

U.S. Department of the Interior  
Bureau of Land Management  
White River Field Office  
73544 Hwy 64  
Meeker, CO 81641

## ENVIRONMENTAL ASSESSMENT

**NUMBER:** CO-110-2005-223-EA

**CASEFILE/PROJECT NUMBER** (optional): COC 60743 (#398-7-3) COC 060760 (#399-22-1, #399-15-1, #399-15-2, #399-15-3) Encana COC 056050 (Left Fork P-36-299)

**PROJECT NAME:** 5 APD's; 398-7-3, 399-22-1, 399-15-1, 399-15-2, 399-15-3 BLM surface  
4 APD's; 399-1-2, 399-1-3, 399-1-4, 399-1-5 Private surface  
1 APD (EnCana) Left Fork P-36-299 BLM Surface

**LEGAL DESCRIPTION:** Riata - T. 3S, R. 99W, sec. 1  
T. 3S, R. 99W, sec. 15  
T. 3S, R. 99W, sec. 22  
T. 3S, R. 98W, sec. 7  
EnCana – T. 2S, R. 99W, sec. 36

**APPLICANT:** Riata Energy, INC. and EnCana Oil & Gas

**ISSUES AND CONCERNS** (optional): None

### **DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:**

***Background/Introduction:*** Onsite was conducted October 12, 2005, for BLM surface wells and December 5, 2005 for Private surface wells.

**Proposed Action:** Riata Energy, Inc. is proposing to drill nine well locations with associated access roads and pipelines.

**BLM Surface Wells** Well #398-7-3 will have 1,584' of access road with a 50' wide (1.82 acres) right of way (ROW), the pipeline will be laid in the borrow ditch during construction of the access road and will not require any additional space for construction of the pipeline allowing 50' for the total width requested for both actions. The location size will be approximately 225' X 265' (1.37acres). Total disturbance for this location will be 3.19 acres.

Well #399-22-1 will have 260' of access road with a 50' wide (0.30 acres) ROW, the pipeline will be laid in the borrow ditch during construction of the access road and will not require any

additional space for construction of the pipeline allowing 50' for the total width requested for both actions. The location size will be approximately 225' X 265' (1.37acres). Total disturbance for this location will be 1.67 acres.

Well #399-15-3 will have 220' of access road at 50' wide (0.25 acres) ROW, the pipeline will be laid in the borrow ditch during construction of the access road and will not require any additional space for construction of the pipeline allowing 50' for the total width requested for both actions. The location size will be approximately 225' X 265' (1.37acres). Total disturbance for this location will be 1.62 acres.

Well #399-15-2 will have 230' of access road at 50' wide (0.26acres) ROW, the pipeline will be laid in the borrow ditch during construction of the access road and will not require any additional space for construction of the pipeline allowing 50' for the total width requested for both actions. The location size will be approximately 225' X 265' (1.37acres). Total disturbance for this location will be 1.63 acres.

Well #399-15-1 will have 430' of access road at 50' wide (0.49 acres) ROW, the pipeline will be laid in the borrow ditch during construction of the access road and will not require any additional space for construction of the pipeline allowing 50' for the total width requested for both actions. The location size will be approximately 225' X 265' (1.37acres). Total disturbance for this location will be 1.86 acres.

Private Surface Wells: Well #399-1-5 will have 551' of access at 50' wide (0.63 acres) ROW, the pipeline will be laid in the borrow ditch during construction of the access road and will not require any additional space for construction of the pipeline allowing 50' for the total width requested for both actions. The location size will be approximately 225' X 265' (1.37acres). Total disturbance for this location will be 2.0 acres.

Well #399-1-4 will have 1170' of access at 50' wide (1.34 acres) ROW, the pipeline will be laid in the borrow ditch during construction of the access road and will not require any additional space for construction of the pipeline allowing 50' for the total width requested for both actions. The location size will be approximately 225' X 265' (1.37acres). Total disturbance for this location will be 2.71 acres.

Well #399-1-3 will have 1056' of access at 50' wide (1.20 acres) ROW, the pipeline will be laid in the borrow ditch during construction of the access road and will not require any additional space for construction of the pipeline allowing 50' for the total width requested for both actions. The location size will be approximately 225' X 265' (1.37acres). Total disturbance for this location will be 2.57 acres.

