table 1. Acreage Disturbance for Proposed Disturbance\***

| Well Pad                      | *Disturbance Proposed Phase I – 2 wells (Acres) | *Disturbance Proposed Phase II – 10 wells (Acres) | Access Road (30 foot construction width – 22 foot running surface) (length x width in Acres) | Total Disturbance (Acres) |
|-------------------------------|---|---|--|---------------------------|
| O15 1100                      | 6.90  | 9.40  | 503 x 30 = 0.30  | 9.70                      |
| Following Interim Reclamation | 1.30  | 2.00  | 503 x 22 = 0.30  | 3.60                      |

\* See figures 7 and 8 below

\*\*Wellpad proposed disturbed acres

**Design Features:**

**Access Roads (Existing):** Access to the well is proposed to use the following existing roads: From Rangely, Colorado along SH 64 to RBC 122 to RBC 103 to the proposed wellpad location (see Figure 2 below).

Existing roads will be maintained in the same or better condition as existed prior to the commencement of operations and said maintenance will continue until final abandonment and reclamation of the well location. Excessive rutting or other surface disturbance will be avoided.

**Access Roads (New):**

- All road work will be done according to BLM Manual Section 9113 standards.
- Access road disturbance will be approximately 503 feet long, 22 feet wide, with a 30 foot construction width.
- The maximum grade on the proposed access road will be about two percent.

- Encana may install temporary safety road signs on RBC 103.
- The topsoil along the road will be stripped. Topsoil berms will be constructed generally parallel to the access road.
- All cut and fill slopes will be seed bed prepped and revegetated.
- No major cuts and fills on the access road.
- Gravel will be used for road surfacing for approximately 3.5 miles on RBC 103 between the intersection of RBC122 and the wellpad. Mag chloride may be used to maintain road for dust abatement on access road and RBC 103. This will occur only with the approval of a Natural Resource Specialist. Plant surveys for T&E species have been conducted on the access road and RBC 103.
- Capping or sloping and dipping the roadbed as necessary to provide a well-constructed and safe road.
- Prior to upgrading, the roadway shall be cleared of any snow cover and allowed to dry completely.
- To construct this proposed well pad and access road, an allotment fence will need to be cut. Either a cattle guard or gate will be placed in the fence cut area to allow access to the proposed access. At final abandonment of this well, unless otherwise required by BLM WRFO this gate and/or cattle guard will be removed. Should the fence need to move it the fence will be moved in a northerly direction towards RBC 103.
- Road maintenance – during the drilling and production phase of operations, the road surface and shoulders will be kept in a safe and legal condition and will be maintained in accordance with the original construction standards. The access road will be kept free of trash during operations.
- Dust will be controlled on the roads and locations during construction and drilling by periodic watering of the roads and locations.
- If the well is a producer, Encana will upgrade and maintain access roads as necessary to prevent soil erosion, and accommodate year around traffic.
- Encana's typical on-site erosion control includes discharge perimeter wattles (sediment control), vegetation buffer (sediment/erosion control), grading and drainage (tracking), and topsoil windrow perimeter – tracked, seeded and hydromulched (sediment/erosion control). The windrow also acts as a containment Best Management Practice (BMP) for potential pollutants such as sediment. Check dams are incorporated to reduce energy and increase capacity. Off-site erosion control is handled according to Best Management Practices in place by the surface owner, the BLM in this case.

Location of Existing and/or Proposed Facilities:

- A dike will be constructed completely around any production facilities which contain fluids (i.e., production tanks, produced water tanks, etc.). These dikes will be constructed of compacted subsoil, be impervious, be lined with a minimum 24 mil impermeable liner, hold 110 percent of the capacity of the largest tank, and be independent of the back cut.
- Run off and sediment Best Management Practices will be implemented and maintained according to the Piceance Creek Storm Water Management Plan.
- The production facility for Phase I may consist of two wellheads, two condensate tanks, one separator, two water tanks, one Volatile Organic Compounds Combuster. In the event Encana returns to drill additional wells off this pad additional equipment may be needed. The BLM will be notified with a sundry notice on any equipment changes. If

Encana is unable to find 400 barrel low profile tank due to the availability, the tanks will consist of 330 barrel tanks (10 feet tall and 15 ½ feet in diameter).

- The production facility for Phase II may consist of 10 wellheads 10 low profile tanks (five for water, five for condensate), a dehydrator, a compressor unit, a production unit, a tool shed, a combuster, and a meter run.

#### Location and Type of Water Supply:

- Water to be used for drilling and completing of these wells may be delivered to the location via hauling by truck over the access roads.
- The water source may be from (1) recycled flow back water (frac water from completion operations), production water gathered from producing wells, or some combination thereof resulting from ongoing operations in the Piceance Basin that may be treated for reuse, or (2) fresh water from available water rights in the Piceance Basin
- The water provider is Encana. Encana maintains numerous water rights in Piceance Creek/or its tributaries.
- The estimated amount of water used for construction, drilling is approximately 20,000 barrels fresh water per well. Dust abatement could be up to 5,000 barrels of fresh water.
- Completions will use approximately 500,000 barrels of either produced or recycled water for both wells. The routes the trucks will take if it becomes necessary to truck water would be the route indicated in the driving directions from Rangely, CO in the Access Roads (Existing) section of the Proposed Action of this document.

#### Source of Construction Materials:

- All necessary materials for earthwork construction are on this location. Encana will not be borrowing materials from any other location.

#### Methods of Handling Waste Materials:

- Cuttings will be deposited in a steel cuttings bin (approximately 45 feet by 10 feet by 12 feet) and stockpiled on site. Cuttings will be deposited in the steel bin will be solidified with sawdust. Cuttings will be moved from the steel bin to the cuttings area. The cuttings will be managed per the Colorado Oil and Gas Conservation Commission (COGCC) regulations. For reclamation the cuttings will be buried on location in the cut slope on the northwest corner of the wellpad. They will be capped with a minimum three feet of native material then spread topsoil and seed with appropriate stormwater management BMPs.
- During Phase I occupation, the cuttings will be stockpiled in the Northwest corner of the location nearest corner 4 (as indicated on Sheet 4) for the initial two wells. The cuttings will be buried in this vicinity in accordance with COGCC regulations during interim reclamation of the site.
- During Phase II re-occupation and location expansion, a dedicated cuttings vault will be constructed in the northeast corner of locations nearest Corners 5a-5d (Sheet 4). Cuttings from Phase I will be recovered during the pad re-occupation and buried in the vault, along with the cuttings from the remaining Phase II wells.
- The steel cuttings bin and flare ditch will be constructed on the existing location and will not be located in natural drainages where a flood hazard exists or surface runoff will destroy or damage the pit walls.

- Drilling fluids are contained in a closed loop system. When drilling on a location is finished the fluids are dewatered and transferred by truck to another location.
- In the event that adverse weather conditions prevent removal of the fluids from the mud system within this time period, an extension may be granted by the Authorized Officer upon receipt of a written request from Encana Oil & Gas (USA) Inc.
- Salts are not encountered while drilling and we do not use salt based mud.
- Chemicals are stored on location in secondary containment and used as necessary to treat mud. The chemicals are contained, used in the mud or transferred to another location. They are not disposed of.
- Produced fluids – liquid hydrocarbons produced during production operations will be confined to flow back tanks for a period not to exceed ninety (90) days. Produced water may also be recycled and used for completion or fracing for another well or location. Encana intends to use produced water for future operations. At this time, Encana does not anticipate taking produced water to one of our disposal wells. Excess water may be trucked to a commercial disposal facility in Rangely and/or White River Dome. Water hauling will be done by RNI Trucking (1-970-250-6495).
- Excess water may be piped or trucked to disposal wells and/ trucked to a commercial disposal facility. There are also commercial disposal facilities in Rangely and White River Dome. Water hauling will be done by or RNI Trucking 970.250.6495.
- Sewage- self-contained, chemical toilets will be provided for human waste disposal.
- Upon completion of operations, or as needed, the toilet holding tanks will be pumped and the contents thereof disposed of at the Clifton Land Farm or Rio Blanco Landfill.
- Garbage and other waste material – garbage, trash and other waste materials will be collected in a portable, self-contained and fully – enclosed trash cage during drilling and completion operations. Upon completion of operations (or as needed) the accumulated trash will be disposed of by Western Colorado Waste Service at Mesa County Landfill, Garfield County Landfill, or Rio Blanco County landfill. No trash will be burned on location.
- Immediately after removal of the drilling rig, all debris and other waste materials not contained in the trash cage will be cleaned up and removed from the well location. No adverse materials will be left on the location.
- All spills of oil, gas, or potentially hazardous substances will be reported in accordance with applicable rules and regulations and will be remediated onsite, as appropriate, or removed to an approved disposal site.

#### Ancillary Facilities:

- Certified Colorado Department of Housing units will be provided for use in the extraction of gas on COGCC approved pads. These units will be used by Essential Personnel and will abide by Federal, State, and local regulations which directly pertain to Temporary Employee Housing (TEH) or Temporary Living Quarters (TLQ), depending on the county in which extraction will be taking place.
- Potable water is provided by water haulers certified by the Colorado Department of Public Health & Environment.
- Septic will be held in County approved engineered ISDS Vault and Haul systems.
- Waste materials generated by and from these units will be contained in wildlife proof containers and will be hauled weekly, or as needed.

### Wellsite Layout:

- Topsoil conservation practices include stockpiling and/or windrowing available topsoil. The stockpiles are to be tracked walk perpendicular to contour with a convex top and concave bottom then seeded and mulched. Depth and width will vary with availability and stormwater requirements. The estimated depth of the windrowed/stockpiled topsoil may vary between six inches to 10 feet.
- Methods of stabilization: Local factors will be evaluated to determine what BMPs are suitable and practical at the time of construction. BMPs will be employed in different combinations during construction activities and phases as conditions warrant. The following BMPs may be used: erosion control blankets, hydro seeding, terracing, vegetated buffers, topsoil stockpiles, etc. The tracked linear windrows promote topsoil stabilization because of compaction and reduced slope percent. The windrows are also seeded and hydro-mulched with hydraulic erosion control mulch.
- To control drainage, local factors will be evaluated to determine what BMPs are suitable and practical at the time of construction. BMPs will be employed in different combinations during construction activities and phases as conditions warrant. The following BMPs may be used: toe berm, level spreader, run-on protection, etc.
- For sediment control, local factors will be evaluated to determine what BMPs are suitable and practical at the time of construction. BMPs will be employed in different combinations during construction activities and phases as conditions warrant. The following BMPs may be used: stabilized construction entrance, sediment reservoirs, sediment traps, detention pond, slash, wattle, etc.

### Plans for Reclamation of the Surface:

- Production (Interim/Final Reclamation): The BLM will be contacted prior to commencement of any reclamation operations.
  - Immediately upon well completion, the well location and surrounding areas(s) will be cleared of all debris, materials, trash and junk not required for production.
  - Upon completion of the initial well on the pad, Encana will evaluate the economics of the area. There is a possibility of three different scenarios.
    - Assuming the area proves to be economic, Encana may return to drill the remaining wells that are planned for this location. Interim reclamation will be applied within six months of the completion of the well, weather permitting.
    - If the area is not economic enough at this time to warrant drilling the remaining wells within a reasonable timeframe (one year) then interim reclamation will be applied to the first well within the one year.
    - If the wells are not economic at all the wells may be plugged-final reclamation standards will be applied to the pad.
    - The well pad will be reclaimed except the working area which is usually 100 feet off wellheads and 10-15 feet around production equipment. Phase I pad size will have a total disturbance of 6.90 acres. After interim reclamation the proposed pad will be approximately 1.30 acres.
  - Waste and spoil materials will be disposed of immediately upon completion of drilling and work-over activities.

- The portion of the location and access road not needed for production facility/operations will be reclaimed within six months from the date of well completion, weather permitting.
- If the well is a producer, Encana will upgrade and maintain access roads as necessary to prevent soil erosion, and accommodate year round traffic. Areas unnecessary to operations will have areas reshaped. Topsoil will be redistributed and disked. All areas outside the work area will be re-seeded according to the BLM recommendations for seed mixture.
- All cuttings areas and detention ponds will be closed as soon as possible. If netting has been installed it will remain in place until deemed appropriate to remove in order to protect migratory waterfowl.
- A stormwater permit for the Calamity Ridge Area has been received from the Colorado Department of Public Health and Environment, Water Quality Control Division.
- Methods of stabilization: Local factors will be evaluated to determine what BMPs are suitable and practical at the time of construction. BMPs will be employed in different combinations during construction activities and phases as conditions warrant. The following BMPs may be used: revegetation, rip rap, diversion ditch, etc.
- Control drainage: Local factors will be evaluated to determine what BMPs are suitable and practical at the time of construction. Best Management Practices will be employed in different combinations during construction activities and phases as conditions warrant. The following BMPs may be used: culverts, Run on protection berm, diversion ditch, etc.
- Sediment control: Local factors will be evaluated to determine what BMPs are suitable and practical at the time of construction. BMPs will be employed in different combinations during construction activities and phases as conditions warrant. The following BMPs may be used: Run on Protection, detention pond, diversion ditch, etc.
- During interim and final reclamation of the site, fill material will be pushed into cuts and up over the back slope. Allowance to construct sediment traps/reservoirs to maintain compliance with the state. Topsoil will be distributed evenly over the location and seeded according to the recommended seed mixture. The access road and location shall be ripped or disked prior to seeding. Perennial vegetation must be established. Additional work shall be required in case of seeding failures, etc.
- For interim and final reclamation topsoil will be redistributed and disked. All areas outside the work area will be re-seeded according to the Bureau of Land Management recommendation for seed mixture. Upon completion of backfilling, leveling and recontouring, the stockpiled topsoil will be evenly spread over the reclaimed area(s). Segregation of topsoil material and replacement of topsoil in its respective position (last out, first in) method will assist in the re-establishment of soil health and productivity. Topsoil will also be placed on its respective slopes (i.e., oakbrush shrub soil and pinyon juniper woodland soil will not be mixed). Prior to reseeded, all disturbed surfaces will be scarified and left with a rough surface. All disturbed surfaces will be re-seeded according to the Bureau of Land Management recommendation for seed mixture.

- Slash/brush will be pushed to the terminal edge of disturbance along probable discharge edges as vegetation sediment control and during the life span of the site and kept in place to cold compost for final reclamation
- There will be no additional fill required.
- The fill will be separated mechanically and placed in one to two foot lifts using a dozer and blade.
- At final reclamation all storm water management BMPs for drainage, sediment and erosion will be removed because the only remaining potential pollution source via stormwater will be runoff sediment. All sediment will be managed through revegetation practices (seeding on contour, crimping straw on contour and/or erosion control hydro-mulch, pocking and topsoil distribution. Perimeter wattles will remain until vegetation establishment meets minimum requirements.
- In general, materials will be moved and returned according to a last out first in philosophy. No excessive rock was identified at the on-site. After reclamation an area of  $\pm 1.30$  acres will remain for Phase I and for Phase II an area of  $\pm 2.00$  will be unreclaimed for the life of the wellpad.
- Weed Control: A Weed Control Plan is on file at the operator's field office and is available for review upon request.

Dry Hole/Abandoned Locations:

- On lands administered by the BLM, abandoned well sites, roads or other disturbed areas will be restored to near their original condition. This procedure will include:
  - Re-establishing irrigation systems where applicable,
  - Re-establishing soil conditions in irrigated field in such a way as to ensure cultivation and harvesting of crops and,
  - Ensuring revegetation of the disturbed areas to the specification of the BLM at the time of abandonment.
  - Monitoring the site annually for List A and List B noxious weeds and utilizing weed control methods, as deemed necessary under an objective-based management approach, in accordance with an approved PUP.
- All disturbed surfaces will be recontoured to the approximate natural contours and re-seeded according to BLM specifications. Reclamation of the well pad and access road will be performed as soon as practical after final abandonment and reseeded operations will be performed in the fall or spring following completion of reclamation operations.
- If the well is abandoned or a dry hole, Encana will restore the access road and location to approximately the original contours. During reclamation of the site, fill material will be pushed into cuts and up over the back-slope. Allowance to construct sediment traps/reservoirs to maintain compliance with the state. In Dry-land Revegetation allowance to pock sites to create micro-catchments for water containment for seed establishment. Topsoil will be distributed evenly over the location and seeded according to the recommended seed mixture. The access road and location shall be ripped or disked prior to seeding. Perennial vegetation must be established. Additional work shall be required in case of seeding failures, etc.

#### Prevention and Detection of Noxious Weeds:

- If noxious weeds are found, they shall be treated (if timing is appropriate) or removed (if plants have formed seeds), prior to ground-disturbing activities, to limit weed seed production and dispersal. If the treatment timing is not appropriate for the weed species, ground-disturbing activities may proceed.
- All disturbed surfaces shall be promptly revegetated with certified weed-free seed per agency policy. Encana will use the prescribed BLM seed mix for reclamation. Exceptions to the seed mix may be granted under certain conditions, such as the use of non-invasive, non-native forbs when native forbs are unavailable or unlikely to succeed due to adverse conditions. Also, nonnative, non-persistent sterile grasses may be used to provide ground cover for soil stabilization and weed suppression during temporary reclamation.
- Topsoil stockpiles shall be promptly re-vegetated to maintain soil microbe health and prevent weeds. Native or non-native, non-persistent sterile grasses may be used to seed stockpiles
- Straw, hay, or other mulch used in reclamation shall be certified weed-free.

#### Inventory and Mapping of Noxious Weeds:

- Encana will comply with any documented GIS mapping requirements.
- When noxious weeds are identified, all known information will be communicated to Encana's Weed Program Manager.
- If the infestation is a candidate for treatment at that time, the Weed Program Manager will notify a Commercial Pesticide Applicator to treat the area.
  - If the infestation is not a candidate for treatment at that time (due to timing or other field restraints), the information will be retained for future reference.
  - Follow-up and direction on treating this infestation will be addressed in the annual on-boarding meeting that takes place the following year.
  - The site will be evaluated by the Commercial Pesticide Applicator for infestations (along with all other active locations) in early spring during bare ground treatments.
- Following treatment, the Commercial Pesticide Applicator will submit Pesticide Application Records (PARs) to Encana.
- All PAR data will be stored in Encana's internal tracking system.
- The PARs from the previous year will be used as an inventory that Encana and Commercial Pesticide Applicators will reference when directing weed spraying activities the following year.
- All active locations will be visited and assessed for weeds in early spring when bare ground applications are conducted. Any locations that have been treated for noxious weeds are additionally visited and treated at the best time for the target species. This will continue until the site is confirmed to be weed free.

#### Weed Control:

- The operator shall implement the best available weed control technique(s) at the appropriate times based on the life history of the weed species.
- A Pesticide Use Proposal (PUP) shall be approved by the BLM prior to use of herbicides on BLM lands.
- Only adjuvants and herbicides approved by the BLM shall be applied to BLM lands.

- A Pesticide Application Record (PAR) shall be filled out each time pesticides are applied to BLM. The operator shall maintain these records for a minimum of three years.
- All List A species and those List B species designated in Appendix A shall be reported to the appropriate County, BLM, and FS Weed Manager.
- Herbicide use shall follow application rates, restrictions and warnings listed on the label.
- In situations where noxious weeds have escaped from the project area into adjacent sites, the infested areas shall be treated to prevent further expansion into un-infested areas and re-infestation of the treated area.
- The operator shall use Commercial Pesticide Applicators licensed, for hire, by the Colorado Department of Agriculture.

Visual Resource Management Class II Plans:

- This wellpad is proposed to be located within a Visual Resource Management (VRM) Class II area. This was defined in the White River Record of Decision and Approved Resource Management Plan, July 1997. According to BLM Handbook H-8431-1-Visual Resource Contrast Rating, “The objective of VRM Class II 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 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 characteristics landscape.” The proposal associated with this wellpad will be evaluated for consistency with VRM classification objectives. Projects that would noticeably change the characteristic of the more sensitive landscapes would be modified to blend in with that landscape, denied, or moved to another more suitable location. The areas of primary concern and focus will be the areas having sensitive landscapes such as VRM Class II areas.
- Encana’s plan is to start with a smaller layout shown on attachments Phase I Construction Drawings. This phase will include drilling of one vertical and one horizontal well. Should the economics prove in Encana’s favor, Encana will expand the pad to Phase II dimensions for the drilling of up to eight additional wells.
  - Encana anticipates temporary tanks (four - 400 barrel, 20 feet tall and 12 feet in diameter) to be on location for up to 18 months after completion of both wells. After Phase I it will be determined if Encana will pursue drilling of additional wells.
  - Encana will add berm to the Northwest side of the well pad to minimize the view from RBC 103. The berm for Phase I and Phase II will be approximately 21 feet tall and 100 feet or greater in width at the base (above the finished pad grade using excess excavation and topsoil materials at location. No materials will be brought in from other locations) (see Figures 3, 4, 5, and 6 below).
  - All above-ground facilities for this location will be painted and maintained Juniper Green using the BLM Standard Environmental Color Chart CC-001: June 2008. The facilities will be low profile and approximately 15 feet tall.
  - Tanks located in the NE corner for Phase I for the vertical well test will consist of four 400 barrel (20 feet tall and 12 feet in diameter) tanks. If Encana is unable to find 400 barrel low profile tanks due to availability the tanks will consist of 330 barrel tanks (10 feet tall and 15 ½ feet in diameter). Four tanks in total, two for

water, two for condensate, Phase II, will consist of 10 tanks low profile tanks, five for water, five for condensate.

- If applicable, Encana will coordinate with the livestock grazing permittee (Tuffy Sheridan) authorized to graze livestock within the project area a minimum of 72 hours prior to construction activities associated with this permit. Livestock grazing permittee contact information may be found at [www.blm.gov/ras/](http://www.blm.gov/ras/) or by contacting the WRFO Range staff (970-878-3800). The operator will provide the grazing permittee the location, nature, and extent of the anticipated activity being completed.
- Any range improvement projects such as fences, water developments, cattleguards, gates, or other livestock handling/distribution facilities that are damaged or destroyed either directly or indirectly as a result of implementation of the Proposed Action shall be promptly (at least prior to the livestock grazing permittee's need to utilize the range improvement) be repaired or replaced by the operator to restore it to at least its predisturbance functionality. If the operator damages any range improvement project(s) the operator will notify the Authorized Officer through sundry notice (Form 3160-5) and identify the actions taken to repair the feature(s).

#### Operations:

- Through all phases of oil and gas exploration, development, and production, all lessees and/or operators and holders of rights-of-way shall employ, maintain, and periodically update to the best available technology(s) aimed at reducing: 1) emissions, 2) fresh water use, and 3) utilization, production, and release of hazardous material.
- All lessees and/or operators and right-of-way holders shall comply with all Federal, state and/or local laws, rules, and regulations, including but not limited to onshore orders and notices to lessees, addressing the emission of and/or the handling, use, and release of any substance that poses a risk of harm to human health or the environment.
- All substances that pose a risk of harm to human health or the environment shall be stored in appropriate containers. Fluids that pose a risk of harm to human health or the environment, including but not limited to produced water, shall be stored in appropriate containers and in secondary containment systems at 110 percent of the largest vessel's capacity. Secondary fluid containment systems, including but not limited to tank batteries shall be lined with a minimum 24 mil impermeable liner.
- As a reasonable and prudent lessee/operator in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will report all emissions or releases that may pose a risk of harm to human health or the environment, regardless of a substance's status as exempt or nonexempt and regardless of fault, to the BLM WRFO (970) 878-3800.
- As a reasonable and prudent lessee/operator and/or right-of-way holder in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will provide for the clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or nonexempt.
- Monitoring for, and control/eradication of noxious and invasive weeds associated with the pad, access roads, and pipelines should occur throughout the life of the projects including through final reclamation and abandonment. Pesticide Application Reports must be submitted to the BLM where weed treatments extend onto BLM lands. As part of

the required annual submittal, the Reclamation Status Report will be submitted electronically via email and as a hardcopy to WRFO Reclamation Coordinator.

**No Action Alternative:** The Proposed Encana O15 1100 wellpad would not be constructed, the proposed access road to the O15 1100 would not be constructed, the natural gas wells would not be drilled, and the gas would not be produced from the lease.

**ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD:**

A reroute of RBC 103 was discussed at the onsite. The proposed reroute was approximately 2,180 feet long. With a 50 foot disturbance width, new disturbance for the road reroute was estimated to be approximately 2.50 acres. In moving RBC 103, the existing portion of RBC 103 adjacent to the proposed reroute would have been reclaimed. This alternative was not carried forward because it was determined that the visual resource management character of the land could be maintained with placement of a berm (see Figures 3, 4, 5, and 6) as described above under “Resource Management Class II Plans” and that the additional disturbance created by rerouting the road was unneeded (see Figure 1).

**PLAN CONFORMANCE REVIEW:** The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM Manual 1601.08):

Name of Plan: White River Record of Decision and Approved Resource Management Plan (White River ROD/RMP).

Date Approved: July 1, 1997

Decision Number/Page: Page 2-5

Decision Language: “Make Federal oil and gas resources available for leasing and development in a manner that provides reasonable protection for other resource values.”

**AFFECTED ENVIRONMENT & ENVIRONMENTAL CONSEQUENCES**

**Standards for Public Land Health:** In January 1997, the Colorado BLM approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, special status 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, a finding must be made for each of them in an environmental analysis (EA). These findings are located in specific elements listed below.

**Cumulative Effects Analysis Assumptions:** Cumulative effects are defined in the Council on Environmental Quality (CEQ) regulations (40 CFR 1508.7) as “...the impact on the environment that results from the incremental impact of the action when added to other past, present, and reasonably foreseeable actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions.” Table 2 lists the past, present, and reasonably foreseeable future

actions within the area that might be affected by the Proposed Action; for this project the area considered was the Natural Resources Conservation Service (NRCS) 5<sup>th</sup> Level Watershed. However, the geographic scope used for analysis may vary for each cumulative effects issue and is described in the Affected Environment section for each resource.

**Table 2. Past, Present, and Reasonably Foreseeable Actions**

| Action Description  | STATUS |         |        |
|---|--------|---------|--------|
|   | Past   | Present | Future |
| Livestock Grazing   | X      | X       | X      |
| Wild Horse Gathers  | X      | X       | X      |
| Recreation  | X      | X       | X      |
| Invasive Weed Inventory and Treatments  | X      | X       | X      |
| Range Improvement Projects :  | X      | X       | X      |
| Water Developments  |        |         |        |
| Fences & Cattleguards   |        |         |        |
| Wildfire and Emergency Stabilization and Rehabilitation                                     | X      | X       | X      |
| Wind Energy Met Towers  |        |         | X      |
| Oil and Gas Development: Well Pads<br>Access Roads<br>Pipelines<br>Gas Plants<br>Facilities | X      | X       | X      |
| Power Lines   | X      | X       | X      |
| Oil Shale   | X      | X       | X      |
| Seismic   | X      | X       | X      |
| Vegetation Treatments   | X      | X       | X      |

**Affected Resources:**

The CEQ Regulations state that NEPA documents “must concentrate on the issues that are truly significant to the action in question, rather than amassing needless detail” (40 CFR 1500.1(b)). While many issues may arise during scoping, not all of the issues raised warrant analysis in an environmental assessment (EA). Issues will be analyzed if: 1) an analysis of the issue is necessary to make a reasoned choice between alternatives, or 2) if the issue is associated with a significant direct, indirect, or cumulative impact, or where analysis is necessary to determine the significance of the impacts. Table 3 lists the resources considered and the determination as to whether they require additional analysis.

**Table 3. Resources and Determination of Need for Further Analysis**

| Determination <sup>1</sup> | Resource             | Rationale for Determination  |
|----------------------------|----------------------|--|
| <b>Physical Resources</b>  |                      |  |
| PI                         | Air Quality          | See discussion below.  |
| PI                         | Geology and Minerals | The Proposed Action would develop the underlying oil and gas resources. See additional discussion below. |

| Determination <sup>1</sup>  | Resource                          | Rationale for Determination   |
|-----------------------------|-----------------------------------|---|
| PI                          | Soil Resources*                   | See discussion below.   |
| PI                          | Surface and Ground Water Quality* | See discussion below.   |
| <b>Biological Resources</b> |                                   |   |
| NI                          | Wetlands and Riparian Zones*      | The proposed well pad location and transit route on RBC 103 do not intersect with any flood plains, riparian, or wetland systems. Since the project area lies on Calamity Ridge, any small increase in erosion or sedimentation caused by the project's development would be unlikely to have a measurable impact on its nearest substantive riparian area, approx. 470 meters away, which is an ephemeral tributary to Big Duck Creek in Section 9, Township 1 South, Range 98 West. The Public Land Health Standards for wetland or riparian systems are not applicable to this action, since neither the Proposed Action nor the No-Action Alternative would have any influence on these.  |
| PI                          | Vegetation*                       | See discussion below.   |
| PI                          | Invasive, Non-native Species      | See discussion below.   |
| PI                          | Special Status Animal Species*    | See discussion below.   |
| NI                          | Special Status Plant Species*     | Botanical surveys were conducted by WestWater Engineering for the proposed well pad in May 2014 and for RBC 103 in June 2014. No threatened or endangered plants were observed within 600 meters and no BLM sensitive species were observed within 100 meters of the Proposed Action. The BLM sensitive species Piceance bladderpod ( <i>Lesquerella parviflora</i> ) was observed approximately 230 meters from RBC 103, in Section 30, Township 1 North, Range 100 West, where road upgrades and maintenance involving application of magnesium chloride may occur. Due to the distance of the plant populations from proposed road construction and maintenance activities, it is unlikely that there will be any direct impact to special status plants.                    |
| PI                          | Migratory Birds                   | See discussion below.   |
| NI                          | Aquatic Wildlife*                 | The nearest higher order (i.e., vertebrate) aquatic communities are located in Yellow Creek. Aquatic conditions potentially suited for occupation by amphibians, including the BLM-sensitive northern leopard frog, appear about 19 valley miles downstream of the proposed well pad. The nearest fishery, which supports BLM-sensitive mountain suckers and flannelmouth suckers (Yellow Creek below Barcus Creek), is located about 16 valley miles below the well pad in Section 26, Township 2N, Range 98 West. Imposed stormwater control measures, committed and imposed reclamation practices, and the lengthy separation of proposed project work from these habitats reduces the risk of indirect sediment or contaminant-related influences to negligible proportion. |
| PI                          | Terrestrial Wildlife*             | See discussion below  |
| NP                          | Wild Horses                       | The proposed project is not located within the Piceance-East Douglas Herd Management Area (HMA) or either of the Herd Areas (North  |

| Determination <sup>1</sup>                          | Resource                                 | Rationale for Determination   |
|---|--|---|
|   |  | Piceance [NPHA] or West Douglas) therefore there are no impacts to wild horses. However, the project is located adjacent to the HMA and NPHA so wild horses have known to relocate outside of the HMA or NPHA into the area. Wild horse gathers have taken place to the north and east to gather those wild horses that have relocated outside of the HMA and mostly likely will continue until no wild horses are known to be located in the area. |
| <b>Heritage Resources and the Human Environment</b> |  |   |
| PI  | Cultural Resources                       | No resources have been identified on the surface however there is a potential for previously undetected subsurface remains  |
| PI  | Paleontological Resources                | There is a potential for impacts to paleontological resources   |
| NP  | Native American Religious Concerns       | No Native American religious concerns are known in the area, and none have been noted by Northern Ute Tribal authorities. Should recommended inventories or future consultations with Tribal authorities reveal the existence of such sensitive properties, appropriate mitigation and/or protection measures may be undertaken.  |
| PI  | Visual Resources                         | There is a potential for the Proposed Action to impact visual resources. This area has a Visual Resource Management Class II objective to retain the existing character of the landscape.   |
| PI  | Hazardous or Solid Wastes                | The Proposed Action may require the use of Hazardous or Solid Wastes. If the methods proposed to contain those wastes fails, there is potential for affects to the environment.   |
| PI  | Fire Management                          | See discussion below.   |
| NI  | Social and Economic Conditions           | There would not be any substantial changes to local social or economic conditions.  |
| NP  | Environmental Justice                    | According to the most recent Census Bureau statistics (2010), there are no minority or low income populations within the WRFO.  |
| NP  | Lands with Wilderness Characteristics    | There are no lands with wilderness characteristics identified near the Proposed Action.   |
| <b>Resource Uses</b>                                |  |   |
| NP  | Forest Management                        | There are no forested areas within the vicinity of the Proposed Action.   |
| PI  | Rangeland Management                     | See discussion below.   |
| PI  | Floodplains, Hydrology, and Water Rights | See discussion below.   |
| NI  | Realty Authorizations                    | Existing rights-of-way include COC67104, for re-routed segments of RBC 103, and COC69322, for a pipeline authorized to Encana. The Proposed Action is on-unit, therefore no rights-of-way are necessary.  |
| PI  | Recreation                               | There is potential impact to recreational opportunities and experiences in the area of the Proposed Action.   |
| PI  | Access and Transportation                | There is an impact to the existing transportation system as a result of the Proposed Action.  |
| NP  | Prime and Unique Farmlands               | There are no Prime and Unique Farmlands within the project area.  |
| <b>Special Designations</b>                         |  |   |

| Determination <sup>1</sup> | Resource                                | Rationale for Determination  |
|----------------------------|---|--|
| NP                         | Areas of Critical Environmental Concern | No ACECs occur within the project vicinity.  |
| NP                         | Wilderness                              | There are no designated Wilderness areas or Wilderness Study Areas located near the Proposed Action. |
| NP                         | Wild and Scenic Rivers                  | There are no Wild and Scenic Rivers in the WRFO.   |
| NP                         | Scenic Byways                           | There are no Scenic Byways within the project area.  |

<sup>1</sup> NP = Not present in the area impacted by the Proposed Action or Alternatives. NI = Present, but not affected to a degree that detailed analysis is required. PI = Present with potential for impact analyzed in detail in the EA.

\* Public Land Health Standard

## AIR QUALITY

**Affected Environment:** The Proposed Action is located within the White River Basin which is an attainment area for national and state air quality standards. The attainment designation means that no violations of ambient air quality standards have been documented in the area (Environmental Protection Agency (EPA) 2013). The Proposed Action is located more than 10-miles from any non-attainment or special designation airshed. Non-attainment areas are designated by the EPA as having air pollution levels that persistently exceed the National Ambient Air Quality Standards (NAAQS). The closest non-attainment areas are along the Front Range corridor in Colorado and are in non-attainment for ozone. The closest special designation area is Dinosaur National Monument located north of the project area (designated Class II airshed with Prevention of Significant Deterioration (PSD) with thresholds for sulfur oxides).

Projects that could impact special designation areas and/or non-attainment areas may require special consideration from the Colorado Department of Public Health and Environment (CDPHE) and the EPA. General conformity regulations require that Federal activities do not cause or contribute to a new violation of NAAQS, that actions do not cause additional or worsen existing violations of the NAAQS, and that attainment of these standards is not delayed by Federal actions in non-attainment areas.

The Clean Air Act (CAA) requires the EPA to set NAAQS (40 CFR 50) for criteria pollutants. Criteria pollutants are air contaminants that are commonly emitted from a majority of emissions sources and include carbon monoxide (CO), lead (Pb), sulfur dioxide (SO<sub>2</sub>), particulate matter smaller than 10 and 2.5 microns (PM<sub>10</sub> and PM<sub>2.5</sub>), ozone (O<sub>3</sub>), and nitrogen dioxide (NO<sub>2</sub>). The EPA regularly reviews the NAAQS (every five years) to ensure that the latest science on health effects, risk assessment, and observable data such as incidence rates are evaluated. The Colorado Air Pollution Control Commission (CAPCC), by means of an approved State Implementation Plan (SIP) and/or delegation by the EPA, can establish state ambient air quality standards for any criteria pollutant that are at least as stringent as, or more so, than the Federal standards. Ambient air quality standards must not exceed Colorado Ambient Air Quality Standards (CAAQS) or NAAQS in areas where the general public has access.

The Proposed Action is in Rio Blanco County within the Western Counties Monitoring Region of Colorado (APCD 2010). Local air quality parameters including particulates and ozone are measured at monitoring sites located at Meeker, Rangely, and Dinosaur and near the Flat Tops Wilderness Area. Ozone data have been collected at Federal reference air quality sites supported by the BLM since 2010 and located outside Meeker and Rangely.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action is to drill two wells and potentially produce hydrocarbons from a Federal mineral lease accessed from private lands. The Proposed Action would result in short-term impacts on air quality near the drilling pad including the emissions of criteria pollutants, hazardous air pollutants (HAPs), and greenhouse gases (GHGs). Air quality would be impacted by engine exhaust from vehicles and any stationary fuel combustion sources during drilling and completion activities. Increases in the following criteria pollutants would occur due to combustion of fossil fuels: carbon monoxide, nitrogen dioxide, sulfur dioxide, and ozone (a secondary pollutant formed photochemically from volatile organic compounds (VOCs) and nitrogen oxides (NO<sub>x</sub>)). Emissions of particulate matter would be generated from construction, drilling and during the production phases.

Particulate matter or dust is made up of a number of components, including acidic aerosols (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores). Dust production is most likely during construction and drilling activities, especially when conditions are dry and/or windy. Fine particles (less than 2.5 µm) are efficient in scattering and absorbing light and are the major contributor to visibility problems. The effects of particulates include visibility degradation, climate change, vegetation damage and human health impacts. The chemical composition of PM<sub>2.5</sub> consists of five major components: sulfate, nitrate, organic carbon, elemental carbon (also called black carbon), and crustal (rock and soil) material.

The EPA's NAAQS uses NO<sub>2</sub> as an indicator of NO<sub>x</sub> which are generated by the combustion of fossil fuels and therefore will be emitted during drilling, completion and hydraulic fracturing operations, from transportation vehicles during rig moves, maintenance and during production, and from compressors used to manage natural gas pressures for drilling and production operations for the wells. Nitrogen dioxide forms quickly from cars, trucks and buses, power plants, and off-road equipment emissions. The main effect of NO<sub>2</sub> is that it inflames the lining of the lungs and increases the likelihood of respiratory problems such as wheezing, coughing, colds, flu and bronchitis. People with asthma or heart disease are most at risk.

Ozone advisories and alerts were issued in the winter of 2011 and 2013 for Rio Blanco County based on data collected from the Rangely monitoring site south of this location. Ozone can cause breathing difficulties and worsen respiratory infections especially in the elderly, the young, and those with pre-existing ailments such as asthma. Ozone also affects vegetation and ecosystems, leading to reductions in agricultural crop and commercial forest yields, reduced growth and survivability of tree seedlings, and increased plant susceptibility to disease, pests, and other environmental stresses (e.g., harsh weather). Generation of ozone under stagnate air masses, with continuous snow cover or in regions with soils with a low albedo can increase dramatically. Ozone produced under stagnant air masses can be transported many miles.

Additional low, short-term impacts to air quality may occur due to venting or flaring of gas from the well, storage and treatment of cuttings, equipment leaks, and from tanks from wells from which disposal fluids will come from. Non-criteria pollutants (NAAQS have not been set for non-criteria pollutants), such as nitric oxide, air toxics (e.g., benzene), and total suspended particulates may experience slight, temporary increases as a result of the Proposed Action.

In summary, soil disturbance resulting from construction of pads and roads and drilling operations are expected to cause increased airborne fine particulate matter in the project area and may contribute to reductions in regional visibility. In addition, increases in the following criteria pollutants: carbon monoxide, VOCs, ozone, nitrogen dioxide, and sulfur dioxide would also occur due to combustion of fossil fuels during drilling and operational activities. Only PM<sub>2.5</sub> and NO<sub>2</sub> are expected to be close to Ambient Air Quality Standards and only near the drilling pads. Non-criteria pollutants such as carbon dioxide, methane and nitrous oxides, air toxics (e.g., benzene), total suspended particulates (TSP), and increased impacts to visibility and atmospheric deposition may also increase as a result of the Proposed Action.

Even with these increased pollutants the Proposed Action is unlikely to result in an exceedance of NAAQS or CAAQS, is not likely to be located in future non-attainment area, and it is likely to comply with applicable PSD increments and other significant impact thresholds.

Cumulative Effects: Air quality in Region 11 (Western Slope of Colorado) is affected by both mobile and stationary emitters of air pollutant (CAPCD 2013). Fugitive dust can come from natural sources that are not preventable, such as volcanic eruptions, large regional dust storms, and wildfires. Particulate matter levels of PM<sub>10</sub> and PM<sub>2.5</sub> are created from windblown dust and soil from fields, agricultural crops, agricultural livestock, paved road re-entrained dust, unpaved roads, construction activities, mining and quarrying, construction sites, automobile and diesel engine exhaust, waste burning, soot from wood fires, and sulfates and nitrates from combustion sources such as industrial boilers (CAPCD 2013). Emissions of particulate matter would be generated from construction, drilling, and during the production phase. The following criteria pollutants would be emitted during the combustion of fossil fuels during construction, drilling and operation: CO<sub>2</sub>, NO<sub>2</sub>, SO<sub>2</sub>, and ozone (a secondary pollutant formed photochemically from VOCs and NO<sub>x</sub>).

Downward trends in annual NO<sub>2</sub>, CO, and SO<sub>2</sub> have been measured at air quality monitoring sites in the region and are likely the result of national emissions control programs. For example, between 1990 and 2012, national emissions of NO<sub>x</sub> and VOC emissions have declined 56 percent and 35 percent, respectively (CAPCD 2013). Decreases in SO<sub>x</sub> emissions from diesel fuel and power plants coincides with in a decrease in SO<sub>2</sub> measured at Interagency Monitoring of Protected Visual Environments and other air quality monitoring programs. Even though concentrations of these pollutants are low and decreasing, EPA continues to track these pollutants because of their contribution to secondary air pollutants and issues (e.g., ozone, PM<sub>2.5</sub>, and visibility).

In general air quality within the region is good due to few emission sources, good dispersion characteristics and national trends showing a decrease in some air pollutants. However, some

emissions have caused localized or regional level increases in pollution monitoring values such as ozone and PM<sub>2.5</sub> within the past ten years. This has led to an increase in air quality monitoring in the region including the BLM supported Federal reference air quality monitoring sites in Rangely and Meeker.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: No increase in impacts to air quality would occur from the No Action Alternative.