Well #399-1-2 will have 350' of access at 50' wide (.4 acres) ROW, the pipeline will be laid in the borrow ditch during construction of the access road and the upgrading of an existing two-track and will require additional space for construction of the pipeline of 1600' X 50' for the total width requested for both actions. The location size will be approximately 225' X 265' (1.37acres). Total disturbance for this location will be 2.87 acres.

EnCana Well: This applicant is proposing to drill a gas well in the same vicinity of the others listed above. The proposed flow line will hook into the main line that will service all the above wells and will exit from the south west side of the location and not follow the access road. This well is the Left Fork P-36-299. There is approximately 180' of access at 50' wide (0.21 acres), pipeline distance will be about 748' X 30' (0.52 acres), and the location size will be approximately 225' X 265' (1.37 acres). Total disturbance for this location will be 2.10 acres.

The table below shows the proposed disturbance for each well and associated access and pipelines.

Well Name	Surface Owner	Location Size (Ac)	Access Rd. Disturbance (Ac)	Pipeline Disturbance	Acres Disturbed
398-7-3	BLM	1.37 (225'X265')	1.82(1584'X50')	Included in access rd.	3.19
399-22-1	BLM	1.37 (225'X265')	0.30 (260'X50')	Included in access rd.	1.67
299-15-3	BLM	1.37 (225'X265')	0.25 (220'X50')	Included in access rd.	1.62
299-15-2	BLM	1.37 (225'X265')	0.26 (230'X50')	Included in access rd.	1.63
299-15-1	BLM	1.37 (225'X265')	0.49 (430'X50')	Included in access rd.	1.86
399-1-2	Private	1.37 (225'X265')	0.4 (350' X 50')	1.10 (1600' X 30')	2.87
399-1-3	Private	1.37 (225'X265')	1.2 (1056' X 50')	Included in access rd.	2.57
399-1-4	Private	1.37 (225'X265')	1.34 (1170' X 50')	Included in access rd.	2.71
399-1-5	Private	1.37 (225'X265')	0.63 (551' X 50')	Included in access rd.	2.00
Left Fork P-36-299	Federal	1.37 (225'X265')	0.21 (180' X 50')	0.52 (748' X 30')	2.10
Total Project Acres					22.22
<b>Total BLM Acres</b>					<b>12.07</b>

Total disturbance for the project will be 22.22 acres (BLM disturbed surface will be 12.07 acres).

Existing roads and newly constructed roads on surface under the jurisdiction of any Surface Managing Agency shall be designed and constructed according to the standards provided in BLM Manual 9112. Existing roads will be maintained and kept in good repair during all drilling and completion operations associated with this well. Low water bars and water dips will be constructed as needed along the access route. No low water crossings will be necessary. Where fences are encountered cattle guards will be necessary. The need for surfacing material is not anticipated; however, if it is necessary due to inclement weather, then surfacing will be applied to the access road and well pad. Surface disturbance and vehicular traffic will be limited to the approved location and approved access route.

All permanent structures (onsite for 6 months or longer) constructed or installed (including oil well pump jacks) will be painted a flat, non-reflective, Juniper Green color to match the standard environmental colors, as determined by the Rocky Mountain Five-State Interagency Committee. All facilities will be painted within six-months of installation. Facilities required to comply with the Occupational and Safety Health act (OSHA) will be excluded. Compaction and construction of the berms surrounding the tank batteries will be designed to prevent lateral movement of fluids through the utilized materials, prior to storage of fluids. The berms must be constructed to contain a minimum 110 percent of the storage capacity of the largest tank within the berm. All loading lines will be placed inside the berm.

All portions of the pad not required for production operations will be reclaimed. A dike will be constructed completely around the production facilities (i.e. production tanks, water tanks, and/or heater treater). The dikes for the production facilities will be sufficiently impervious, made of a non-porous material and designed to contain one hundred and ten percent of the capacity of the largest tank. Any production pits will be fenced with at least four (4) strands of barbed wire and held in place by side posts and corner H-braces.