Cumulative Effects: Impacts for the Western Slope of Colorado would be similar to those described for the action alternative.

*Mitigation:*

1. The operator will limit unnecessary emissions from point or nonpoint pollution sources and prevent air quality deterioration from necessary pollution sources in accordance with all applicable state, Federal, and local air quality law and regulations.

## **GEOLOGY AND MINERALS**

*Affected Environment:* Surficial geology of the wellpad is the Uinta Unit 2 of the Green River Formation (Donnell). During drilling potential water, oil shale, oil, and gas resources would be encountered from surface to the targeted zone. Fresh water aquifer zones that could be encountered during drilling are: the Perched in the Uinta, and the zones above (A-Groove) and below (B-Groove) the Mahogany zone in the Parachute Creek member of the Green River formation. These Parachute Creek aquifer zones along with upper portion of the Wasatch are known for difficulties in drilling and cementing. The pad is located on Federal lands and the bottom hole location of DHS3B-27O151100 well is located on split estate where all minerals, including oil shale, from the surface to 200 feet below the Orange Marker Bed of the Green River Formation are fee minerals and the minerals located below this zone are Federal minerals. Targeted oil and gas formations are several thousand feet stratigraphically below the oil shale bearing formation. The wellpad is designed to accommodate an additional eight wells. Pad O15-1100 is located in Encana's Cathedral Bluffs Federal Oil and Gas Exploratory Units, COC76070X. The two proposed wells would recover oil and gas resources from Federal Oil and Gas Leases COC56052, COC56221, and COC67056 committed to the units. Colorado Oil and Gas Conservation Commission (COGCC) database identifies the two producing oil and gas wells approximately two miles east and south of bottomhole location DHS3B-27O151100. No other producing oil and gas wells are within two miles (approximately 13,000 acres) of either bottomhole location. This area is not identified as being available for oil shale, sodium or coal leasing in the White River ROD/RMP. The closest private oil shale project on fee lands is approximately three quarters of a mile south of the two mile bottomhole radii and no longer active. The unit agreement and the oil and gas leases affected by the Proposed Action that are split estate (COC56052 and COC56221) contain lease stipulations that protect the private oil shale estate.

*Environmental Consequences of the Proposed Action:*

**Direct and Indirect Effects:** The proposed cementing procedure for the wells isolates the geologic formations and would prevent the migration of water, gas, and oil between formations. Development of the wells will deplete the oil and gas mineral resources in the targeted formation. Since the well pad is located outside the area available for oil shale, sodium, or coal leasing there would be no potential impacts to the development of these minerals.

**Cumulative Effects:** An additional 40 to 315 wells could be required for full development of oil and gas resources within the two mile radii of the bottomhole location. The number of wells would depend on the ability of the well bore drainage area which could range from greater than 200 acres to 40 acres or less. The well bore drainage acreage is controlled by the geologic and drainage characteristics of the targeted zone and on well design configuration (e.g., horizontal, vertical, or directional). Since the oil shale is several thousand feet above the targeted oil and gas zones it is unlikely the actual recovery of the oil and gas resources would affect the oil shale resource. As mentioned above, the unit and lease stipulations protecting the private oil shale estate would help prevent conflicts between oil and gas development and the potential development of private oil shale.

*Environmental Consequences of the No Action Alternative:*

**Direct and Indirect Effects:** The oil and gas resources of the targeted zones would not be developed and would remain available for future development.

**Cumulative Effects:** There would be no contribution to the recovery of oil and gas resources.

*Mitigation:* None

**SOIL RESOURCES**

**Affected Environment:** The Proposed Action would directly affect approximately 9.70 acres for the pad and access road. The BLM reviews the soil classifications within 30 meters of the edge of the proposed pad and centerline of the access road that could be indirectly impacted by the Proposed Action. These are shown in Table 4.

**Table 4. Soil Classifications within 30 Meters of the Pad and the Centerline of Road (NRCS, 2008)**

| Soil Classification                               | Surface Texture | Erosion Hazard | Rutting Hazard | Potentially Impacted (Acres) |
|---|-----------------|----------------|----------------|------------------------------|
| Starman-Vandamore complex, 5 to 40 percent slopes | Channery loam   | Moderate       | Moderate       | 11                           |
| Irigul channery loam, 5 to 50 percent slopes      | Channery loam   | Severe         | Severe         | 7                            |

The Proposed Action based on this data layer will be located within two soil classification groups. The Starman-Vandam Ore Complex (60 percent) is moderate for both erosion hazard and

rutting hazard, and the Irigul Channery Loam (40 percent) is severe for both erosion hazard and rutting hazard.

Of the 18 acres analyzed, no surface disturbance would occur on soils with landslide potential.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: Direct impacts from the construction of the wellpad and access road installation would include soil compaction, removal of vegetation, exposure of subsoil, mixing of soil horizons, loss of topsoil productivity, and an increase in the susceptibility of soils to wind and water erosion. Compaction due to construction activities would reduce aeration, permeability and water-holding capacities of soils in some locations. Removal of vegetation exposes soils to erosion from rainfall, wind and surface runoff. Exposure of subsoil and mixing of soil horizons can change the physical characteristics of subsoil and may reduce the productivity of these soils before reclamation is complete. Loss of topsoil productivity can occur during soil storage due to nutrient loss through percolation of precipitation through the soils, physical loss and mixing of less productive soil layers during moving and a loss of structure. An increase in surface runoff and sedimentation could be expected from impacted soils and these soils are likely to be less resilient to erosion from surface runoff after disturbance.

Because both soil types have rutting hazard, an adequate number of properly located culverts should be part of the proposal. The SUP does include the upgrading and graveling of roads if the well goes into production. Unstable road surfaces and road surfaces not adequate for all-weather conditions, can rut and rapidly lose drainage features causing erosion and instability. With proper BMPs for stormwater, engineered access roads, construction, reclamation and mitigation, impacts to soils outside the 30 meter buffer around surface disturbance are not expected.

The Proposed Action could result in increased indirect impacts to soils off the construction sites such as increased runoff and erosion. Implementation of BMPs for stormwater and reclamation will reduce impacts from this project and should limit impacts to construction sites. However, there is still the potential for intense storm events or BMP failures resulting in erosion off site. Location Layout diagrams show retention ponds on corners and placement of culverts along with check drains. This type of erosion would be addressed by mitigation to require a plan to address problems if they develop.

Indirect impacts from this project could result in contamination of surface and subsurface soils due to unintentional leaks or spills from equipment and if these spills occurred they would affect the productivity of soils. Impacted soils would typically be removed or remediated on site and therefore loss of soil productivity would be temporary, maybe 3-5 years.

Cumulative Effects: The wellpad and road are within a perennial tributary to the White River named Yellow Creek. The drainage into Yellow Creek is from an ephemeral tributary and perennial tributary named Big Duck.

Oil and gas development in this area is exploratory and therefore is likely to have at most 1-3 single well pads per section in isolated areas. If the wells are successful they may go into production. Production wells include surface disturbance for wellpads, pipelines, roads and

support facilities. In addition to other oil and gas activity, dispersed recreation (hunting) will make use of the area with some of the adjacent roads. Livestock grazing occurs on public and private lands in the area and these activities may reduce canopy cover and lead to localized erosion in some reclamation areas.

In general, soil disturbance within 30 meters of the disturbance in the Proposed Action and other activities are likely to reduce soil productivity in the localized areas of disturbance, but are unlikely to impact overall soil productivity for the long term.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: No impacts to soils would occur.

Cumulative Effects: Impacts would be similar to those described for the action alternative.

*Mitigation:*

1. In order to protect public land health standards for soils, erosion features such as rilling, gullyng, piping and mass wasting on the surface disturbance or adjacent to the surface disturbance as a result of this action will be addressed immediately after observation by contacting the Authorized Officer (AO) and by submitting a plan to assure successful soil stabilization with BMPs to address erosion problems.
2. Two culverts must be installed along the proposed access road to move water off the road. Installation location and standards follow:
  - a) One culvert must be installed where the proposed access road meets the wellpad entrance.
  - b) The second culvert must be installed at the approximate halfway point between where the proposed access road leaves RBC 103 and the wellpad entrance.
  - c) Culverts must be:
    - i. Appropriately sized for the conditions
    - ii. Installed with appropriate riprap
    - iii. Meet and be installed and maintained in accordance with Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, "The Gold Book", Fourth Edition – Revised 2007.
    - iv. At final abandonment of the access road, the culverts and any materials associated with the culverts must be properly removed from BLM land.
3. If soils become saturated, resulting in three inches of rutting, the operator will cease activities.

*Finding on the Public Land Health Standard #1 for Upland Soils:* With mitigation, this action is unlikely to reduce the productivity of soils on public lands.

## SURFACE & GROUND WATER QUALITY

*Affected Environment: Surface Water:* The wellpad and access road are located in an ephemeral drainage which drains into the White River. Table 5 describes water segments that may be impacted by this project.

**Table 5.** Water Quality Classification Table Colorado's Impaired Waters and Monitoring and Evaluation (CWQCC 2013)

| Segment | Segment Name   | Use Protected | Protected Beneficial Uses |   |             |              |
|---------|--|---------------|---------------------------|---|-------------|--------------|
|         |  |               | Aquatic Life              | Recreation                                  | Agriculture | Water Supply |
| 12      | Mainstream of White River from Piceance Creek to Douglas Creek | No            | Warm 1                    | Potential Primary Contact<br>Recreation     | Yes         | Yes          |
| 13b     | Tributaries to Yellow Creek                                    | No            | Warm 2                    | Not Potential Primary Contact<br>Recreation | Yes         | No           |

Segment 12, the mainstream of White River from Piceance Creek to Douglas Creek, is protected for warm water aquatic life (Warm 1). Segment 13b, tributaries to Yellow Creek, is protected for warm water aquatic life (Warm 2). The Warm 1 designation means the classification standards would be protective of aquatic life normally found in waters where the summer weekly average temperatures frequently exceed 20 degrees Celcius. The Warm 2 designation means that it has been determined that these waters are not capable of sustaining a wide variety of warm water biota. Segment 12 is protected for existing recreation, water supply and agriculture. Segment 13b is protected for potential recreation and agriculture.

Segment 13b of the White River describes tributaries of the Yellow Creek which are protected for warm water aquatic life (Warm 2). The warm designation means the classification standards would be protective of aquatic life normally found in waters where the summer weekly average temperatures frequently exceeds 20 degrees Celcius. The Warm 2 designation means that it has been determined that these waters are not capable of sustaining a wide variety of warm water biota. This segment also has standards that are protective of agriculture, but not primary contact recreation or water supply.

Duck Creek, which is a tributary to Yellow creek, is on the 303d CWQCC 2012 list for aquatic life (COLCWH13b).

Groundwater: Precipitation in this area generally moves from areas of recharge to surface waters via alluvial aquifers and on the surface during spring melt and rain storms. A portion of annual precipitation infiltrates to deeper bedrock aquifers that contribute to contact springs. Springs and groundwater inputs generally occur in both bedrock and alluvial aquifers along valley bottoms. Perched groundwater zones occur locally when saturated zones contact differences in permeability and solubility of individual formations. These contact zones can occur in the ridges between surface water drainages and may be manifested as springs and seeps above the valley floor in outcrop areas.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: Surface Waters: Clearing, grading, and soil stockpiling activities associated with the Proposed Action could alter overland flow and natural infiltration patterns. The location layout diagrams (part of the APD) show retention ponds on corners with ditches for flows between pad stockpiles. Potential direct impacts include surface soil compaction caused by construction equipment and vehicles, removal of vegetation and disturbance of surface soils, which would increase rain-splash erosion and reduce the soil's ability to absorb water and increase the volume and rate of surface runoff, which in turn would increase surface erosion.

The soil analysis indicated the potential for severe rutting on the access road, therefore good road maintenance for drainage features and surfacing the road and mitigation in the soils section of this document further reduce impacts. Typical road maintenance includes restoring the travel surface shape, road surfacing to maintaining an effective all-weather surface during drilling. This should reduce the risk of increased sedimentation to surface waters.

Surface runoff associated with storm events may increase sediment loads in surface waters down gradient of disturbed areas. Sediment can be deposited and stored in minor drainages where it would be moved into Duck Creek and Yellow Creek during heavy convective storms. Surface erosion for this project is most likely during the construction and early production phases of the project and would be mitigated using BMPs for stormwater.

Groundwaters: As described in the Affected Environment, groundwater and the baseflow it provides to perennial surface waters is critical to maintaining the function of surface water systems. The proposed casing and cementing program for each of the wells has been designed to protect and/or isolate all usable water zones. Potential freshwater zones will be protected by surface casing and cementing behind these casing. The grade of cement used will vary but drilling practices will be employed and checked by the BLM to eliminate gaps between cement. Cement protects the well casings from leaking due to deterioration over the life of the well and allows casings to withstand pressure increases during completion, hydrologic fracturing, and injection activities without bursting.

Loss of drilling fluids may occur at any time in the drilling process due to changes in porosity or other properties of the rock being drilled. When this occurs, drilling fluids may be introduced into the surrounding formations which could be freshwater aquifers. If drilling fluids are lost, aquifers may be contaminated by drilling additives. Using bentonite, freshwater and other additives that cannot contaminate groundwater mitigates the loss of drilling fluids since the introduction of these substances to freshwater aquifers would not impact the quality of these groundwater features.

Impacts to groundwater resources could occur due to failure of well integrity, failed cement, surface spills, and/or the loss of drilling, completion and hydraulic fracturing fluids into groundwater. Types of chemical additives used in drilling activities may include acids, hydrocarbons, thickening agents, lubricants, and other additives that are operator and location specific. Concentrations of these additives also vary considerably and are not always known since different mixtures can be used for different purposes in the same well bore. These wells are

regulated by the State of Colorado and the well design will be tested with a mechanical integrity test. According to COGCC requirements, all chemicals (greater than 500 pounds) used during drilling, completion, and work-over operations, including hydraulic fracturing treatments will be disclosed in a chemical disclosure form by well site.

Known groundwater bearing zones in the project area would be protected by the drilling plan and well design as described. Groundwater resources (including the contact springs, perched aquifers, and groundwater zones described in the Affected Environment) are all in elevations above the surface casing. With proper drilling and completion practices, contamination of groundwater resources is unlikely.

Cumulative Effects: The wellpad and road are on a ridgeline that separates the Red Wash – White River and the Yellow Creek 5th-Level Hydrologic Unit Code watersheds. This watershed is within the Mesaverde Play Area for natural gas and is expected to have 2-3 wellpads per section. Natural gas production wells result in surface disturbance for wellpads, pipelines, roads, and support facilities. In addition to other oil and gas activity, dispersed recreation (hunting) will make use of Rio Blanco county roads, BLM roads and 2-track, and private roads, and will add to the wear of the road. Use of the road during poor conditions could result in failure of drainage features and additional road maintenance activities may be needed to keep this road in good shape. Livestock grazing occurs on public and private lands in the area and these activities may reduce canopy cover and lead to localized erosion in some reclamation areas. Nacholite mining and oil shale research and development occur in the Yellow Creek area adjacent to the Proposed Action.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: Neither ground nor surface water quality would be impacted by the no action alternative.

Cumulative Effects: Impacts would be similar to those described for the action alternative, but would not include the impacts from the Proposed Action.

*Mitigation:*

1. Require installation of two culverts to move water off the road (see mitigation number two in the Soil Resources Section).
2. To protect surface waters below the project area, the operator will keep road inlet and outlet ditches, sediment retention basins, and culverts free of obstructions, particularly before and during spring run-off and summer convective storms. Provide adequate drainage spacing to avoid accumulation of water in ditches or on road surfaces.
3. When drilling to set the conductor and surface casing, drilling fluid will be composed only of fresh water, bentonite, and/or a benign lost circulation material that does not pose a risk of harm to human health or the environment.

*Finding on the Public Land Health Standard #5 for Water Quality:* It is unlikely that construction of these wellpad and access road or drilling would result in an exceedance of state water quality standards.

## VEGETATION

*Affected Environment:* The site of the proposed CBU O15 1100 well pad is located primarily within a Dry Exposure ecological site. The vegetation community within this site is dominated by cool season bunchgrass species including: bluebunch wheatgrass, needle and thread, Indian ricegrass, prairie junegrass, and bottlebrush squirreltail. Subdominant shrub species include: black sagebrush, winterfat, and fringed sagebrush. The eastern quarter of the proposed location lies within a loamy slopes ecological site, the vegetation community of this site is dominated by shrub species including: mountain mahogany, snowberry, serviceberry, antelope bitterbrush, and big sagebrush. The subdominant understory includes needlegrasses, bluebunch wheatgrass, Indian ricegrass, prairie junegrass and western wheatgrass.

### *Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: Vegetation resources would be directly affected by the construction of this pad and its associated infrastructure on approximately 6.90 acres in Phase I and 9.70 acres in Phase II. Direct effects would involve removal of native vegetation. After successful interim reclamation the majority of the disturbed area would be reclaimed and re-vegetated. Approximately 37 percent (3.60 acres) would remain un-vegetated for the life of the pad which is predicted to be approximately 35 years. Soil could be lost and/or damaged during the life of the project due to erosion, mixing of soil horizons, compaction, degradation during storage, and/or contamination. Limiting factors affecting re-vegetation success for affected soils could be exacerbated by operational activities and inadvertently by livestock grazing on unfenced reclaimed areas. Surrounding vegetation has potential to be affected by dust deposited from passing vehicles reducing its health, vigor, and palatability. Noxious/invasive plant species could become an increased component of plant communities due to ground disturbance and seed dispersing activity in the area.

Cumulative Effects: The proposed construction of the CBU O15 1100 pad and the access road, when added to other projects and developments, in and near the project area, as well as within the Piceance Basin as a whole, would result in an increase in short-term removal of existing vegetation on public land. Long-term changes in plant community composition and structure would also occur on those project sites and on a broader scale from activities such as livestock grazing. Of the total potential vegetation removal near the project area and the Piceance Basin, the proposed project would not result in a noteworthy increase in vegetation disturbance or long-term changes in plant community.

### *Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: Denial of the proposed construction activity would result in no additional direct or indirect impacts to vegetation in association with the proposed pad.

Cumulative Effects: Denial of the proposed project would have little impact on the cumulative effect of oil and gas development impacts to the vegetative communities in the Black Sulphur/Ryan Gulch area or in the Piceance Basin as a whole.

### *Mitigation:*

1. For interim reclamation the BLM recommends Seed Mix #7 outlined in Table 6. It is recommended that seeding occur between September 1 and March 31. If an alternate date of

seeding is requested, contact the designated Natural Resource Specialist prior to seeding for approval. Drill seeding is the preferred method of application and drill seeding depth must be no greater than ½ inch. If drill seeding cannot be accomplished, seed should be broadcast at double the rate used for drill seeding, and harrowed into the soil. Final reclamation will be completed using the reclamation practices and seed mixes recommended at that time.

**Table 6. Seed Mix #7 for Interim Reclamation of the CBU O15 1100 pad**

| Cultivar | Common Name             | Scientific Name                              | Application Rate (lbs PLS/acre) |
|----------|-------------------------|--|---------------------------------|
|          | Letterman needlegrass   | <i>Elymus lanceolatus ssp. lanceolatus</i>   | 3                               |
| San Luis | Slender Wheatgrass      | <i>Elymus trachycaulus ssp. trachycaulus</i> | 2                               |
| Whitmar  | Bluebunch Wheatgrass    | <i>Pseudoroegneria spicata ssp. inermis</i>  | 4                               |
| Sodar    | Streambank Wheatgrass   | <i>Elymus lanceolatus ssp. psammophilus</i>  | 3                               |
|          | Scarlet Globemallow     | <i>Sphaeralcea coccinea</i>                  | 0.5                             |
|          | Sulfur Flower Buckwheat | <i>Eriogonum umbellatum</i>                  | 1                               |

2. In the SUP where it addresses ripping compacted soils, ensure that ripping is completed before spreading topsoil. If topsoil will be stored for more than one year and other resource values can be accommodated, topsoil should be stored in piles with a depth of two feet or less to help retain soil viability.
3. To reduce erosion and reduce the risk of weed establishment, interim reclamation will be initiated when either there are no drilling activities expected on the pad for the next six months or there has been no activity on the pad within the last six months, regardless of whether or not there are outstanding approved APDs.
4. The maximum extent of disturbance for the wellpad (i.e., the well pad footprint) will be fenced. Fencing should remain in place through successful interim reclamation and again through successful final reclamation to promote re-vegetation and reduce weeds. Fences, cattleguards, and gates (all built to BLM specification per BLM manual H-1741-1 (see below)) will be installed, maintained, and removed by the operator upon approval by the AO. The fence around the pad must also have a wire gate installed adjacent to the cattleguard or at another appropriate location to be used in the case of livestock becoming entrapped inside the pad area. As part of final abandonment the fence around this pad will be reconstructed on the pre-disturbance fence alignment and all unneeded fence materials will be removed. The fence constructed will be a BLM Modified Type D 4-wire fence with the following specifications:
  - a) 40 inches tall between the soil surface and top wire
  - b) 16 inches between the soil surface and bottom wire
  - c) 12 inches between the top wire and next wire below
  - d) 6 inch spacing on the middle two wires
5. All seed tags will be submitted via Sundry Notice (SN) to the designated Natural Resource Specialist within 14 calendar days from the time the seeding activities have ended. The SN will include the purpose of the seeding activity (i.e., seeding well pad, cut and fill slopes, seeding pipeline corridor, etc.). In addition, the SN will include the well or well pad number associated with the seeding activity, if applicable, the name of the contractor that performed the work, his/her phone number, the method used to apply the seed (e.g., broadcast, hydro-seeded, drilled), whether the seeding activity represents interim or final reclamation, the total

acres seeded, an attached map that clearly identifies all disturbed areas that were seeded, and the date the seed was applied.

6. Each year by January 1<sup>st</sup> Encana will submit a Reclamation Status Report to the WRFO that includes the well number, API number, legal description, UTM coordinates, project description (e.g., well pad, pipeline, etc.), reclamation status (e.g., interim or final), whether the well pad and/or pipeline has been re-vegetated and/or re-contoured, date seeded, photos of the reclaimed site, acres seeded, seeding method (e.g., broadcast, drilled, hydro-seeded, etc.), and contact information for the person responsible for developing the report. The report will include maps showing each point (i.e., well pad), polygon, and/or polyline (i.e., pipeline) feature that was included in the report. The data must be submitted in UTM Zone 13N, NAD 83, in units of meters. In addition, scanned copies of seed tags that accompanied the seed bags will be included with the report. Internal and external review of the WRFO Reclamation Status Report and the process used to acquire the necessary information will be conducted annually, and new information or changes in the reporting process will be incorporated into the report.
7. The operator shall meet the following reclamation success criteria, and these standards apply to both interim and final reclamation:
  - a) Self-sustaining desirable vegetative groundcover consistent with the site Desired Plant Community (DPC) (as defined by the range site, WRFO Assessment, Inventory, and Monitoring (AIM) protocol site data (BLM TN 440), ecological site or an associated approved reference site) is adequately established as described below on disturbed surfaces to stabilize soils through the life of the project.
  - b) Vegetation with eighty percent similarity of desired foliar cover, bare ground, and shrub and/or forb density in relation to the identified DPC. Vegetative cover values for woodland or shrubland sites are based on the capability of those sites in an herbaceous state.
  - c) The resulting plant community must have composition of at least five desirable plant species, and no one species may exceed 70 percent relative cover to ensure that site species diversity is achieved. Desirable species may include native species from the surrounding site, species listed in the range/ecological site description, AIM data, reference site, or species from the BLM approved seed mix. If non-prescribed or unauthorized plant species (e.g., yellow sweetclover, *Melilotus officinalis*) appear in the reclamation site BLM may require their removal.
  - d) Bare ground does not exceed the AIM data, range site description or if not described, bare ground will not exceed that of a representative undisturbed DPC meeting the Colorado Public Land Health Standards.

*Finding on the Public Land Health Standard #3 for Plant and Animal Communities:* Upland plant communities in the project area currently meet the Standard. With implementation of mitigation measures and successful re-vegetation, the Proposed Action would likely increase vegetative cover and productivity to at least equal or possibly better than the surrounding landscape due to the application of reclamation measures and monitoring. Overall with successful reclamation of disturbances there would be no negative effect on the status of Land Health Standard 3 in the project area or at a landscape scale.

## INVASIVE, NON-NATIVE SPECIES

*Affected Environment:* There were no noxious weeds noted at the proposed pad location during the on-site inspection. The applicant performed a survey for the presence of special status plant species as well as noxious/invasive species on May 22, 2014; no noxious or invasive species were found during this survey. There are few noxious weeds in the general area of this proposed pad. There is a scattering of houndstongue and cheatgrass throughout the general area especially in disturbed sites and along roadways. In the last several years Russian thistle is becoming more prevalent in the general Piceance area and is also associated with and readily establishes in soil disturbance. Overall the area surrounding the Proposed Action is relatively free of invasive, non-native plant species however there are numerous other weed species that occur in the general Piceance area and they are easily spread.

### *Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The disturbance associated with the Proposed Action could create new noxious weed problems by importing weed seed on vehicles and equipment or by having suitable conditions present (non-vegetated disturbed areas) for introduction of noxious weeds by other vectors. In addition to noxious weeds, invasive non-native species such as cheatgrass could also establish on these areas. Establishment of noxious or invasive weeds would create problems through seed production in proportion to the number of plants and the duration they are reproducing. Increased seed production and presence of noxious or invasive plants could aggressively compete with or exclude desired vegetation during reclamation. If not controlled or eradicated new infestations of weeds could result in the spread of these plants into the adjacent native plant communities.

Cumulative Effects: Noxious and invasive weeds present in the general area are primarily associated with existing areas of development/disturbance. Further development actions associated with this proposal would create additional opportunity for noxious/invasive weed establishment. Existing roads and development related disturbances throughout the general area are common sources of weeds so elimination of these species from the general area is unlikely. The extent of infestation and persistence of weeds would be dependent on monitoring and treatment as part of future projects and activities in the general Piceance Creek area. Proposed mitigation including long term weed control would reduce the likelihood of long term negative impacts associated with this proposal.

### *Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: Noxious and invasive plants would continue to be present within the vicinity of the proposed development and, depending on the aggressiveness of weed treatment activities, may continue to spread.

Cumulative Effects: Cumulative effects would be similar to those from the Proposed Action.

*Mitigation:* In addition to the weed detection and control measures identified by the applicant in the surface use plan (SUPO), the following mitigation should be applied:

1. All equipment that may act as a vector for weeds shall be cleaned before entering the project area.

## **SPECIAL STATUS ANIMAL SPECIES**

*Affected Environment:* Mixed shrub and sagebrush-dominated ridgelines affected by much of the project proposal represent habitat that has served or continues to serve greater sage-grouse associated with the Parachute-Piceance-Roan (PPR) population. Recent range delineations by the CPW classify most of the grouse range potentially influenced by the proposal as general habitat, which may be occupied by birds, but does not fulfill crucial reproductive functions. The general habitat mapped in this area is limited, spanning a narrow corridor averaging 300 meters exclusively on the upper slopes of Calamity Ridge itself. This mapped habitat veers away from the more expansive portion of the habitat for four kilometers up the narrow ridge. The outlined general habitat spans 300 meters from north to south where it intersects the project area and terminates another 800 meters west of the project area. This area is not known to support consistent use by sage-grouse. The BLM management of sage-grouse priority habitats were the subject of a recent Bureau-wide policy statement (BLM WO IM 2012-043) that seeks to maintain or improve the utility of these key habitats as the basis for the species recovery and avoiding subsequent Endangered Species Act listing actions.

The Corral Gulch watershed, located three miles to the south, forms the northern margin of habitats that have supported sage-grouse in recent history. The Wolf and Airplane Ridges formerly supported small numbers of breeding birds, but over the past 30 years increasing vertical expression by intermixed serviceberry and Gambel oak and the dwindling extent and continuity of sagebrush-dominated shrub lands with conformation best suited for sage-grouse are suspected to have severely reduced these ridges' capacity to support grouse. Leks on Airplane and Wolf Ridge have been inactive for over a decade. These features are located 5.1 to 6.8 miles from the proposed pad, with the access route being even further. The nearest active lek lies about 9.8 miles from the pad location and about 9.9 miles from the nearest point of pad access.

When habitat is described discounting slopes that exceed a 12 percent grade and sagebrush habitats within 100 meters of trees (suboptimal for consistent grouse occupation), the proposed pad installation would influence 6.5 acres of sage-grouse general habitat. Based on CPW telemetry information (2008 data), sage-grouse distribution generally terminates about seven miles south of the project area. The closest documented sage-grouse sighting to the project area was a single yearling hen seen 4.25 miles south in early June 2008. Habitat appropriate for the support of sage-grouse is severely limited in this locale; 25 percent of the proposed project area is dominated by grassland, 25 percent contains slopes greater than 12 percent, while another 25 percent of the area is within 100 meters of tall serviceberry.

### *Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: Recent research indicates that sage-grouse are negatively influenced by human activity and habitat modification associated with oil and gas development.

The Proposed Action would be expected to have little, if any, deleterious effect on the suitability or utility of shrubland habitats that *currently* support sage-grouse. Pad construction on Calamity

Ridge would involve the clearing of grass and shrubland habitat thought to have limited utility for sage-grouse due to limited sagebrush canopy cover, a preponderance of taller stands of serviceberry in the area, and slopes exceeding a 12 percent grade. Phase I and II of pad development would initially render 9.4 acres of these marginal habitats unsuitable. Successful interim reclamation after Phase I and Phase II development would be realized on about 7.4 acres (or 76 percent) of the estimated 9.7 acres of total initial surface disturbance. An additional two acres of gentle gradient shrubland habitat suitable for the support of grouse would be dedicated to the visual berm over the life of the wells. As such, approximately four acres would be committed to surface facilities and remain unsuited for use by grouse over the 35-year well life.

With the possible exception of the visual berm, reclamation would be expected to promote strong herbaceous expression and initiate natural redevelopment of a mountain big sagebrush-dominated community along the ridgecrest (but see avoidance discussion below). The reclaimed area may comprise a corridor of habitat better suited for grouse occupation than the surrounding shrubland matrix and eventually serve to physically interconnect scattered patches of sagebrush with suitable character for grouse. Barring other limitations on sage-grouse occupation of the project area (e.g., continued development, increased traffic), fragments cleared of shrubs would offer a source of herbaceous forage and invertebrate prey prior to regaining acceptable shrubland character (within 15 years) and have no functional consequence on long-term habitat suitability. Although of limited utility during active development phases (bird avoidance of activity), shrublands properly conformed for grouse (i.e., heights not exceeding sagebrush stature) would be expected to persist for many decades since Gambel oak and serviceberry are demonstrably weak in colonizing these disturbances. The constructed berm would involve slope grades of 40 percent or more and half of these faces would be oriented to the south and west. These faces would likely pose serious reclamation challenges (e.g., droughty) and may tend to represent a source for the dissemination of weedy species that compete with and reduce the availability of native forbs in the surrounding area as important dietary constituents of young grouse.

Sage-grouse occupation of lands potentially affected by the Proposed Action is presently thought to involve individual birds on an infrequent and incidental basis and it is unlikely that the affected habitat base currently supports important reproductive or winter-use functions. Project work is located beyond the recognized periphery of where most (approximately 80 percent) sage-grouse tend to locate nests (i.e., within four miles of associated lek). In this case, the nearest active lek is 9.8 miles away from the project area. However, based on recent CPW monitoring of Parachute Piceance Road (PPR) sage-grouse leks, indications of small increases in grouse populations appear to have prompted tentative reoccupation of several inactive leks. Near term reoccupation of leks on Airplane Ridge (most closely associated with pad and access; 5.1 miles away) would be less likely due to surrounding habitat conditions, but based on the availability of suitable habitat and regular occupation of ridges to the south, appearance of birds on Wolf Ridge (next closest known lek location to the south; 6.8 miles away) could be anticipated in the near future. Since the project area is located more than four miles away from known active and inactive leks, the project would not be considered to disrupt or discourage pioneering attempts to reoccupy inactive leks and nesting/early brood-rearing habitat.

Wellpad access traverses general habitats of limited suitability for sage-grouse along Calamity Ridge. Well development would involve short-term, but intensive vehicle use along existing

RBC 103 for the duration of the drilling and completion phases, but since this ridge is likely to remain unoccupied for the duration of development, grouse-related impacts, if any, are likely to involve maintenance-level traffic patterns (e.g., one round-trip per day) in the long term. In contrast to access alternatives, the proposed access is one of the least disruptive access options involving sage-grouse habitat. As an established county road, it has already been developed to handle some pressure from intermittent traffic.

Calamity Ridge receives about 16 to 20 inches of rainfall per year. Ideal habitat requirements for sage-grouse in a mesic environment (an area receiving greater than 12 inches of rainfall per year) include a sage-brush canopy that ranges in height from 15-31.5 inches. Any tree, shrub or object standing above this ideal range has the potential to serve as an elevated perch for predators. Perhaps due to this potential, sage-grouse tend to shun areas in close proximity to elevated features, natural or anthropogenic (e.g., 0.25 mile in case of powerpoles (Braun et al. 2002); 100 meters in case of woodland edge (Walker 2010)). The Proposed Action includes a proposal to install a 21 foot tall berm around the western end of the pad (means of mitigating visual impacts) which would be a place for a predator (e.g., ravens, raptors) to look down into the sagebrush canopy to view sage-grouse movement below. This berm and the proposed condensate and produced water tanks would be the highest elevation features within 0.25 mile of the pad and would be expected to contribute to a reduction in the utility (i.e., avoidance response) of sage-grouse habitat within that affected area. The Proposed Action (berm and tanks) would reduce the utility of shrubland habitat (i.e., indirect habitat loss) available for the support of grouse (0-12 percent slopes) by an estimated 32 acres. This acreage exceeds that indirect habitat loss attributable to the tank batteries alone by about 10 acres. In the event produced fluids are piped from this pad to centralized gathering facilities (rather than tank-stored on site) as a BMP, the remaining berm would, by itself, impose adverse behavioral influences on 27 acres. From the perspective of sage-grouse habitat management, the installation of the visual berm is considered detrimental to the long-term availability and utility of sage-grouse habitat by increasing the amount of land rendered unsuitable for grouse and is a feature that, until removed at pad abandonment, may constrain or preclude advantages (e.g., source of herbaceous forage) gained through effective interim reclamation over the life of the pad.

In summary, and in the context of BLM Washington Office Instruction Memorandum 2012-043, the Proposed Action as submitted by the applicant and conditioned by BLM (i.e., visual berm), involves modest direct and indirect long-term effects on sage-grouse and their habitat. Although it is unlikely that the Proposed Action would have more than minor adverse effects on sage-grouse and their habitat under current circumstances, these habitats were previously occupied and maintaining their integrity is an important consideration in allowing for population expansion and recovery.

Cumulative Effects: Intensive short-term development access across Calamity Ridge and its presently unoccupied sage-grouse range would subside to low-intensity maintenance traffic once production was achieved. Vegetation modifications associated with pad and access road (as conditioned) are incremental additions to cumulative habitat alterations associated with ongoing energy development activities in PPR sage-grouse habitats. With the exception of the working surface of the pad and visual berm, this cumulative contribution would apply from the short term

perspective, as this action (once in the absence of the visual berm) may offer improved habitat conditions for sage-grouse in the long term and may not prove to be cumulatively detrimental.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: In the absence of pad development, there would be no immediate influences on sage-grouse. However, denial of this proposal risks the lessee relocating to a location that involves higher value habitat or requires more lengthy and intrusive access.

Cumulative Effects: There is a reasonable likelihood that denial of this location (see above) would increase the extent of sage-grouse habitat impaired by short-term development activity and longer term road-related influences (e.g., avoidance-related habitat disuse, elevated energetic demands) and elevate the project's contribution to cumulative effects across the Piceance Basin.

*Mitigation:*

1. In the event BMPs are ultimately applied to this pad that allow for the removal of the condensate and produced water tanks (e.g., pipeline transport), the berm created in order to mitigate visual resources should be removed to the extent practicable and reclaimed in a manner that provides for enhanced long-term utility and functionality of the pad locale for sage-grouse.

*Finding on the Public Land Health Standard #3 for Plant and Animal Communities:*

Longer term effects of the Proposed Action would have little influence over its ultimate character or function as sage-grouse habitat, as project implementation would have little effect on desirable habitat. Although the project area has undergone long-term vegetation changes that have suppressed sage-grouse occupation and distribution and supports long-established transportation routes that may play an important role in affecting the future utility of the area for sage-grouse, the area otherwise fulfills local terrestrial wildlife habitat functions and generally meets the land health standard. The immediate effects on sage-grouse would be localized and intensive; the longer-term effects after reclamation, under present circumstances, would be relatively minor.

## **MIGRATORY BIRDS**

*Affected Environment:* The vegetation along Calamity Ridge is composed of mixed grasslands, mountain sagebrush and mountain shrubland. The proposed well pad location is surrounded by steep hillsides bisected by a few ephemeral drainages. These big sagebrush and mountain shrub communities provide nesting habitat for a number of migratory bird species during the breeding season (generally May 15 – July 15), including green-tailed towhee, vesper sparrow, and western meadowlark. Migratory birds in this area nest at an estimated collective density of about one pair per two acres.

The project area's predominant grassland and mountain shrub communities are not inhabited by any BLM-sensitive or USFWS Birds of Conservation Concern, except the Brewer's sparrow.

The BLM-sensitive Brewer's sparrow, a sagebrush associate, occurs widely across northwest Colorado in virtually every form of sagebrush and is likely among the more common breeding birds in the project area's forms of sagebrush. The Brewer's sparrow are likely co-dominant with towhees on this site. The species occurs much less commonly in mixed shrub communities whose character is altered by tall forms of Gambel oak and serviceberry.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: Sagebrush and mountain shrub dominated habitats best suited for occupation by Brewer's sparrow (upland and big sagebrush types) are limited to 7.3 acres out of the 9.7 acre project area after Phase I and Phase II, as 2.4 acres are dominated by grasses. A total of two acres would remain impacted for the well pad, after Phase I and Phase II interim reclamation. Other affected acreage would lie adjacent (generally within 25 meters) to the existing road and offers limited potential to support nests of any species. Redevelopment of sagebrush canopies suitable for nesting would vary from three to fifteen years post-reclamation for valley and upland big sagebrush forms, respectively.

Ingelfinger and Anderson (2004) documented 39-60 percent reductions in nest densities of obligate sagebrush birds, including Brewer's sparrows, within 100 meters of roads in a Wyoming natural gas field. Based on BLM estimates of breeding bird densities in the Piceance Basin, it is expected that the project would displace or reduce the capacity of the project vicinity to support up to four pair of migratory birds. Displacement of birds would be most pronounced during the construction, drilling and completion phases. Once the location is in full production (resulting in less activity/vehicular traffic) birds would likely use the area at densities comparable to preconstruction levels.

The risk of intersecting an active nest in short, discontinuous reaches with a narrow (75 foot) corridor is low, as is the likelihood of Brewer's sparrow siting nests within 25 meters of existing roads. In the event the project were implemented during the nesting season, the probability of fatally disrupting a nest attempt is estimated to involve no more than one to three Brewer's sparrow nests for the entire project. Indirect disruption to nest activities capable of causing mortality in eggs or nestlings would be more expansive, but remain limited to about a half dozen nest attempts for the entire project. Potential disruption to nesting birds would be realized during a single breeding season; virtually no longer-duration effects attributable to habitat modification would be expected in response to the clearing of the short road corridor as long as subsequent vehicle travel was deterred on cross-country segments.

Cumulative Effects: The Proposed Action represents an incremental increase in development-related activities and wildfires that temporarily affect the availability and utility of migratory bird nesting habitat, particularly sagebrush-dominated shrublands in the Piceance Basin and northwest Colorado. This project's contribution to the adverse modification of sagebrush habitats that are relatively free of pre-existing compromise (i.e., road effects) would be limited to about 7.3 acres of BLM-administered land. Because the Proposed Action is relegated to existing roads, its long term contribution to behavioral impacts on nesting birds would likely remain small as well.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: In the absence of pad development, there would be no immediate influences on migratory bird habitats. However, denial of this proposal risks the lessee relocating to a location that involves higher value habitat or requires more lengthy and intrusive access or pipeline routing.

Cumulative Effects: There is a reasonable likelihood that denial of this location (see above) would increase the involvement of habitats better suited for the support of migratory bird or raptor nesting activity, thereby increasing the project's contribution to cumulative effects across the Piceance Basin.

*Mitigation:*

1. In order to mitigate potential conflict between development activity and migratory bird nesting, no development activity would be permitted from May 15 to July 15 as defined by the following legal subdivisions: T1S R100W: Section 15: SESE.

## **TERRESTRIAL WILDLIFE**

*Affected Environment:* The proposed well pad would be located on a ridge of the Cathedral Bluffs in the vicinity of RBC 103 at an elevation of approx. 8,200 feet. The vegetation along the ridge top is composed of mixed grasslands, mountain sagebrush and mountain shrub lands. There is a stand of Douglas fir located approximately 0.25 northwest of the proposed pad location, as well as an aspen stand located to the north approximately 0.10 mile. The landscape surrounding the proposed pad location is composed of steep hillsides bisected by a few ephemeral drainages.

The proposed pad location and its access road are located in mule deer summer and winter range. Mule deer are abundant statewide in Colorado, where they occupy edge habitats, within pinyon-juniper and mountain shrub mosaic landscapes (CDOW 2007). The preferred summer habitat of mule deer is above 7,600 feet elevation, which is used from May through October. This habitat commands higher management priority due to their limited extent and high resource value relative to Game Management Unit (GMU) 22.