All access roads will be upgraded and maintained as necessary to prevent erosion and accommodate year-round traffic. Any necessary pits will be fenced to prevent wildlife entry. The reserve pit will be properly backfilled and will not be used for production operations. Water will be pumped or hauled to the location along the approved access roads. No water wells are to be drilled. Surface and subsoil materials in the immediate area will be utilized. No construction materials will be removed from Federal lands. Where surfacing is needed for the access roads, it will be obtained from the spoils material in the reserve pit. Any materials to be used which are under BLM jurisdiction shall be approved in advance, as per CFR 3610.2-3.

Drill cuttings are to be contained and buried in the reserve pit. Trash and garbage will be contained in a closed receptacle. Burning and/or burying is not authorized unless previously approved by the authorized Officer (AO) during winter conditions. Contents from trash receptacle will be hauled to an approved landfill. Reserve pit will evaporate or authorization for removal and disposal will be requested from the AO prior to backfilling the reserve pit. The salts and/or chemicals which are an integral part of the drilling system will be disposed of in the same manner as the drilling fluid. A chemical porta-toilet will be furnished with the drilling rig.

The produced fluids will be produced into a test tank until such time as construction of production facilities is completed. Any spills of oil, gas, salt, water or other produced fluids will be cleaned up and removed.

Approximately 6 inches of topsoil will be stripped from this location and stockpiled at the site. A plastic pit liner will be installed in the reserve pit. It will be of sufficient mil to prevent seepage. Excavation of the reserve pit will require that one half of the fluid capacity is below the ground level. Reserve and produced water pits containing oily residue must be overhead flagged. Pits remaining after the drilling period which store or are expected to store production fluids will be wired or netted to prevent or discourage entry by larger birds attracted to sources of water, including raptors and waterfowl. At a minimum, wire will be stretched over the entire length and breadth of the pit at intervals not exceeding three feet, and made permanently conspicuous either by choice of material or installation of flagging material evenly distributed across the pit at a minimum rate of one flag per 18 square feet.

These pits must be fenced with 28-inch, sheep tight mesh wire with two strands of barbed wire above and separated by approximately 6 inches. The reserve pit must be fenced on three sides during drilling; the fourth side must be fenced immediately after the rig is released. Berms will be required to keep water runoff out. A minimum of 2 feet freeboard will be maintained between the maximum fluid level and the top of the berm. In the event downhole operations threaten to exceed the required 2-foot freeboard, regarding reserve pit fluids, immediate notification will be provided to the AO with concurrent steps taken to minimize the introduction of additional fluids,

until alternative containment methods can be approved. The backfilling of the reserve pit will be completed within 30 days after conditions exist and will meet the following requirements:

- Backfilling will be done in such a manner that the mud and associated solids will be confined to the pit and not squeezed out and incorporated into the surface materials.
- There will a minimum, of 5 feet of cover (overburden) on the pit.
- When the work is completed, the pit area will support the weight of heavy equipment without sinking and over time shall not subside over 6-inch depth.

Reclamation will be done as requested by the BLM. In the event a producing well is completed, the unused areas of the well location will be recontoured to appropriate configuration (that allows lease operations and alleviates steep cut and fill slopes, minimizing accelerated erosion). Some of the stockpiled topsoil will be redistributed over the unused area and revegetated with approved seed mixture. This will be done immediately after proper backfilling and recontouring of the reserve pit has occurred. A seed mixture will be provided by the BLM in the Conditions of Approval. Use certified seed. Seed certification tags must be submitted to the Field Manager. Additional seed applications may be required to accommodate specific site conditions or if initial seed germination has failed. The goal for rehabilitation of any disturbed area shall be the permanent restoration of original site conditions and productive capability.

In the event of a dry hole, the location will be recontoured to the original grade, top soiled, seeded with approved seed mixture. The topsoil will be evenly distributed over the location. All pits, cellars, rat holes, and other bore holes unnecessary for further lease operations excluding the reserve pit, will be backfilled immediately after the drilling rig is released. Pits, cellars and/or bore holes that remain on location must be fenced as specified for the reserve pit.