Elk are common in most mountainous regions of Colorado, where they can be found in mountains during the summer and in foothills and grasslands during the winter. Elk are gregarious animals, with herds of more than 200 occurring in open habitats. In more heavily forested habitats, group sizes are typically smaller. Elk summer at higher elevation ranges in aspen, conifer, and mountain browse vegetation types where they are more or less evenly distributed. The project area encompasses both summer and winter habitat for elk.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action would share an existing access network of public roads and would not increase road density or distribution in the surrounding area.

Visual and noise disturbances from increased traffic levels and construction, drilling, and completion activities could temporarily displace big game from habitats in areas of human

activity. Although the proposed project area lies primarily within important big game summer habitat and well development would be expected to impair habitat continuity, the Proposed Action would have limited added influence on big game distribution or use patterns because it is confined to existing transportation corridors and the nature of surrounding terrain and heavy shrub/tree cover largely screens animal activity and movements beyond 100 meters. Assuming the influence of existing development traffic would remain static and that animals would tend to distance themselves from active pad development by 200 meters, the acreage that would be subjected to disturbance levels prompting animal avoidance and reduced resource use would amount to about 60 acres. Disturbance-induced avoidance and disuse on this acreage would moderate once drilling and completion operations were finalized. The use of RBC 103 as a proposed access route maximizes shared use of existing development transportation corridors.

The estimated surface disturbance of approximately 9.70 acres of woody and herbaceous forage associated with the Phase I and Phase II construction of the well pad and access roads would reduce the habitat availability and relative habitat values for a variety of common wildlife species, including big game. Interim and/or final reclamation would be applied to all but two acres (pad) and would largely supplant the present availability of herbaceous forage within two years of drilling the last well. Losses of woody forage (mountain big sagebrush, serviceberry, bitterbrush) on disturbed acreage would persist for several decades, but considering its close association with existing roads and the eventual redevelopment of browse production more accessible to big game, the localized and incremental reduction in the winter forage base would be of no substantive consequence in the context of overall woody forage availability. Long-term habitat modification would be expected to have minimal impacts on local wildlife populations as these species are not tightly restricted to specific habitat types.

Overall, the severity of impacts to wildlife species under the Proposed Action would depend on the seasonal and daily timing of traffic, construction, drilling, and completion activities, site-specific topography and vegetation, species' sensitivity to human disturbance, and the availability of suitable habitat within and adjacent to the Project Area.

Cumulative Effects: The Proposed Action represents an incremental increase in development-related activities that affect the availability and utility of important big game summer and winter ranges in GMU 22. The direct loss of forage and cover resources for big game would be of no substantive consequence (two acres of barren working surface). Because the Proposed Action is relegated to existing roads and shares much of its access with established county roads, its long term contribution to behavioral impacts in this regard would likely remain small. Since this area has value as GMU 22, it was decided after consultation with Colorado Parks and Wildlife (CPW) that timing stipulations would be placed on development, in order to mitigate impacts on big game populations (Taylor Elm, CPW Land Use Specialist, Personal Communication).

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: In the absence of pad development, there would be no immediate influences on big game. However, denial of this proposal risks the lessee relocating to a location that involves higher value habitat or requires more lengthy and intrusive access.

**Cumulative Effects:** There is a reasonable likelihood that denial of this location (see above) would increase the extent of big game habitat impaired by short-term development activity and longer term road-related influences (e.g., avoidance-related habitat disuse, elevated energetic demands) and elevate the project's contribution to cumulative effects across the Piceance Basin.

*Mitigation:*

1. In order to reduce the level of development activities that compromise the utility of summer habitat for mule deer and elk, no development activity would be permitted from May 15 to Aug 15 defined by the following legal subdivisions: T1S R100W: Section 15: SESE.

*Finding on the Public Land Health Standard #3 for Plant and Animal Communities:*

The Proposed Action would have little influence over the ultimate character and function of the area as big game summer and winter habitats in the long-term. As conditioned, the near-term effects on big game would be localized and intensive; the longer-term effects after reclamation, under present circumstances, would be relatively minor. The area fulfills local terrestrial wildlife habitat functions and generally meets the land health standard.

## CULTURAL RESOURCES

*Affected Environment:* The proposed well pad location has been inventoried at the Class III (100 percent pedestrian) level (davenport 2014 compliance dated 6/10/2014) with no surface manifestations of cultural resources noted. Few surface manifestations are known in the general area however, the potential for undetected subsurface remains cannot be completely ruled out.

*Environmental Consequences of the Proposed Action:*

**Direct and Indirect Effects:** There are no known cultural resources within 1,000 feet (305 meters) of the proposed well pad location. It is unlikely that there would be any impacts, direct or indirect, to known cultural resources as a result of construction and operation of the proposed well locations. However, should there be subsurface remains present they could be impacted or totally destroyed by construction of the well pad resulting in a loss of some data from the regional archaeological database. Any such loss would represent an additional long term, permanent, irreversible and irretrievable loss of data from the regional archaeological database.

**Cumulative Effects:** There would not be any additional loss to known cultural resources in the field office as a result of construction of the well pad and operation of the well. It is not known how important the loss of previously undetected cultural resources would be to the regional archaeological database.

*Environmental Consequences of the No Action Alternative:*

**Direct and Indirect Effects:** There would be no new direct or indirect impacts to any known cultural resources in the area. There would not be an increase in human activity in the area and there would likely not be an increase in the potential for unlawful artifact collection in the area should there be any currently unidentified resources in the vicinity.

**Cumulative Effects:** Under the No Action Alternative there would be no quantifiable new impacts to any currently known cultural resources. It is not possible to quantify impacts to any unidentified cultural resources that might be in the vicinity of the proposed well pad location.

*Mitigation:*

1. The operator is responsible for informing all persons who are associated with the project that they will be subject to prosecution for knowingly disturbing archaeological sites or for collecting artifacts.
2. If any archaeological materials are discovered as a result of operations under this authorization, activity in the vicinity of the discovery will cease, and the BLM WRFO Archaeologist will be notified immediately. Work may not resume at that location until approved by the AO. The operator will make every effort to protect the site from further impacts including looting, erosion, or other human or natural damage until BLM determines a treatment approach, and the treatment is completed. Unless previously determined in treatment plans or agreements, BLM will evaluate the cultural resources and, in consultation with the State Historic Preservation Office (SHPO), select the appropriate mitigation option within 48 hours of the discovery. The operator, under guidance of the BLM, will implement the mitigation in a timely manner. The process will be fully documented in reports, site forms, maps, drawings, and photographs. The BLM will forward documentation to the SHPO for review and concurrence.
3. Pursuant to 43 CFR 10.4(g), the operator must notify the AO, by telephone and written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), the operator must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the AO.

## **PALEONTOLOGICAL RESOURCES**

*Affected Environment:* The proposed well pad is located in an area generally mapped as the Parachute Creek Member of the Green River Formation (Tweto 1979) which the BLM has categorized as a Potential Fossil Yield Classification (PFYC) 5 formation indicating that it is known and expected to produce scientifically noteworthy fossil resources (c. Armstrong and Wolny 1989).

*Environmental Consequences of the Proposed Action:*

**Direct and Indirect Effects:** If it becomes necessary to excavate into the underlying sedimentary rock formation to construct the well pad access route, level the well pad, excavate any reserve/blooi/cuttings pits, or bury any well tie pipelines there is a potential to impact scientifically noteworthy fossil resources. Impacts could include, but not necessarily be limited to, crushing of fossils, especially smaller more fragile ones, displacement of fossil from their context with loss of associated paleo-environmental information, and potential loss from unlawful collection as a result if increased human presence and activity in the area.

**Cumulative Effects:** The proposed project will result in an additional impact to the fossil bearing formation of approximately 0.7 acres. Impacts to any fossil resources that might be discovered or disturbed as a result of construction will add to the loss of scientific information. Further, increased human presence and activity could result in loss of fossil due to unlawful collection. The potential loss of data from unlawful collection is impossible to quantify. Any loss of data as a result of well development would represent a long term, permanent, irreversible and irretrievable loss of data from the regional paleontological database.

***Environmental Consequences of the No Action Alternative:***

**Direct and Indirect Effects:** Under the No Action Alternative there would be no new construction related impacts to fossil resources of the formation. There would not be an increase in human activity and presence in the project area and there would be less likelihood of unlawful fossil collection in the project area.

The naturally occurring erosion that has been a part of the environment would continue as it has resulting in a slow exposure and eventual loss of fossils resources, especially the smaller fossils that has occurred for centuries. This loss is slow enough that it is not considered unacceptable.

***Mitigation:***

1. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for disturbing or collecting vertebrate or other scientifically important fossils, collecting large amounts of petrified wood (over 25lbs./day, up to 250lbs./year), or collecting fossils for commercial purposes on public lands.
2. If any paleontological resources are discovered as a result of operations under this authorization, the operator or any of his agents must stop work immediately at that site, immediately contact the BLM Paleontology Coordinator, and make every effort to protect the site from further impacts, including looting, erosion, or other human or natural damage. Work may not resume at that location until approved by the AO. The BLM or designated paleontologist will evaluate the discovery and take action to protect or remove the resource within 10 working days. Within 10 days, the operator will be allowed to continue construction through the site, or will be given the choice of either (a) following the Paleontology Coordinator's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (b) following the Paleontology Coordinator's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.
3. Any excavations into the underlying native sedimentary stone must be monitored by a permitted paleontologist. The monitoring paleontologist must be present before the start of excavations that may impact bedrock.

## **VISUAL RESOURCES**

***Affected Environment:*** Visual resources are the visible physical features of a landscape that convey scenic value. The BLM developed the Visual Resource Management system to identify and evaluate an area's scenic value. The Visual Resource Inventory (VRI) process described in BLM Manual H-8410-1 establishes VRI classes, which are used to assess visual values for areas

of the landscape. VRI classes II, III, and IV are determined by using a combination of three components: scenic quality, sensitivity level, and distance zones, with Class II having a higher level of value and Class IV having the least visual value. VRI Class I areas are assigned to special management areas, such as Wilderness Study Areas, which are the most valued landscapes. The VRI classes are the baseline from which environmental effects are measured. The Proposed Action is located in Visual Resource Inventory Class II, which means this area is a highly valued scenic landscape with very few visible management activities. The area of the landscape where the Proposed Action is located was placed into VRI Class II as a result of a composite of the three above mentioned components. The area received a moderate Scenic Quality scoring of A (A, B, and C type rating). The Sensitivity Level rating as high value to the public, and the project is proposed to be located in a Distance Zone of Background.

The BLM also maintains four Visual Resource Management (VRM) classes used to describe the level of acceptable change allowable at a given location. Scenic values in the BLM White River Resource Area have been classified according to the Visual Resource Management (VRM) system into four Visual Resource Management Classes (I-IV), and corresponding VRM objectives were established in the 1997 White River ROD/RMP. VRM Class I are the most restrictive with VRM Class IV being the least restrictive for the amount of allowable change to occur on the landscape. The Proposed Action is located within a VRM Class II area. The objective of the VRM II classification is to retain the existing character of the landscape. The level of change to the characteristic landscape in VRM II areas should be low. Management activities may be seen but should not attract attention of the casual observer. Any changes must repeat the basic elements found in the predominant natural features of the characteristic landscape.

The Proposed Action is located along the top of Calamity Ridge at approximately 8,400 feet in elevation on a prominent short spur ridge. This panoramic location provides extensive views of the landscape to the east, south, and west. The most dominant landscape element is the form created by the gentle sloping ridgeline that is silhouetted against the skyline when viewed by those traveling along the adjacent portion of RBC 103. The texture of this landscape is fine to smooth, made up of grasses and shrubs, when viewed from RBC 103 with colors of light green to light yellow mixed with areas of grays and dark greens. The Key Observation Point (KOP) where the casual observer is most likely to view this project is from the adjacent portion of RBC 103. This maintained county road is traveled by local ranchers, oil and gas employees, big game hunters during the fall months, and other recreationalist during the summer months.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The construction of the well pad and access road includes a total ground disturbance of approximately 7.2 acres for Phase I, and up to 9.7 acres if Phase II plans are implemented, for the initial construction periods. These areas of ground disturbance would be reduced to 3.6 acres after interim reclamation has been completed. The exposed soils created by this construction activity and associated linear road disturbance will create noticeable short term contrast to the landscape color and line characteristics from the construction start until interim reclamation. Because the access road is located on the east side of the well pad and curls nearly 180 degrees as it travels a short distance from RBC 103 to the well pad, it is unlikely that much of this access road ground disturbance will be viewed from RBC 103. Due to topography,

the wellpad would not be visible when approaching it via RBC 103 from the northeast. However, when traveling downhill on RBC 103 from the west, the wellpad location is visible. Encana will add an earthen berm to the northwest side of the well pad to minimize the view from RBC 103. The berm for Phase I and Phase II will be approximately 21 feet tall. The berm will be noticeable to those traveling RBC 103 until vegetation has been established on this berm. The berm is planned and designed to repeat the form of the existing ridgeline and screen the wellpad and facilities from view when traveling the portion of RBC 103 located adjacent to the Proposed Action. This will reduce impacts to the form of the ridge line that will be modified by the cut and fill of the well pad. Upon completing interim reclamation, this berm should be covered in vegetation and should blend with the surrounding landscape and not attract attention of the casual observer. The unnatural color contrast of all above ground structures could cause moderate long term impacts to casual observers, if not mitigated. To reduce this impact, it is recommended that all permanent above ground structures (on-site for six months or longer) including tanks, associated production equipment, and any piping and valves be painted, Covert Green according to the BLM Standard Environmental Chart CC-001: June 2008. This color should best serve to blend these structures with the surrounding landscapes when viewed from a distance. Overall, the implementation of the Proposed Action will not change the Visual Resource Inventory Class II rating and will meet the Visual Resource Management Class II objective of retaining the existing character of the landscape in this area.

Cumulative Effects: Combined with other foreseeable oil and gas development activities in the area, the Proposed Action may begin to contribute to a somewhat impacted visual landscape. Currently there is a utility power line, reclaimed buried pipeline, and various rangeland fences located along Calamity Ridge. This is largely a natural landscape with very few noticeable management activities. This is the first well pad proposed to be located along the top of Calamity Ridge in this area.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: By not implementing the Proposed Action there would be no new impacts to visual resources or casual observers in this area and there would be no changes to visual resource inventory class ratings.

Cumulative Effects: None have been identified as a result of this alternative.

*Mitigation:*

1. Paint and maintain the paint on all permanent above ground structures (on-site for six months or longer) including tanks, associated production equipment, and any piping and valves. Paint color is to be Covert Green according to the BLM Standard Environmental Chart CC-001: June 2008.

## **HAZARDOUS OR SOLID WASTES**

*Affected Environment:* There are no known hazardous or other solid wastes on the subject lands. No hazardous materials are known to have been used, stored, or disposed of at sites included in the project area. Most of the exploration and production wastes that would be

generated by the Proposed Action would be exempt from the Resource Conservation and Recovery Act (RCRA) hazardous waste regulations (e.g., produced water, produced gas). However, the exemption would not mean that these wastes present no hazard to human health and the environment, nor would the exemption relieve the operator from corrective action to address releases of exempt wastes. Non-exempt wastes such as lubricants, fuels, caustics or acids, and other chemicals would be used during exploration and production activities and solid waste (e.g., human waste and garbage) would be generated during the proposed activities.

The operator has not specified the chemicals that would be used for drilling, completion, and hydraulic fracturing. Constituents found in hydraulic fracturing fluids may include salts, acids, petroleum hydrocarbons, and numerous other additives. The concentrations of these constituents are not well documented.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: No listed or extremely hazardous materials in excess of threshold quantities are proposed for use in this project. While commercial preparations of fuels and lubricants proposed for use may contain hazardous constituents, they would be stored, used, and transported in a manner consistent with applicable laws such that generation of hazardous wastes is not anticipated. Solid wastes would be properly disposed of off-site at an approved facility.

Accidental releases associated with equipment failures, equipment maintenance and refueling, and storage of fuel, oil, other fluids, and chemicals could cause soil, surface water, and/or groundwater contamination. Improper management of pit contents may also contribute to environmental contamination. Releases of produced water would present the greatest threat for widespread impacts. The high salinity of produced water may affect plant growth due to the high osmotic pressure of the soil solution, affecting existing vegetation adjacent to pads and greatly reducing the chance for successful reclamation. High salinity may also impact surface or ground water through run-off or leaching. The sodicity (i.e., excess sodium) of produced water causes deterioration of the soil structure, thereby increasing the potential for soil erosion and reducing the chances of reclamation success. With implementation of the mitigation measures and adherence to the COAs, impacts would likely be temporary.

Since not all chemicals that would be used on the site have been disclosed, specifically chemicals or other additives used for drilling, completion, and hydraulic fracturing operations, impacts to groundwater may occur. These chemicals and additives can also be present in the drill cuttings within the cuttings pit. With proper well completion, implementation of the mitigation measures and adherence to the COAs, impacts to aquifers above the producing zone are unlikely.

Cumulative Effects: Oil and gas exploration and development, and chemicals used for livestock and rangeland management are the principal sources of hazardous and solid wastes in the Yellow Creek Watershed. Proper implementation of the SUPO and adherence to the COAs would greatly reduce any contribution from the Proposed Action to cumulative adverse effects from hazardous and solid wastes on human health and/or the environment. Nonetheless, the Proposed Action is expected to contribute incrementally to a release of hazardous and solid waste in the watershed.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: No hazardous or other solid wastes would be generated under the No Action Alternative.

Cumulative Effects: The No Action Alternative would not contribute to cumulative effects from hazardous or solid wastes in the area of analysis.

*Mitigation:*

1. Comply with all Federal, State and/or local laws, rules and regulations, including but not limited to onshore orders and notices to lessees, addressing the emission of and/or the handling, use, and release of any substance that poses a risk of harm to human health or the environment. All spills or leakages of oil, gas, produced water, toxic liquids or waste materials, blowouts, fires, shall be reported by the operator in accordance with the regulations and as prescribed in applicable orders or notices.
2. Where required by law or regulation to develop a plan for the prevention of releases or the recovery of a release of any substance that poses a risk of harm to human health or the environment, provide a current copy of said plan to the BLM WRFO.
3. When drilling to set the surface casing, drilling fluid will be composed only of fresh water, bentonite, and/or a benign lost circulation material that does not pose a risk of harm to human health or the environment (e.g., cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs, or cotton hulls).
4. As a reasonable and prudent lessee/operator and/or right-of-way holder in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or non-exempt. Where the lessee/operator or right-of-way holder fails, refuses or neglects to provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the BLM WRFO may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action will not relieve the lessee/operator of any liability or responsibility.

## **FIRE MANAGEMENT**

*Affected Environment:* The Proposed Action is located within the D5-W Cathedral Bluffs/Roan Plateau Fire Management Polygon with a vegetation composition of primarily mountain shrubs, sagebrush with intermixed pinyon-juniper woodlands and Douglas fir. The resource management objective is to manage naturally ignited fires throughout this polygon to promote a vegetation mosaic with varying successional stages. Natural fire management objectives are emphasized in order to benefit multiple resource goals when prescriptive parameters allow, as well as conducting prescribed burns or other vegetation treatments on mountain shrub and sagebrush to achieve age and structural diversity. The fire regime/condition

class for this fire management polygon is currently at a two, or is land considered to have been moderately altered from its historical fire return interval.

*Environmental Consequences of the Proposed Action:*

**Direct and Indirect Effects:** During a wildfire event, the primary objective is firefighter and public safety. While in the construction phase of the proposed project, the appropriate management response may be full suppression. The direct effect will be the temporary suspension of the use of naturally ignited fire to meet multiple resource management objectives. Once the project is complete, the man-made vegetation breaks would alter the behavior of wildfires in the area, and may create areas that are suitable for use as fire breaks to help control wildfires.

**Cumulative Effects:** While natural gas drilling within the area continues there may be difficulties in full implementation of the Northwest Colorado Fire Program Area Fire Management Plan due to public safety concerns. This could alter the fire regime condition class from a two to a three. Vegetation structure, diversity, and condition may be significantly altered. This could risk these lands losing key ecosystem components if the fire return interval is altered from its historic range. When drilling operations decrease fire and resource managers may again allow naturally ignited fire to create a vegetation mosaic representing various plant communities in different successional stages.

*Environmental Consequences of the No Action Alternative:*

**Direct and Indirect Effects:** No vegetation alteration or construction would occur under this alternative. This may allow for full implementation of the Fire Management Plan.

**Cumulative Effects:** If there is a decrease in energy related infrastructure, naturally ignited fire may create a successional change in vegetation and bring the area closer to a fire regime/condition class one or an area with a natural (historical) range of variability of vegetation characteristics, fuel composition, fire frequency, and fire severity. Without new oil and gas development and infrastructure, there would be fewer human related vegetation breaks which have been used to control fires in the past. If fires are to be directly suppressed it could lead to increases in fire suppression costs.

*Mitigation:*

1. When working on lands administered by the BLM WRFO, notify Craig Interagency Dispatch (970-826-5037) in the event of any fire.
  - a) The reporting party will inform the dispatch center of fire location, size, status, smoke color, aspect, fuel type, and provide their contact information.
  - b) The reporting party, or a representative of, should remain nearby, in a safe location, in order to make contact with incoming fire resources to expedite actions taken towards an appropriate management response.
  - c) The applicant and contractors will not engage in any fire suppression activities outside the approved project area. Accidental ignitions caused by welding, cutting, grinding, etc. will be suppressed by the applicant only if employee safety is not endangered and if the fire can be safely contained using hand tools and portable hand pumps. If

chemical fire extinguishers are used the applicant must notify incoming fire resources on extinguisher type and the location of use.