Control of noxious weeds will be required through successful vegetation establishment and/or herbicide application. Applications of the herbicide are prescribed; however, it is the responsibility of the lease operator to insure compliance with the local, state, and Federal laws and regulations, as well as labeling directions specific to the use of any given herbicide. Application of pesticides and herbicides on public lands will conform to BLM Manual H-9011-1 and 9015. Applications of herbicides would be under the field supervision of an EPA certified pesticide Applicator.

The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days, the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places,
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming *in situ* preservation is not necessary),

- a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

A Class III survey has been conducted by Grand River Institute. All state and local permits required for proposed operations will be obtained prior to commencing any activity that may be affected by such authorization.

*No Action Alternative:* In the no-action alternative the wells, access roads and pipelines would not be permitted; therefore there would not be any new disturbance.

**ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD:** None

**NEED FOR THE ACTION:** To respond to the request by applicant to exercise lease rights and develop hydrocarbon reserves.

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

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

Date Approved: July 1, 1997

Decision Number/Page: Pages 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 / MITIGATION MEASURES:**

**STANDARDS FOR PUBLIC LAND HEALTH:** In January 1997, Colorado Bureau of Land Management (BLM) approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, threatened and endangered species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in specific elements listed below:

**CRITICAL ELEMENTS**

## AIR QUALITY

*Affected Environment:* The entire White River Resource area has been classified as either attainment or unclassified for all pollutants, and most of the area has been designated prevention of significant deterioration (PSD) class II. The proposed action is not located within a thirty mile radius of any special designation air sheds or non-attainment areas. Overall, the proposed action alone should not greatly compromise National Ambient Air Quality Standards (NAAQS) on an hourly or daily basis.

*Environmental Consequences of the Proposed Action:* Exhaust produced from production facilities and heavy equipment associated with the proposed actions combined with the increasing number of fluid mining activities in the Piceance Creek Basin will have cumulative impacts detrimental to local air quality. However, following completion of the proposed actions, air quality should return to near pre-construction levels in this location. During dry and windy periods, air quality may be compromised due to increased levels of fugitive particulate matter which is defined as fugitive emissions of particulate matter that are the direct or proximate result of man's activities (e.g. Materials left by man exposed to the wind or later acted upon by another force as the wind or automobile traffic, or particulate matter being thrown into the atmosphere by the operation of a heavy equipment). However, construction operations should not greatly compromise National Ambient Air Quality Standards (NAAQS) for particulate matter which calls for a maximum 24-hour average to be less than or equal to 150  $\mu\text{g}/\text{m}^3$ . In addition, following successful reclamation, particulate matter is also likely to return to pre-construction levels.

*Environmental Consequences of the No Action Alternative:* None

*Mitigation:* The operator will be responsible for complying with all local, state, and federal air quality regulations as well as providing documentation to the BLM that they have done so.

To minimize production of fugitive particulate matter, vehicle speeds must not exceed 15 mph *or* dust plume must not be visible at appropriate designated speeds for road design. In addition, the application of a BLM approved dust suppressant (e.g. water or chemical stabilization methods) will be required during dry periods when dust plumes are visible at speeds less than or equal to 15 mph. Surfacing the roadway with gravels will also help mitigate production of fugitive particulate matter.

To reduce production of fugitive particulate matter originating from well pads and associated stockpiled soils (long term storage) interim reclamation will be required. Interim reclamation will consist of excess stockpiled soils associated with pad construction being pulled back over the portion of the well pad not being utilized for production facilities and access. Portions of the well pad undergoing interim reclamation will be returned to grade (as close as possible), promptly re-seeded, and biodegradable fabrics will be utilized on slopes exceeding 5% (e.g. fill slopes).

If interim reclamation is not practical (e.g. completion of drilling operation will require an extended period time (multiple well pads)), stockpiled topsoil will be covered with biodegradable fabrics such as (but not limited to) jute netting and seeded with a BLM approved seed mixture (see vegetation section of this document). Furthermore, soils stockpiled for short durations (e.g. during road/pipeline construction/maintenance) will be wetted during dry periods to reduce production of fugitive particulate matter.

## **CULTURAL RESOURCES**

*Affected Environment:* The 398-7-3 well pad, access road and well tie pipeline has been inventoried at the Class III (100% pedestrian) level (Conner and Davenport 2005, Compliance Dated 11/17/2005) with two isolated finds located along the proposed access route.