- d) Natural ignitions caused by lightning will be managed by Federal fire personnel. The use of heavy equipment for fire suppression is prohibited, unless authorized by the Field Office Manager.

## **RANGELAND MANAGEMENT**

*Affected Environment:* The proposed CBU O15 1100 pad location is within the Summer pasture of the Spring Creek (#006032) allotment and the Dry Duck pasture of the Duck Creek (#06031) allotment. The Spring Creek allotment consists of 31,829 Federal acres and 8,456 private acres (40,825 total acres); the Duck Creek consists of 21,377 Federal acres and 3,946 private acres (25,323 total acres). The Spring Creek allotment is permitted to Tuffy Sheridan and Wade Cox (0501427) for livestock grazing totaling 2,185 active Animal Unit Months (AUMs). Grazing within the summer pasture occurs between 7/1 and 10/20 annually. The Duck Creek allotment is permitted to Wyatt Ranches (0501431) for livestock grazing totaling 1,270 active AUMs. Grazing within the Dry Duck pasture occurs between 7/1 and 11/15 annually.

Rangeland Improvements: There is an allotment division fence that bisects the proposed pad location.

There are no range trend monitoring sites nearby that would be affected by the implementation of the Proposed Action.

### *Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: If construction occurs during the period livestock are permitted in this area they will likely avoid the area adjacent to the proposed development during the period of intense noise and activity levels. During this period there is increased risk of injury to livestock. After construction is complete, livestock will likely be minimally affected or even unaffected by the presence of production facilities.

This Proposed Action could interfere with proper functioning of the range improvements near the proposal. The fence in this area is necessary for control of cattle to achieve grazing objectives on the grazing allotment and to keep cattle from straying into the wrong grazing use area. Damage to fences or gates left open interfere with control of cattle and ultimately with proper utilization of the rangeland resource.

Construction of the CBU O15 1100 pad will remove up to 9.7 acres of vegetation. Until construction disturbance is successfully reclaimed and re-vegetated there would be a short term loss of less than one AUM in the Equity-Swizer pasture associated with this pad. After successful interim and final reclamation there would likely be a slight increase in forage production until the western portion of the proposed site progress back to shrub/tree domination. The short-term forage loss within this pasture would be less than the annual fluctuation in forage production and would not be expected to result in any need for changes in livestock numbers or grazing period.

Cumulative Effects: Agriculture, road development, oil and gas development, and associated infrastructure development that have the potential to impact livestock grazing and rangeland management would continue to occur. The Proposed Action would have minimal effect on forage in the allotment listed above. After project construction has been completed and grass/forb communities have recovered from construction related disturbance the Proposed Action would contribute to small and temporary grass/forb dominated site providing additional forage for livestock in the area.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: There would be no direct and/or indirect effects to rangeland management under the No Action Alternative.

Cumulative Effects: Activities associated with agriculture, road development, oil and gas development, and associated infrastructure development would continue to occur in the area, which all has the potential to impact livestock grazing and rangeland management by removal of forage, impacts to range improvements, etc.

*Mitigation:*

1. Where the main body of the pad will remove a section of the pasture division fence, ensure that the proposed fence that is reconstructed around the pad is constructed to maintain the function of this fence in controlling livestock movement through the area. If construction will occur during the timeframe livestock are in the area a temporary fence will need to be constructed until the longer-term fence can be built. See Vegetation mitigation for fence construction requirements.

## **FLOODPLAINS, HYDROLOGY, AND WATER RIGHTS**

*Affected Environment:* Refer to the *Surface and Ground Water Quality* section for a description of the surface and ground water resources in the Proposed Action area.

There are no Water Rights issues found on the 'DWR Statewide Water Rights' database.

There are four springs within a one-mile radius of the project area. These water resources are mostly used for livestock watering. There are no known springs or wells used as drinking water sources or irrigation water within one mile of the proposed facilities. There are no floodplains along perennial waters within a mile of the proposed facilities.

If any natural gas wells are converted to water wells, the potential exists for water right filings.

Cumulative Effects: The Proposed Action may contribute to incremental cumulative effects to the springs within a one-mile radius of the project area. The closest floodplain is located over 1.3 miles away on an ephemeral branch of Big Duck Creek. The Proposed Action will not contribute to cumulative effects to the floodplain.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: The No Action Alternative would not affect floodplains, hydrology, or water rights in the project area.

Cumulative Effects: The No Action Alternative would not contribute to effects to floodplains, hydrology, or water rights in the project area.

*Mitigation:* None

## RECREATION

*Affected Environment:* The Proposed Action occurs within the White River Extensive Recreation Management Area (ERMA). The BLM custodially manages the ERMA to provide for unstructured recreation activities such as hunting, dispersed camping, hiking, horseback riding, wildlife viewing, and off-highway vehicle use. The project site is located in the Recreation Opportunity Spectrum (ROS) classification area of Semi-Primitive Motorized. Areas within this classification are characterized by a largely natural appearance and are accessible by foot, horseback, bike, or motor vehicle generally on native-surfaced roads or gravel roads. Interaction with other visitors is relatively low. There are minimum on-site controls and restrictions, and the area provides for a moderate probability of experiencing isolation, remoteness, and closeness to nature. The primary recreation activity in this area is upland big game hunting from late August through December of each year with peak use from early-October through early-November. The Proposed Action is located within the Colorado Parks and Wildlife (CPW) Game Management Unit (GMU) 22, and overall is a somewhat popular big game hunting area where hunters have good opportunities to pursue both mule deer and elk. There are two Special Recreation Permits (SRPs) for commercially outfitting and guiding for big game permitted on extensive public lands in this area. There are 15 SRPs for commercially outfitting and guiding for mountain lion hunting which are permitted for all BLM lands within the WRFO. Other recreational activities known to occur in this area include site seeing motor vehicle touring to experience the extensive views along RBC 103 and Off-Highway Vehicle (OHV) recreational riding.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: Due to the Proposed Action, there would be a direct disturbance of approximately 7.2-9.7 acres of public land during the initial construction period that is currently available for dispersed recreation activities. Some displacement of recreationists may occur during construction, particularly to those seeking a more primitive-oriented backcountry recreation experience. Based on the proposed timing of this project it is likely that wellpad construction and drilling activities will coincide with some of the various big game hunting seasons (late August through December). This means there may be a disruption to the hunting experience in these localized settings during these activities. Because this proposal is located in an area within extensive public lands, it is likely that those seeking big game hunting opportunities in this area will be able to find similar hunting and camping opportunities on nearby public lands. After the construction period and once interim reclamation has been completed, the amount of ground disturbance would be reduced to 3.6 acres. Also, operational

activities during the production phase would be much less disruptive to dispersed camping in the area and big game hunting.

Cumulative Effects: Combined with other foreseeable oil and gas development and mining development activities in the area, the Proposed Action may begin to contribute to a somewhat modified landscape with slightly reduced recreational opportunities and undesired recreational experiences, and impacts to some localized recreational settings.

*Environmental Consequences of the No Action Alternative:*

Direct and Indirect Effects: Because the wellpad and access road would not be constructed, there would be no new impacts to recreational opportunities and experiences as a result of this alternative.

Cumulative Effects: None identified as a result of this alternative.

*Mitigation:* None.

## ACCESS AND TRANSPORTATION

*Affected Environment:* The primary access to the Proposed Action includes traveling on Rio Blanco County (RBC) Road 122 from Rangely, CO to RBC 103. Gravel will be used for road surfacing for approximately 3.5 miles on RBC 103 between the intersection of RBC 122 and RBC 103 to the wellpad. All road work will be done according to BLM Manual Section 9113 standards. The roads closer to the Proposed Action are traveled primarily by oil and gas employees, local ranch operators, big game hunters, and other recreationalists. According to the White River ROD/RMP, motorized vehicle travel is restricted to the existing roads and trails year round in this area.

*Environmental Consequences of the Proposed Action:*

Direct and Indirect Effects: The Proposed Action is expected to result in a minor incremental increase in traffic and potentially an increase travel times on the above described portions of routes, especially during the construction and drilling periods. These impacts are expected to be temporary in duration and the applicant has committed to maintaining routes used in conjunction with the Proposed Action to current conditions or better throughout the life of the proposed project. After the proposed 3.5 mile upgrade of RBC 103 from RBC 122 to the wellpad has been completed, access to public lands will be improved in this area. These routes are proposed to be surfaced for all-weather travel and maintained by the applicant in cooperation with others to use or manage this route. This should decrease travel times, accommodate lower clearance vehicles, and improve the safety of the improved sections of these routes. There is potential for roads and routes to be damaged if construction activities associated with the Proposed Action occur when roads and routes are saturated. To prevent road damage as a result of use when they are saturated is it recommended that all construction activity cease when soils or roads surfaces become saturated to a depth of three inches. The short access road to the well pad is a temporary route authorized for use by those in conjunction with this project only and is not authorized for general public use. Encana has committed that the access road and location

will be re-contoured and ripped or disked prior to seeding and perennial vegetation will be established. Encana has also committed that additional work will be required in case of seeding failures, etc.

**Cumulative Effects:** The Proposed Action is likely to improve public access along to this portion of RBC 103 from the intersection of RBC 122 and the well pad. This could result in more vehicle use of this road and a slight increase of recreational or general public use of public lands in this area.

*Environmental Consequences of the No Action Alternative:*

**Direct and Indirect Effects:** Because the wellpad and access road would not be constructed and road upgrades would not occur, there would be no new impacts to the transportation system or public access as a result of this alternative.

**Cumulative Effects:** None identified as a result of this alternative.

*Mitigation:*

1. All construction activity shall cease when soils or roads surfaces become saturated to a depth of three inches unless approved by the Authorized Officer.

**REFERENCES CITED:**

- APCD Colorado Dept. of Public Health and Environment Air Pollution Control Division  
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[http://www.colorado.gov/airquality/documents/2010\\_CO\\_5yr\\_Network\\_Assessment.pdf](http://www.colorado.gov/airquality/documents/2010_CO_5yr_Network_Assessment.pdf). (Updated June 30, 2011)
- Armstrong, Harley J., and David G. Wolny  
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- Braun, C.E., O.O. Oedekoven, and C.L. Aldridge. 2002. Oil and gas development in western North America: effects on sagebrush steppe avifauna with particular emphasis on sage-grouse. Transactions of the North American Wildlife and Natural Resources Conferences 67: 337-349.
- Colorado Air Pollution Control Division (CAPCD)  
2013 Colorado Air Quality Data Report 2012, Colorado Department of Public Health and the Environment Air Pollution Control Division (APCD-TS-B1).
- COGCC Colorado Oil and Gas Conservation Commission web site database  
<http://cogcc.state.co.us/> accessed 03/17/2014
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Davenport, Barbara

2014 Class III Cultural Resources Inventory for the Proposed CBU K01 1100, CBU O11 1100, and CBU O15 1100 Well Locations in Rio Blanco County, Colorado for EnCana Oil and Gas (USA) Inc. Grand River Institute, Grand Junction, Colorado. (14-11-10: OAHP # RB.LM.NR2398)

Donnell, John R.

1982, Preliminary Geologic Map of the Sagebrush Hill Quadrangle, Rio Blanco County, Colorado: U.S. Geological Survey Geologic Quadrangle Map, Map MF-1398

Ingelfinger, F. and S. Anderson.

2004 Passerine response to roads associated with natural gas extraction in a sagebrush steppe habitat. Western North American Naturalist 64:385-395.

Tweto, Ogden

1979 Geologic Map of Colorado. United States Geologic Survey, Department of the Interior, Reston, Virginia.

Walker, B.L. 2010. Greater sage-grouse research in the Parachute-Piceance-Roan region of western Colorado. Part II: Multi-scale habitat selection and seasonal habitat mapping. Interim Progress Report. Colorado Parks and Wildlife, Grand Junction, CO. 29pp. [<http://cpw.state.co.us/learn/Pages/ResearchBirdsGreaterSageGrouse.aspx>]

### **TRIBES, INDIVIDUALS, ORGANIZATIONS, OR AGENCIES CONSULTED:**

Taylor Elm, Colorado Parks and Wildlife (CPW) Land Use Specialist, July, 17, 2014, requesting CPW concurrence of WRFO timing limitation stipulations for big game summer range. Concurrence that project will impose timing limitations for the protection of mule deer and elk summer range received via e-mail July 18, 2014.

### **INTERDISCIPLINARY REVIEW:**

| <b>Name</b>     | <b>Title</b>                    | <b>Area of Responsibility</b>   | <b>Date Signed</b> |
|-----------------|---------------------------------|---|--------------------|
| Jesse McGill    | Hydrology Technician            | Air Quality; Surface and Ground Water Quality; Floodplains, Hydrology, and Water Rights; Soils                | 9/10/2014          |
| Justina Thorsen | Ecologist                       | Areas of Critical Environmental Concern; Special Status Plant Species   | 9/8/2014           |
| Matt Dupire     | Rangeland Management Specialist | Forest Management   | 9/9/2014           |
| Michael Selle   | Archaeologist                   | Cultural Resources; Native American Religious Concerns; Paleontological Resources                             | 8/29/2014          |
| Tyrell Turner   | Rangeland Management Specialist | Invasive, Non-Native Species; Vegetation; Rangeland Management  | 9/4/2014           |
| Heather Stewart | Wildlife Biologist              | Migratory Birds; Special Status Animal Species; Terrestrial and Aquatic Wildlife; Wetlands and Riparian Zones | 9/11/2014          |

| <b>Name</b>        | <b>Title</b>                         | <b>Area of Responsibility</b>  | <b>Date Signed</b> |
|--------------------|--------------------------------------|--|--------------------|
| Jay Johnson        | Natural Resource Specialist          | Hazardous or Solid Wastes  | 9/4/2014           |
| Aaron Grimes       | Outdoor Recreation Planner           | Wilderness; Visual Resources; Access and Transportation; Recreation, | 8/29/2014          |
| Kyle Frary         | Fire Management Specialist           | Fire Management  | 9/8/2014           |
| Paul Daggett       | Mining Engineer                      | Geology and Minerals   | 9/5/2014           |
| Stacey Burke       | Realty Specialist                    | Realty   | 9/4/2014           |
| Melissa J. Kindall | Range Technician                     | Wild Horse Management  | 8/28/2014          |
| Jay Johnson        | Natural Resource Specialist          | Project Lead – Document Preparer                                     | 9/9/2014           |
| Heather Sauls      | Planning & Environmental Coordinator | NEPA Compliance  | 9/25/2014          |

**ATTACHMENTS:**

- Figure 1 - RBC 103 Reroute (Alternative Considered but not Carried Forward)
- Figure 2 - Access (Encana Provided Map)
- Figure 3 - Phase I with berm
- Figure 4 - Phase II with berm
- Figure 5 - Conceptual Simulation Phase I with Berm
- Figure 6 - Conceptual Simulation Phase II with Berm
- Figure 7 - Phase I and Phase II Disturbance
- Figure 8 - Phase I and Phase II Disturbance

Figure 1 – RBC 103 Reroute (Alternative Considered but not Carried Forward)

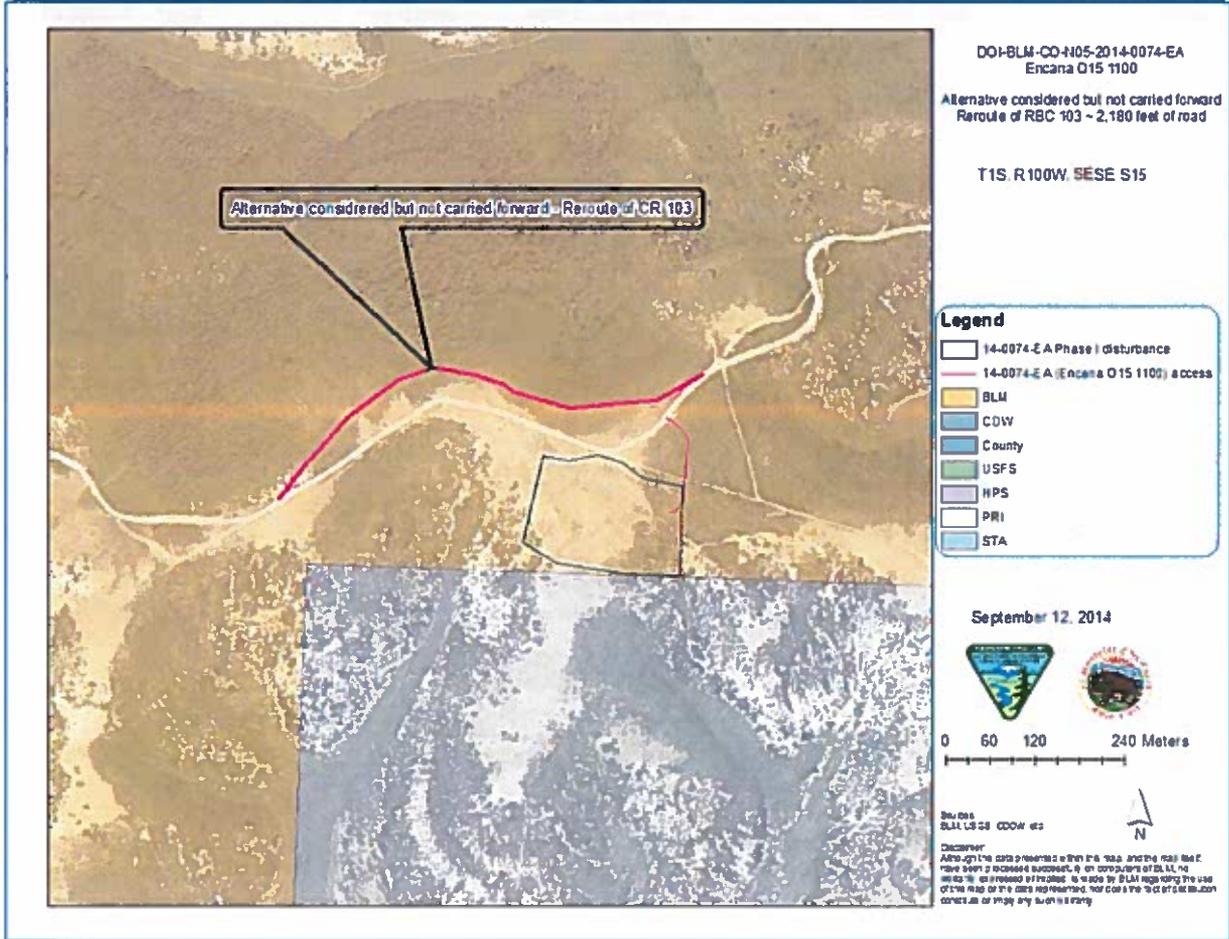


Figure 2 – Access (Encana Provided Map)