The 399-22-1 well pad, access road and well tie pipeline has been inventoried at the Class III (100% pedestrian) level (Conner and Davenport 2005, Compliance Dated 11/17/2005) with two isolated finds located along the proposed access route.

The 399-15-1 well pad, access road and well tie pipeline has been inventoried at the Class III (100% pedestrian) level (Conner and Davenport 2005, Compliance Dated 11/17/2005) with two isolated finds located along the proposed access route.

The 399-15-2 well pad, access road and well tie pipeline has been inventoried at the Class III (100% pedestrian) level (Conner and Davenport 2005, Compliance Dated 11/17/2005) with two isolated finds located along the proposed access route.

The 399-15-3 well pad, access road and well tie pipeline has been inventoried at the Class III (100% pedestrian) level (Conner and Davenport 2005, Compliance Dated 11/17/2005) with two isolated finds located along the proposed access route.

The proposed 399-1-2 well pad, access road and well tie pipeline has been inventoried at the Class III (100% pedestrian) level (Conner and Davenport 2005, Compliance Dated 11/17/2005) with no new cultural resources identified in the inventoried area.

The proposed 399-1-3 well pad, access road and well tie pipeline has been inventoried at the Class III (100% pedestrian) level (Conner and Davenport 2005, Compliance Dated 11/17/2005) with no new cultural resources identified in the inventoried area.

The proposed 399-1-4 well pad, access road and well tie pipeline has been inventoried at the Class III (100% pedestrian) level (Conner and Davenport 2005, Compliance Dated) with two isolated artifacts found in the ten acre well pad inventory area.

The proposed 399-1-5 well pad, access road and well tie pipeline has been inventoried at the Class III (100% pedestrian) level (Conner and Davenport 2005, Compliance Dated 11/17/2005) with no new cultural resources identified in the inventoried area.



The proposed Left Fork P-36-299 well pad, access road and well tie pipeline has been inventoried at the Class III (100% pedestrian) level (Conner and Davenport 2005, Compliance Dated 11/17/2005) with no new cultural resources identified in the inventoried area.

*Environmental Consequences of the Proposed Action:* The proposed 398-7-3 well pad, access road and well tie pipeline: No known cultural resources would be impacted by the construction of the proposed well pad, access road and well tie pipeline.

The proposed 399-22-1 well pad, access road and well tie pipeline: has the potential to adversely impact two isolated finds along the proposed access road/well tie pipeline route. The loss of the two artifacts represents a small, or possibly minimal, loss of data from the regional database.

The proposed 399-15-1 well pad, access road and well tie pipeline: has the potential to adversely impact two isolated finds along the proposed access road/well tie pipeline route. The loss of the two artifacts represents a small, or possibly minimal, loss of data from the regional database.

The proposed 399-15-2, well pad, access road and well tie pipeline: has the potential to adversely impact two isolated finds along the proposed access road/well tie pipeline route. The loss of the two artifacts represents a small, or possibly minimal, loss of data from the regional database.

The proposed 399-15-3 well pad, access road and well tie pipeline: has the potential to adversely impact two isolated finds along the proposed access road/well tie pipeline route. The loss of the two artifacts represents a small, or possibly minimal, loss of data from the regional database.

The proposed 399-1-2 well pad, access road and well tie pipeline: No known cultural resources would be impacted by the construction of the proposed well pad, access road and well tie pipeline.

The proposed 399-1-3 well pad, access road and well tie pipeline: No known cultural resources would be impacted by the construction of the proposed well pad, access road and well tie pipeline.

The proposed 399-1-4 well pad, access road and well tie pipeline: Construction of the well pad, access road and well tie pipeline may result in the loss of the two isolated finds. The loss of the two isolates represents a small or possibly minimal loss of data from the regional data base.

The proposed 399-1-5 well pad, access road and well tie pipeline: No known cultural resources would be impacted by the construction of the proposed well pad, access road and well tie pipeline.

The proposed Left Fork P-36-299 well pad, access road and well tie pipeline: No known cultural resources would be impacted by the construction of the proposed well pad, access road and well tie pipeline.

*Environmental Consequences of the No Action Alternative:* There would be no new impacts to cultural resources under the No Action Alternative.