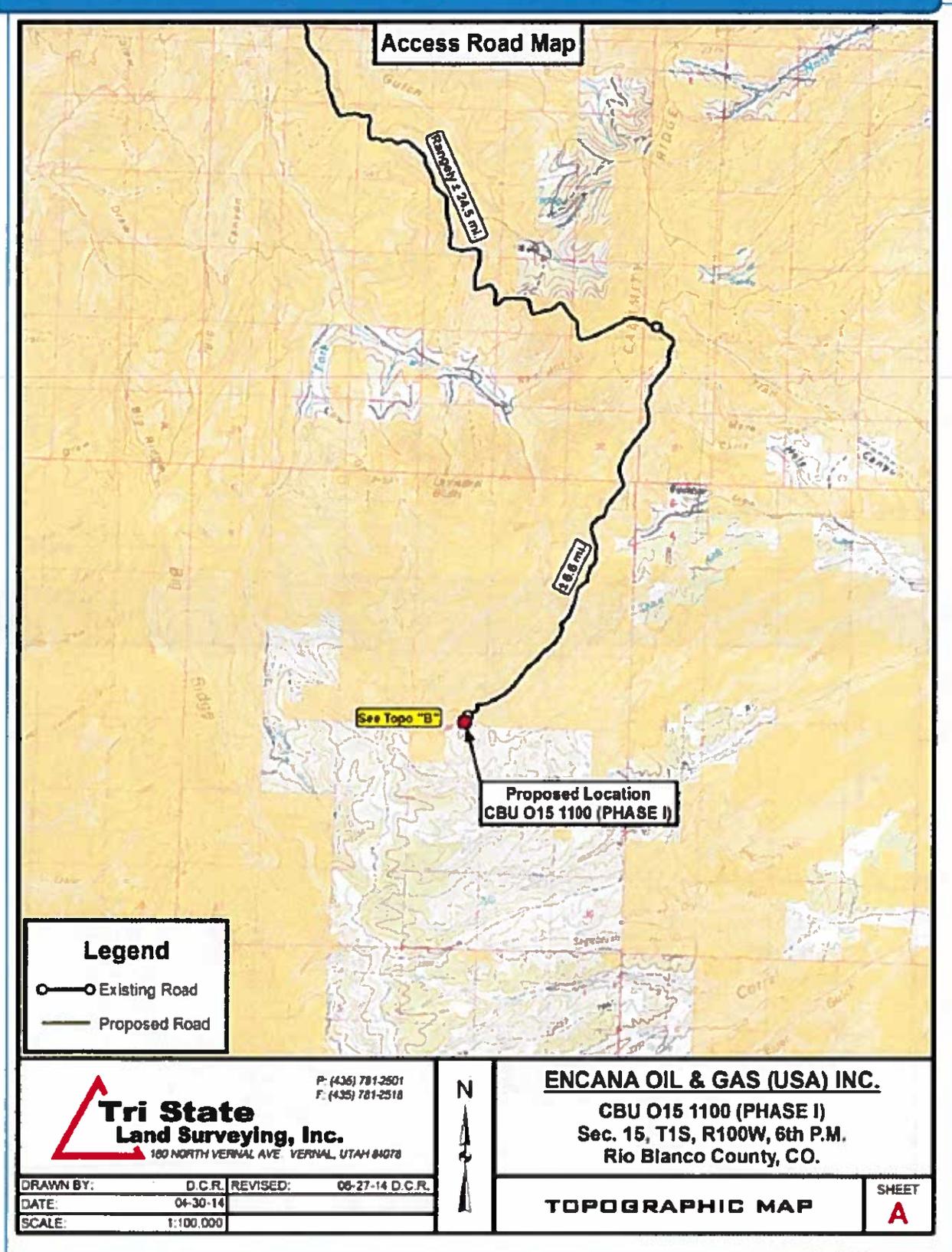


Figure 3 – Phase I with berm

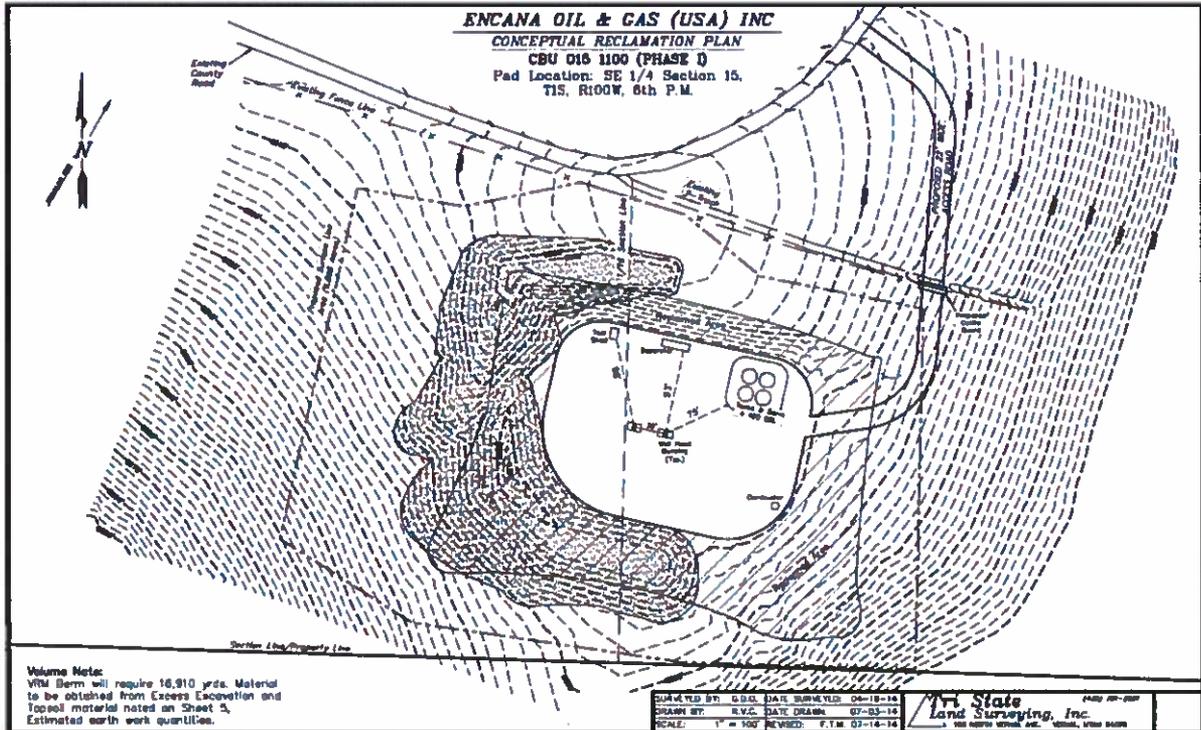


Figure 4 – Phase II with Berm

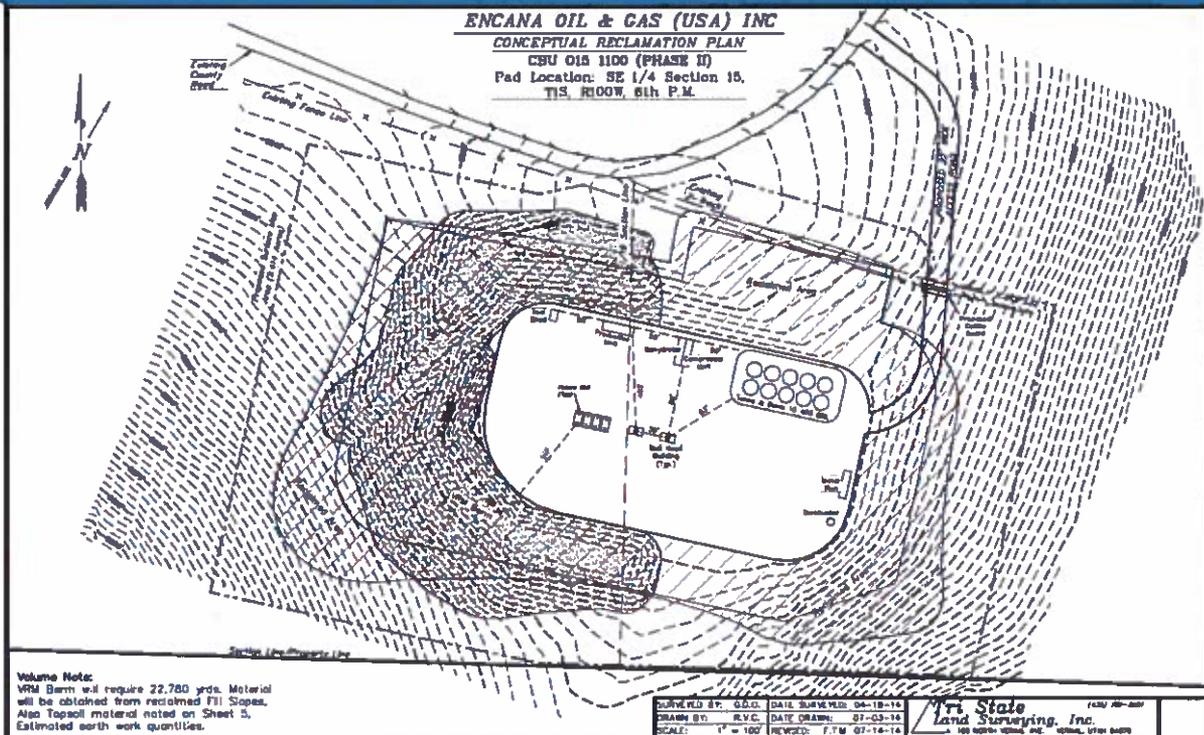


Figure 5 – Conceptual Simulation Phase I with Berm

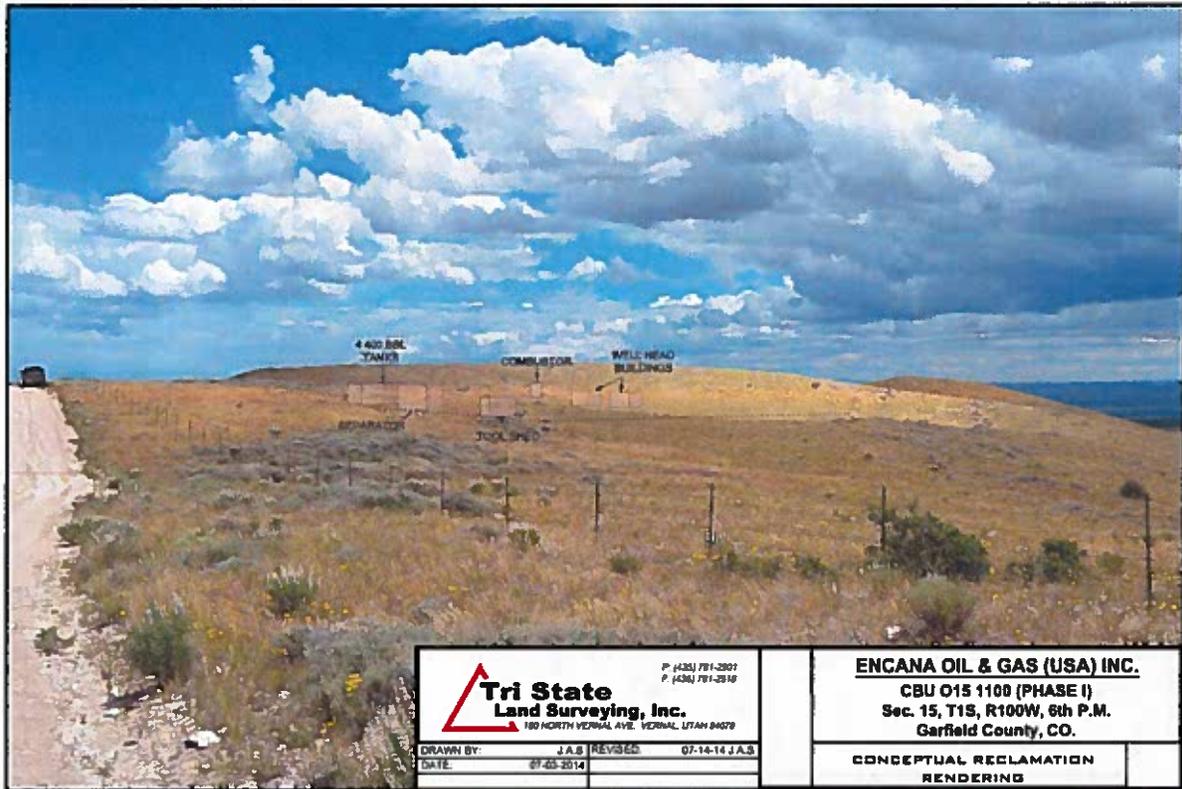


Figure 6 – Conceptual Phase II with Berm

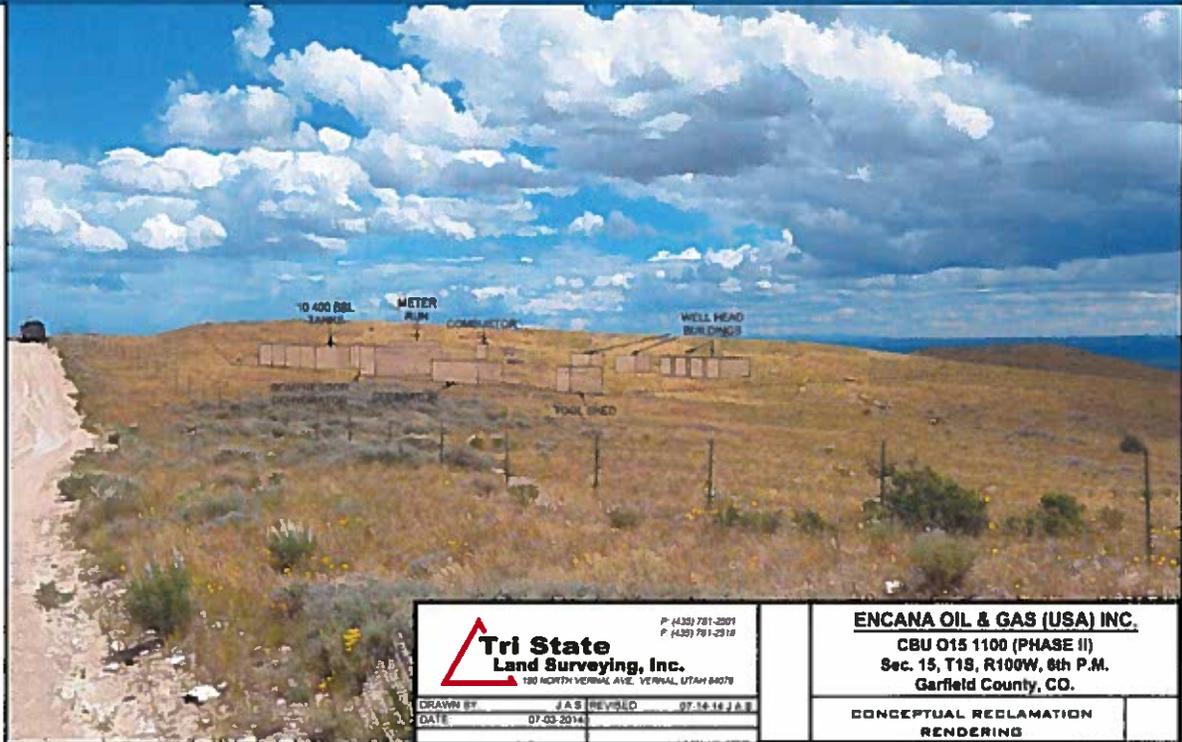


Figure 7 – Phase I Disturbance

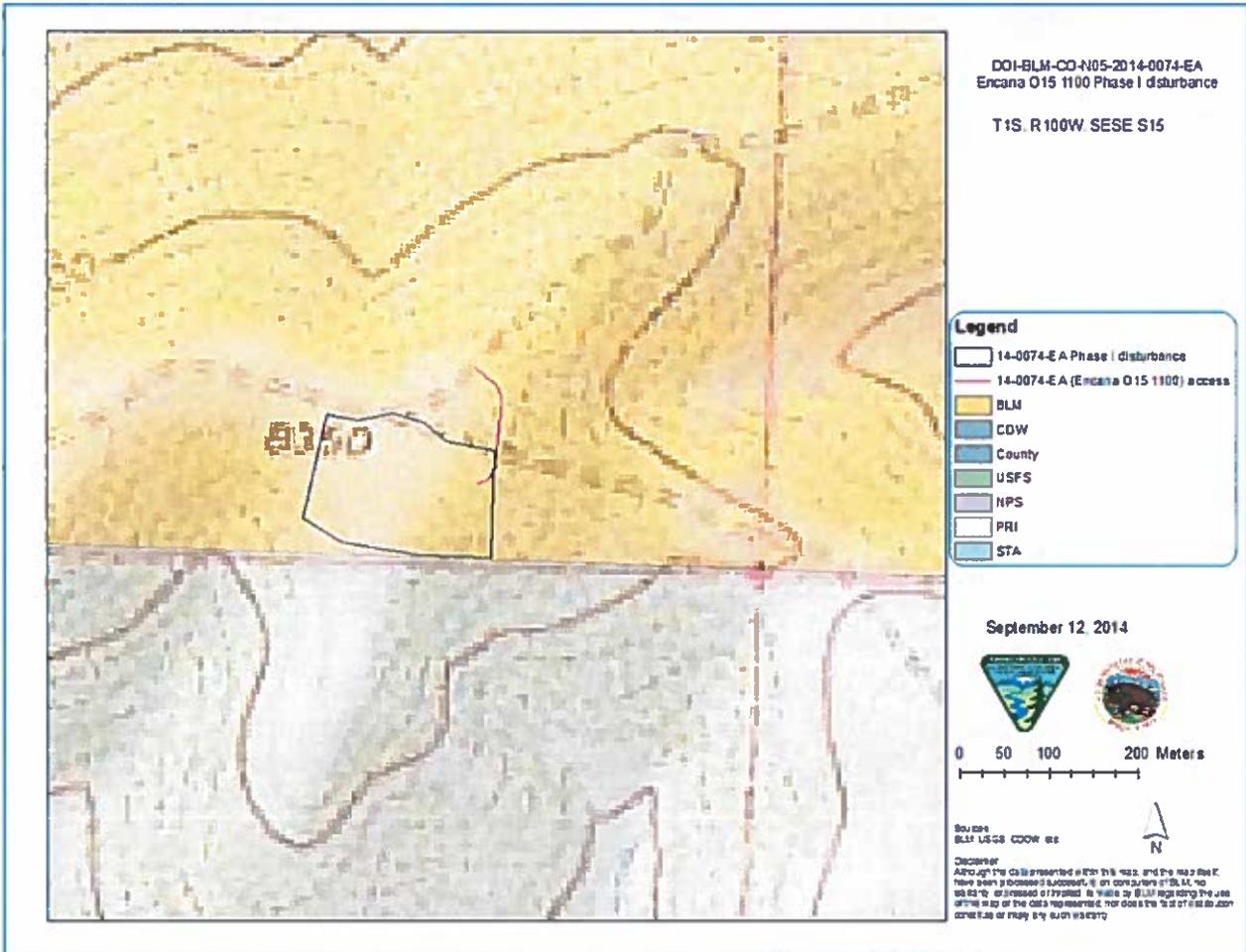
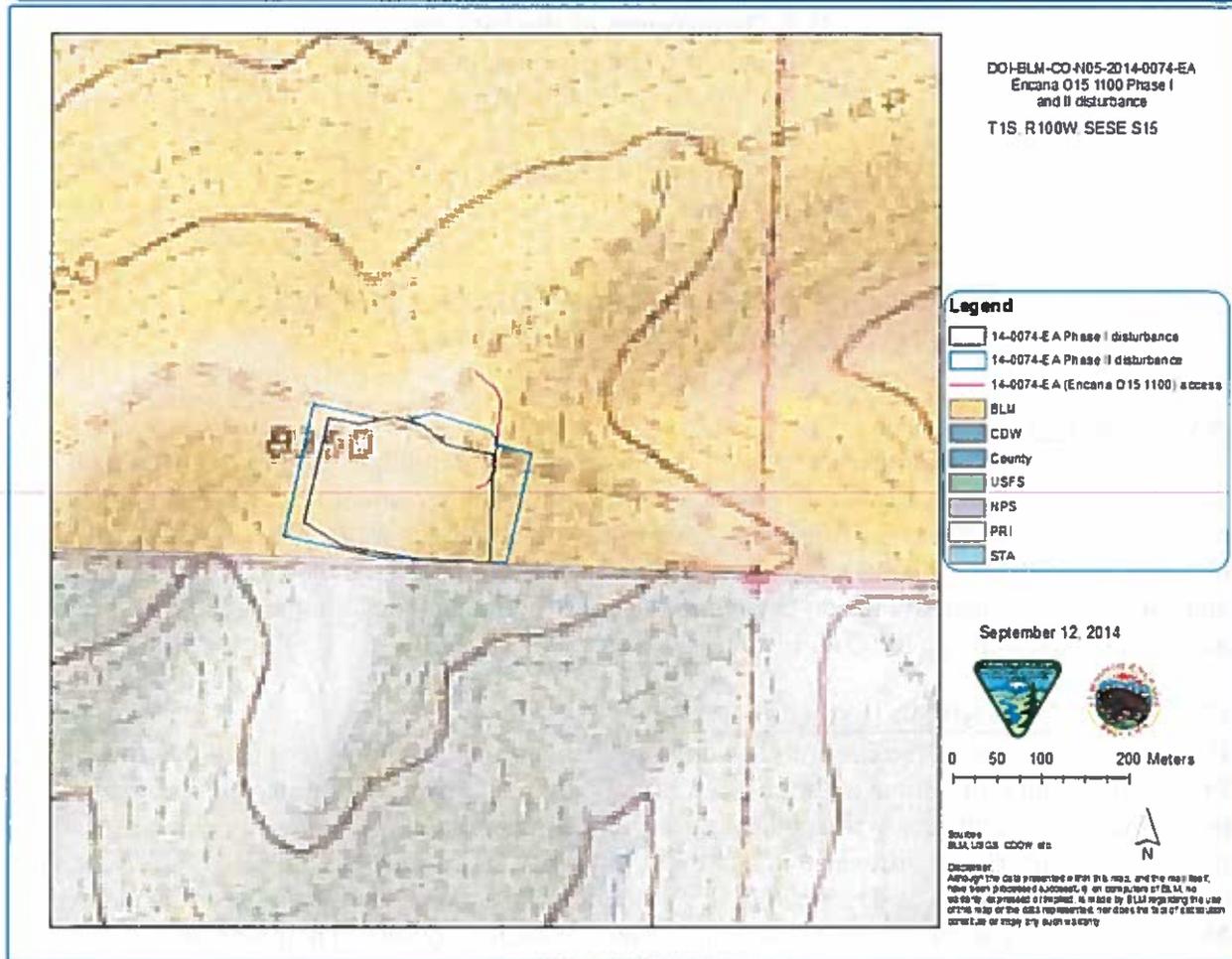


Figure 8 – Phase I and Phase II Disturbance



**U.S. Department of the Interior  
Bureau of Land Management  
White River Field Office  
220 E Market St  
Meeker, CO 81641**

**Finding of No Significant Impact (FONSI)  
DOI-BLM-CO-N05-2014-0074-EA**

**BACKGROUND**

Encana has proposed to construct one wellpad location where in Phase II of the project, total disturbance for the wellpad will be 9.40 acres prior to interim reclamation, a 503 foot long access road for a total of 0.30 acres disturbance, and drill two natural gas wells (CBU DV16C-15 O151100 and DHS3B-27O151100). In addition, Encana has requested the BLM include an analysis of environmental impacts related to the construction and development activities for an additional eight wells on the O15 1100 pad for a total of 10 wells.