*Mitigation:* The proposed 398-7-3, 399-22-1, 399-15-1, 399-15-2, 399-15-3, 399-1-2, 399-1-3, 399-1-4, 399-1-5, Left Fork P-36-299 well pads, access roads and well tie pipelines: 1. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary)
- a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

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

## **INVASIVE, NON-NATIVE SPECIES**

*Affected Environment:* The principal noxious weeds known to occur in the project area are houndstongue (*Cynoglossum officinale*) and mullein (*Verbascum thapsus*). The invasive alien cheatgrass (*Bromus tectorum*) occurs throughout the project area in areas of unvegetated soil disturbance in association with roads, well locations and pipelines.

*Environmental Consequences of the Proposed Action:* The proposed action will create about 12.6 acres of earthen disturbance, which if it is not revegetated with desirable species and /or treated with herbicides to eradicate cheatgrass, will be invaded and dominated by cheatgrass, increasing the potential for fire and the consequent further proliferation of cheatgrass. The resulting proliferation of cheatgrass will perpetuate a downward cycle of environmental degradation that will be largely irreversible.

*Environmental Consequences of the No Action Alternative:* There will be no change from the present situation.

*Mitigation:* The operator will be responsible for eradication of noxious weeds and cheatgrass on the well pads and pipeline rights of way using materials and methods authorized in advance by the Field Manager.

## **MIGRATORY BIRDS**

*Affected Environment:* The proposed wells located along Wagonridge Road involve transitional mountain and Wyoming big sagebrush and Utah serviceberry communities that are in advanced successional states characterized by aged shrub stands, intact but declining herbaceous understories, and pinyon and juniper encroachment of variable age and density. Site 398-7-3, located on an alluvial fan along Black Sulphur Creek is composed of a stand of basin big sagebrush and greasewood with herbaceous understories consisting primarily of basin wild rye, crested wheatgrass, and cheatgrass.

A number of migratory birds fulfill nesting functions in these predominantly big sagebrush habitats during the months of May, June, and July. Species associated with these shrublands are typical and widely represented in the Resource Area and region. As pinyon-juniper begins to establish on these sites, the abundance of sagebrush obligates declines and more generalized woodland species (e.g., chipping sparrow) begin to appear in small numbers. Those bird populations associated with this Resource Area's sagebrush communities identified as having higher conservation interest by the Rocky Mountain Bird Observatory/Partners in Flight program (i.e., Brewer's sparrow, green-tailed towhee) are abundant and well distributed in extensive suitable habitats throughout the Resource Area. Small numbers of woodland obligates of higher conservation interest (e.g., black-throated gray warbler, gray flycatcher, juniper titmouse, pinyon jay, and violet-green swallow) would be expected to forage in woodland regeneration, but with few exceptions, nesting functions would be substantially smaller than those associated with mature woodlands.

Although the higher ridgeline sites have no open water or wetland areas that support or attract waterfowl use, the development of reserve pits that contain drilling fluids have attracted waterfowl use, at least during the migratory period (i.e., local records: mid-March through late May; mid-October through late November).

*Environmental Consequences of the Proposed Action:* Construction and drilling schedules associated with these pads was not provided, but it is assumed that development would commence in April 2005 and continue through the fall. Based on this schedule, the potential to disrupt the nesting activities of migratory birds would generally involve 2-3 wells along Wagonroad Ridge. Localized development activity adjacent or in close proximity to an established county road would involve up to 6 direct acres and an additional 12 indirect acres. The conditions associated with each of these pads (i.e., proximity to road, pinyon-juniper encroaching former sagebrush disclimax) tend to reduce the utility of the sites for nesting by species of higher conservation interest and the subsequent probability of their sustaining strong

nest densities. Based on recent literature and BLM's experience, it is unlikely that more than a half-dozen nest attempts by birds of higher conservation interest would be disrupted by the proposed action in the short term and population-level effects would be discountable even at the local landscape level.

It has recently been brought to BLM's attention that in certain situations migratory waterfowl (i.e., teal and gadwall) have contacted drilling or frac fluids (i.e., stored in reserve pits) during or after completion operations and are suffering mortality in violation of the Migratory Bird Treaty Act. The extent and nature of the problem is not well defined, but is being actively investigated by the federal agencies and the companies. Until the vectors of mortality are better understood, management measures must be conservative and relegated to preventing bird contact with frac and drilling fluids that may pose a problem.

*Environmental Consequences of the No Action Alternative:* There would be no action authorized that would have potential to disrupt the breeding activities of migratory birds. Alternate actions would have similar or more substantive consequences as those discussed under the proposed action.

*Mitigation:* The operator shall prevent use by migratory birds of reserve pits that store or are expected to store fluids which may pose a risk to such birds (e.g., migratory waterfowl, shorebirds, wading birds and raptors) during completion and after completion activities have ceased. Methods may include netting, the use of bird-balls, or other alternative methods that effectively prevent use and that meet BLM approval. It will be the responsibility of the operator to notify the BLM of the method that will be used to prevent use two weeks prior to when completion activities are expected to begin. The BLM approved method will be applied within 24 hours after completion activities have begun. All lethal and non-lethal events that involve migratory birds will be reported to the Petroleum Engineer Technician immediately.

#### **THREATENED, ENDANGERED, AND SENSITIVE ANIMAL SPECIES** (includes a finding on Standard 4)

*Affected Environment:* No animals listed, proposed, or candidate to the Endangered Species Act inhabit or derive important benefit from the project area.

Greater sage-grouse, a BLM sensitive species, occupied broad lower-elevation sagebrush habitats on Wagonroad Ridge in recent history. The project area (i.e., well 22-1) lies on the northern periphery of suitable and currently occupied sage-grouse habitat. During an on-site inspection in mid-October 2005, BLM biologists found evidence of recent sage-grouse use in the immediate vicinity of the 22-1 well. The sagebrush community in the vicinity of this location is well suited as nest and early brood habitat and lies within 2 miles of 3 active leks. Due to the cumulative extent and intensity of natural gas development occurring on Piceance Basin's naturally fragmented sage-grouse habitats, it is important that BLM extend protection to habitats that are capable of fulfilling reproductive functions across the birds' occupied range. BLM and CDOW are not aware of any recent occupation in former habitats extending to the north (including the P36-299 well) since at least the mid-1990's primarily due to advanced

community succession (i.e., pinyon encroachment/ serviceberry development). All habitats in advanced successional states remain available and important for natural re-colonization or species recovery actions in the future.

Several other BLM sensitive species are possible seasonal inhabitants of the project vicinity (i.e., Townsend's big-eared bat, and fringed and Yuma myotis, northern goshawk), but rely on mature stands of pinyon and juniper for roosting and nesting substrate. Because areas potentially influenced by the proposed action involve only young regeneration or scattered mature trees, these project sites have no effective utility for goshawk nesting or bat roosting functions.

*Environmental Consequences of the Proposed Action:* Long-term clearing and occupation of habitats ultimately suitable for sage-grouse on Wagonroad Ridge would be relatively small in extent (about 14 total acres, 9 BLM acres). With the exception of the 1.7 acres associated with the 399-22-1 well, which lies on the margin of occupied and suitable habitat, the present character of habitat offered by the project area is largely unsuited for sage-grouse use. Considering the rate of successional processes in these communities, it is unlikely that these habitats would regain functional utility as sage-grouse habitat over the productive life of these wells (e.g., 20 years). However, during the on-site inspections, BLM and the operator agreed to minor design modifications that would help to enhance habitat extent and continuity in the event future habitat restoration practices are applied to Wagonroad Ridge, including: reducing pad width along the longitudinal axis by elongating the reserve pits and applying interim reclamation concepts, such as locating production facilities at the pad's access juncture to maximize opportunities for applying grouse-oriented reclamation to the pad over the producing life of the well.

Well development activities, if conducted during the nesting season, would disrupt and likely fail any sage-grouse nest attempt in close proximity to the 399-22-1 pad. As a means of reducing avoidable impacts to sage-grouse production or recruitment, a condition of approval would be applied to this action, such that development on the 399-22-1 site would not take place during the sage-grouse reproductive season.

*Environmental Consequences of the No Action Alternative:* There would be no action authorized that could influence potential or future occupation of Wagonroad Ridge by greater sage-grouse.