**FINDING OF NO SIGNIFICANT IMPACT**

Based upon a review of the EA and the supporting documents, I have determined that the Proposed Action will not have a significant effect on the quality of the human environment, individually or cumulatively with other actions in the general area. No environmental effects meet the definition of significance in context or intensity, as defined at 40 CFR 1508.27 and do not exceed those effects as described in the White River Resource Area Proposed Resource Management Plan and Final Environmental Impact Statement (1996). Therefore, an environmental impact statement is not required. This finding is based on the context and intensity of the project as described below.

**Context**

The project is a site-specific action directly involving BLM administered public lands that do not in and of itself have international, national, regional, or state-wide importance. The lease and unit area is in the early stages of development and this is the first wellpad in the area. With the two wells proposed in this EA, one has been identified as the unit obligation well. The prominent existing disturbances within the lease and unit area are primarily roads.

**Intensity**

The following discussion is organized around the 10 Significance Criteria described at 40 CFR 1508.27. The following have been considered in evaluating intensity for this Proposed Action:

**1. Impacts that may be both beneficial and adverse.**

The site location for the proposed location has been described as having few if any invasive weeds. Site disturbance, vehicle traffic, improper reclamation techniques, and weed seeds present in the seed mix will alter the composition of the site and may allow an invasion of invasive weeds. Proper reclamation techniques, monitoring, and adequately cleaning vehicles may help prevent the invasion of the invasives. While potentially harmful chemicals and

additives may be used during drilling and completions operations, there is a possibility they could be released in volumes that could adversely affect human health or the environment; however, the proponent provides for safe containment and disposal of each type of potential waste, and the use of these materials are expected to enhance the beneficial recovery of the natural gas resource. The area of the wellpad is within a Visual Resource Management Class II area with this being the first development. This wellpad has the potential to negatively affect the viewer during the drilling phase of the project. During production, the applicant has committed to measures to help reduce the visual impact. One of the wells (if drilled) is proposed to be the unit obligation well which if productive will improve Encana's ability to hold the unit. Drilling of the wells will also enable the recovery of the natural gas resources and potentially result in revenues for Encana and the Department of the Interior.

**2. The degree to which the Proposed Action affects public health or safety.**

There would be no impact to public health and safety if the safety measures described in the operator's drilling plan and SUP are properly implemented, and the developed mitigation is adhered to.

**3. Unique characteristics of the geographic area such as proximity to historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas.**

There are no historic or cultural resources, park lands, prime farmlands, wetlands, wild and scenic rivers, or ecologically critical areas that are proximal to the area.

**4. Degree to which the possible effects on the quality of the human environment are likely to be highly controversial.**

No comments or concerns have been received regarding possible effects on the quality of the human environment during the public comment period.

**5. Degree to which the possible effects on the quality of the human environment are highly uncertain or involve unique or unknown risk.**

No highly uncertain or unknown risks to the human environment were identified during analysis of the Proposed Action.

**6. Degree to which the action may establish a precedent for future actions with significant effects or represents a decision in principle about a future consideration.**

The Proposed Action may establish a precedent for future BLM actions within the VRM II areas of the Cathedral Bluffs Unit. There is little to no existing development in the area, and a specific plan was developed between Encana and the BLM to help reduce the visual effects this wellpad may create.

**7. Whether the action is related to other actions with individually insignificant but cumulatively significant impacts.**

This action is similar to many actions proposed and reviewed in the NEPA process in the BLM WRFO that involve construction of a wellpad, constructing an access road and drilling one or more wells. The process of permitting new oil and gas wells is an ongoing process and is so for the foreseeable future.

**8. The degree to which the action may adversely affect districts, sites, highways, structures, or objects listed on the National Register of Historic Places or may cause loss or destruction of significant scientific, cultural, or historical resources.**

There are no known districts, sites, highways, structures, or objects listed on the National Register of Historic Places and the Proposed Action is not believe to cause loss or destruction of significant scientific, cultural, or historical resources.

**9. The degree to which the action may adversely affect an endangered or threatened species or its habitat that has been determined to be critical under the Endangered Species Act (ESA) of 1973.**

Sage-grouse are candidates for listing under the ESA and have potential to exist in the area. There is potential with the construction of the berm to reduce the visual effect of the wellpad that it may negatively affect sage-grouse, due to increased predation risk.

**10. Whether the action threatens a violation of Federal, State, or local law or requirements imposed for the protection of the environment.**

Neither the Proposed Action nor impacts associated with it violate any laws or requirements imposed for the protection of the environment.

**SIGNATURE OF AUTHORIZED OFFICIAL:**



Field Manager

**DATE SIGNED:**

09/26/2014

**U.S. Department of the Interior  
Bureau of Land Management  
White River Field Office  
220 E Market St  
Meeker, CO 81641**

**DECISION RECORD**

**PROJECT NAME:** Encana CBU O15 1100 proposed wellpad (O15 1100 pad)

**ENVIRONMENTAL ASSESSMENT NUMBER:** DOI-BLM-CO-N05-2014-0074-EA

**DECISION**

It is my decision to implement the Proposed Action, as mitigated in DOI-BLM-CO-N05-2014-0074-EA, authorizing the construction, operation, and maintenance of the O15 1100 wellpad, access road, and associated disturbances, and drilling the two natural gas wells in the Phase I.

The WRFO has not received any APDs for the other wells associated with Phase II. When/if those APDs are submitted, we will then review the environmental assessment and determine if the existing analysis is valid in light of any new information or circumstances.

**Mitigation Measures**

**Air Quality:**

1. The operator will limit unnecessary emissions from point or nonpoint pollution sources and prevent air quality deterioration from necessary pollution sources in accordance with all applicable state, Federal, and local air quality law and regulations.

**Soil Resources:**

2. In order to protect public land health standards for soils, erosion features such as rilling, gullyng, piping and mass wasting on the surface disturbance or adjacent to the surface disturbance as a result of this action will be addressed immediately after observation by contacting the Authorized Officer (AO) and by submitting a plan to assure successful soil stabilization with BMPs to address erosion problems.
3. Two culverts must be installed along the proposed access road to move water off the road. Installation location and standards follow:
  - a) One culvert must be installed where the proposed access road meets the wellpad entrance.
  - b) The second culvert must be installed at the approximate halfway point between where the proposed access road leaves RBC 103 and the wellpad entrance.
  - c) Culverts must be:
    - i. Appropriately sized for the conditions
    - ii. Installed with appropriate riprap

- iii. Meet and be installed and maintained in accordance with Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development, “The Gold Book”, Fourth Edition – Revised 2007.
  - iv. At final abandonment of the access road, the culverts and any materials associated with the culverts must be properly removed from BLM land.
4. All construction activity shall cease when soils or roads surfaces become saturated to a depth of three inches unless approved by the Authorized Officer.

Surface and Ground Water Quality:

5. To protect surface waters below the project area, the operator will keep road inlet and outlet ditches, sediment retention basins, and culverts free of obstructions, particularly before and during spring run-off and summer convective storms. Provide adequate drainage spacing to avoid accumulation of water in ditches or on road surfaces.

Vegetation:

6. For interim reclamation the BLM recommends Seed Mix #7 outlined in Table 6. It is recommended that seeding occur between September 1 and March 31. If an alternate date of seeding is requested, contact the designated Natural Resource Specialist prior to seeding for approval. Drill seeding is the preferred method of application and drill seeding depth must be no greater than ½ inch. If drill seeding cannot be accomplished, seed should be broadcast at double the rate used for drill seeding, and harrowed into the soil. Final reclamation will be completed using the reclamation practices and seed mixes recommended at that time.

**Table 6. Seed Mix #7 for Interim Reclamation of the CBU O15 1100 pad**

| Cultivar | Common Name             | Scientific Name                              | Application Rate (lbs PLS/acre) |
|----------|-------------------------|--|---------------------------------|
|          | Letterman needlegrass   | <i>Elymus lanceolatus ssp. lanceolatus</i>   | 3                               |
| San Luis | Slender Wheatgrass      | <i>Elymus trachycaulus ssp. trachycaulus</i> | 2                               |
| Whitmar  | Bluebunch Wheatgrass    | <i>Pseudoroegneria spicata ssp. inermis</i>  | 4                               |
| Sodar    | Streambank Wheatgrass   | <i>Elymus lanceolatus ssp. psammophilus</i>  | 3                               |
|          | Scarlet Globemallow     | <i>Sphaeralcea coccinea</i>                  | 0.5                             |
|          | Sulfur Flower Buckwheat | <i>Eriogonum umbellatum</i>                  | 1                               |

7. In the SUP where it addresses ripping compacted soils, ensure that ripping is completed before spreading topsoil. If topsoil will be stored for more than one year and other resource values can be accommodated, topsoil should be stored in piles with a depth of two feet or less to help retain soil viability.
8. To reduce erosion and reduce the risk of weed establishment, interim reclamation will be initiated when either there are no drilling activities expected on the pad for the next six months or there has been no activity on the pad within the last six months, regardless of whether or not there are outstanding approved APDs.

9. The maximum extent of disturbance for the wellpad (i.e., the well pad footprint) will be fenced. Fencing should remain in place through successful interim reclamation and again through successful final reclamation to promote re-vegetation and reduce weeds. Fences, cattleguards, and gates (all built to BLM specification per BLM manual H-1741-1 (see below)) will be installed, maintained, and removed by the operator upon approval by the AO. The fence around the pad must also have a wire gate installed adjacent to the cattleguard or at another appropriate location to be used in the case of livestock becoming entrapped inside the pad area. As part of final abandonment the fence around this pad will be reconstructed on the pre-disturbance fence alignment and all unneeded fence materials will be removed. The fence constructed will be a BLM Modified Type D 4-wire fence with the following specifications:
  - a) 40 inches tall between the soil surface and top wire
  - b) 16 inches between the soil surface and bottom wire
  - c) 12 inches between the top wire and next wire below
  - d) 6 inch spacing on the middle two wires
10. All seed tags will be submitted via Sundry Notice (SN) to the designated Natural Resource Specialist within 14 calendar days from the time the seeding activities have ended. The SN will include the purpose of the seeding activity (i.e., seeding well pad, cut and fill slopes, seeding pipeline corridor, etc.). In addition, the SN will include the well or well pad number associated with the seeding activity, if applicable, the name of the contractor that performed the work, his/her phone number, the method used to apply the seed (e.g., broadcast, hydro-seeded, drilled), whether the seeding activity represents interim or final reclamation, the total acres seeded, an attached map that clearly identifies all disturbed areas that were seeded, and the date the seed was applied.
11. Each year by January 1<sup>st</sup> Encana will submit a Reclamation Status Report to the WRFO that includes the well number, API number, legal description, UTM coordinates, project description (e.g., well pad, pipeline, etc.), reclamation status (e.g., interim or final), whether the well pad and/or pipeline has been re-vegetated and/or re-contoured, date seeded, photos of the reclaimed site, acres seeded, seeding method (e.g., broadcast, drilled, hydro-seeded, etc.), and contact information for the person responsible for developing the report. The report will include maps showing each point (i.e., well pad), polygon, and/or polyline (i.e., pipeline) feature that was included in the report. The data must be submitted in UTM Zone 13N, NAD 83, in units of meters. In addition, scanned copies of seed tags that accompanied the seed bags will be included with the report. Internal and external review of the WRFO Reclamation Status Report and the process used to acquire the necessary information will be conducted annually, and new information or changes in the reporting process will be incorporated into the report.
12. The operator shall meet the following reclamation success criteria, and these standards apply to both interim and final reclamation:
  - a) Self-sustaining desirable vegetative groundcover consistent with the site Desired Plant Community (DPC) (as defined by the range site, WRFO Assessment, Inventory, and Monitoring (AIM) protocol site data (BLM TN 440), ecological site or an associated approved reference site) is adequately established as described below on disturbed surfaces to stabilize soils through the life of the project.

- b) Vegetation with eighty percent similarity of desired foliar cover, bare ground, and shrub and/or forb density in relation to the identified DPC. Vegetative cover values for woodland or shrubland sites are based on the capability of those sites in an herbaceous state.
- c) The resulting plant community must have composition of at least five desirable plant species, and no one species may exceed 70 percent relative cover to ensure that site species diversity is achieved. Desirable species may include native species from the surrounding site, species listed in the range/ecological site description, AIM data, reference site, or species from the BLM approved seed mix. If non-prescribed or unauthorized plant species (e.g., yellow sweetclover, *Melilotus officinalis*) appear in the reclamation site BLM may require their removal.
- d) Bare ground does not exceed the AIM data, range site description or if not described, bare ground will not exceed that of a representative undisturbed DPC meeting the Colorado Public Land Health Standards.

Invasive, Non-Native Species:

13. All equipment that may act as a vector for weeds shall be cleaned before entering the project area.

Special Status Animal Species:

14. In the event BMPs are ultimately applied to this pad that allow for the removal of the condensate and produced water tanks (e.g., pipeline transport), the berm created in order to mitigate visual resources should be removed or modified to the extent practicable and reclaimed in a manner that provides for enhanced long-term utility and functionality of the pad locale for sage-grouse (e.g., rounding corners of cut and fill slopes and recontouring the berm to a lower height).

Migratory Birds:

15. In order to mitigate potential conflict between development activity and migratory bird nesting, no development activity would be permitted from May 15 to July 15 as defined by the following legal subdivisions: T1S R100W: Section 15: SESE.

Terrestrial Wildlife:

16. In order to reduce the level of development activities that compromise the utility of summer habitat for mule deer and elk, no development activity would be permitted from May 15 to Aug 15 defined by the following legal subdivisions: T1S R100W: Section 15: SESE.

Cultural Resources:

17. The operator is responsible for informing all persons who are associated with the project that they will be subject to prosecution for knowingly disturbing archaeological sites or for collecting artifacts.
18. If any archaeological materials are discovered as a result of operations under this authorization, activity in the vicinity of the discovery will cease, and the BLM WRFO Archaeologist will be notified immediately. Work may not resume at that location until approved by the AO. The operator will make every effort to protect the site from further impacts including looting, erosion, or other human or natural damage until BLM determines

a treatment approach, and the treatment is completed. Unless previously determined in treatment plans or agreements, BLM will evaluate the cultural resources and, in consultation with the State Historic Preservation Office (SHPO), select the appropriate mitigation option within 48 hours of the discovery. The operator, under guidance of the BLM, will implement the mitigation in a timely manner. The process will be fully documented in reports, site forms, maps, drawings, and photographs. The BLM will forward documentation to the SHPO for review and concurrence.

19. Pursuant to 43 CFR 10.4(g), the operator must notify the AO, by telephone and written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), the operator must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the AO.

#### Paleontological Resources:

20. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for disturbing or collecting vertebrate or other scientifically important fossils, collecting large amounts of petrified wood (over 25lbs./day, up to 250lbs./year), or collecting fossils for commercial purposes on public lands.
21. If any paleontological resources are discovered as a result of operations under this authorization, the operator or any of his agents must stop work immediately at that site, immediately contact the BLM Paleontology Coordinator, and make every effort to protect the site from further impacts, including looting, erosion, or other human or natural damage. Work may not resume at that location until approved by the AO. The BLM or designated paleontologist will evaluate the discovery and take action to protect or remove the resource within 10 working days. Within 10 days, the operator will be allowed to continue construction through the site, or will be given the choice of either (a) following the Paleontology Coordinator's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (b) following the Paleontology Coordinator's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.
22. Any excavations into the underlying native sedimentary stone must be monitored by a permitted paleontologist. The monitoring paleontologist must be present before the start of excavations that may impact bedrock.

#### Visual Resources:

23. Paint and maintain the paint on all permanent above ground structures (on-site for six months or longer) including tanks, associated production equipment, and any piping and valves. Paint color is to be Covert Green according to the BLM Standard Environmental Chart CC-001: June 2008.

#### Hazardous or Solid Wastes:

24. Comply with all Federal, State and/or local laws, rules and regulations, including but not limited to onshore orders and notices to lessees, addressing the emission of and/or the

handling, use, and release of any substance that poses a risk of harm to human health or the environment. All spills or leakages of oil, gas, produced water, toxic liquids or waste materials, blowouts, fires, shall be reported by the operator in accordance with the regulations and as prescribed in applicable orders or notices.

25. Where required by law or regulation to develop a plan for the prevention of releases or the recovery of a release of any substance that poses a risk of harm to human health or the environment, provide a current copy of said plan to the BLM WRFO.
26. When drilling to set the surface casing, drilling fluid will be composed only of fresh water, bentonite, and/or a benign lost circulation material that does not pose a risk of harm to human health or the environment (e.g., cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs, or cotton hulls).
27. As a reasonable and prudent lessee/operator and/or right-of-way holder in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or non-exempt. Where the lessee/operator or right-of-way holder fails, refuses or neglects to provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the BLM WRFO may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action will not relieve the lessee/operator of any liability or responsibility.

Fire Management:

28. When working on lands administered by the BLM WRFO, notify Craig Interagency Dispatch (970-826-5037) in the event of any fire.
  - a) The reporting party will inform the dispatch center of fire location, size, status, smoke color, aspect, fuel type, and provide their contact information.
  - b) The reporting party, or a representative of, should remain nearby, in a safe location, in order to make contact with incoming fire resources to expedite actions taken towards an appropriate management response.
  - c) The applicant and contractors will not engage in any fire suppression activities outside the approved project area. Accidental ignitions caused by welding, cutting, grinding, etc. will be suppressed by the applicant only if employee safety is not endangered and if the fire can be safely contained using hand tools and portable hand pumps. If chemical fire extinguishers are used the applicant must notify incoming fire resources on extinguisher type and the location of use.
  - d) Natural ignitions caused by lightning will be managed by Federal fire personnel. The use of heavy equipment for fire suppression is prohibited, unless authorized by the Field Office Manager.

Rangeland Management:

29. Where the main body of the pad will remove a section of the pasture division fence, ensure that the proposed fence that is reconstructed around the pad is constructed to maintain the

function of this fence in controlling livestock movement through the area. If construction will occur during the timeframe livestock are in the area a temporary fence will need to be constructed until the longer-term fence can be built. See Vegetation mitigation for fence construction requirements.

### **COMPLIANCE WITH LAWS & CONFORMANCE WITH THE LAND USE PLAN**

This decision is in compliance with the Endangered Species Act and the National Historic Preservation Act. It is also in conformance with the 1997 White River Record of Decision/Approved Resource Management Plan.

### **ENVIRONMENTAL ANALYSIS AND FINDING OF NO SIGNIFICANT IMPACT**

The Proposed Action was analyzed in DOI-BLM-CO-2014-0074-EA and it was found to have no significant impacts, thus an EIS is not required.

### **PUBLIC INVOLVEMENT**

Public involvement of the CBU DV16C-15 O151100 and DHS3B-27O151100 natural gas wells was completed by posting of the two APDs for public review and posted on the WRFO's on-line NEPA register on 8/19/2014. No comments were received.

### **RATIONALE**

Analysis of the Proposed Action has concluded that there are no significant negative impacts and that it meets Colorado Standards for Public Land Health. This location is being approved despite the VRM concerns due to additional mitigation developed between Encana and the BLM which is designed to meet VRM Class II objectives. Encana stated at the onsite that this location had little room for movement away from its proposed location. Following submittal of the APDs Encana notified the BLM that one of the two APDs submitted for this location was a unit obligation well and needs to be drilled in October 2014. This location has a relatively short access road and had BLM required Encana to move it, it was understood that more than one wellpad location may have been required to recover the gas that this location is able to recover; multiple locations may have resulted in additional surface disturbance and multiple access roads in an area that currently has little development.

### **ADMINISTRATIVE REMEDIES**

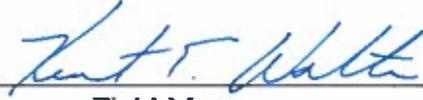
#### **State Director Review**

Under regulations addressed in 43 CFR 3165.3(b), any adversely affected party that contests a decision of the Authorized Officer may request an administrative review, before the State Director, either with or without oral presentation. Such request, including all supporting documentation, shall be filed in writing with the BLM Colorado State Office at 2850 Youngfield Street, Lakewood, Colorado 80215 within 20 business days of the date such decision was received or considered to have been received. Upon request and showing of good cause, an extension may be granted by the State Director. Such review shall include all factors or circumstances relevant to the particular case.

Appeal

Any party who is adversely affected by the decision of the State Director after State Director review, under 43 CFR 3165.3(b), of a decision may appeal that decision to the Interior Board of Land Appeals pursuant to the regulations set out in 43 CRF Part 4.

**SIGNATURE OF AUTHORIZED OFFICIAL:**



Field Manager

**DATE SIGNED:**

09/26/2014