*Mitigation:* Well development activity, including pad construction, well drilling, and well completion work associated with the 399-22-1 location will be conducted outside the sage-grouse nesting season of April 15 to July 7.

The use of interim reclamation techniques will be used to the extent practicable on all pads such that: 1) all available topsoil material would be used on recontoured cut and fill slopes and areas outside the anchors (maintaining the viability of the soils for final reclamation), 2) production facilities will be located to maximize the extent of surface disturbance available for effective reclamation during the production phase of the well (e.g., where access road enters pad), and 3) all disturbed areas outside the deadman anchors will be recontoured to the extent practicable and

those areas seeded with the recommended seed mix once well completion activities have been finalized or at the direction of the Authorized Officer.

*Finding on the Public Land Health Standard for Threatened & Endangered species:* The area potentially influenced by the proposed and no-action alternatives does not currently support habitats associated with listed animal species, therefore, neither alternative would influence the applicable rangeland health standards.

Although the landscape encompassing the project area generally meets the land health standard for BLM sensitive species, this portion of Wagonroad Ridge has only limited capacity at supporting sage grouse at the present time due primarily to advanced vegetation succession. In the event these ridgeline habitats were subjected to fire, a natural, recurrent, and necessary ecological rejuvenation process, the area would be disposed to better achieve the Public Land Health Standard as sagebrush-steppe habitat, but the locale would continue to be unsuited for sage-grouse use for at least another 20 years (until functional sagebrush canopies redeveloped). Therefore, current gas development activity in unsuitable habitat would not interfere substantially with the extent, continuity, or availability of potential sage-grouse habitat.

Although long-term occupation of sagebrush habitats on this portion of Wagonroad Ridge may contribute to cumulative reductions in future habitat capacity for sage-grouse in Piceance Basin, the proposed action would have no substantive influence on utility or extent of habitats currently occupied by sage-grouse and, on a landscape scale, its implementation would not interfere with continued near-term meeting of the land health standards. Although incremental in effect, pad siting and reclamation provisions would help reduce impacts to the long term integrity of these ridgeline habitats for future sage grouse use. Failure to authorize this action (no action alternative) would have no further influence on the Health Standard for special status species.

## **WASTES, HAZARDOUS OR SOLID**

*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.

*Environmental Consequences of the Proposed Action:* 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 some hazardous constituents, they would be stored, used and transported in a manner consistent with applicable laws, and the generation of hazardous wastes would not be anticipated. Solid wastes would be properly disposed of.

*Environmental Consequences of the No Action Alternative:* No hazardous or other solid wastes would be generated under the no-action alternative.

*Mitigation:* The applicant shall be required to collect and properly dispose of any solid waste generated by the proposed actions.

## **WATER QUALITY, SURFACE AND GROUND (includes a finding on Standard 5)**

*Affected Environment:* Surface Water: Location 398-7-3 is situated in the Black Sulphur Creek Drainage (stream segment 20 of the White River Basin) above the confluence with Swizer Gulch. The remaining locations are all located off of Rio Blanco county road 144 on Wagonroad Ridge which is the drainage divide between stream segments 16 (Ryan Gulch) and 20 of the White River Basin. The mainstem of Black Sulphur Creek and several small ephemeral tributary drainages to Wagonroad Gulch (ephemeral tributary to Ryan Gulch) will be directly impacted by the proposed actions.

Black Sulphur Creek is a perennial tributary to Piceance Creek which is a tributary to the White River. The White River is a tributary to the Green River (tributary to the Colorado River). Black Sulphur Creek is situated in stream segment 20 of the White River Basin while the affected portion of Ryan Gulch can be found in stream segment 16 of the White River Basin. It must be stated that past oil and gas activities (well pad and access road) in Black Sulphur Creek have aided in channel modifications (channel straitening) resulting in disconnected floodplains, deep channel incision, and increased sediment loads. Based on measured cross sectional data, Black Sulphur Creek (near location 398-7-3) is a G4/5 Rosgen stream channel type. G4 stream channels are very unstable due to the very high sediment supply available from both upslope and channel derived sources. G5 channels are generally in the degradation mode derived from near continuous channel adjustments, due to excessive bank erosion. Bedload transport rates in G5 channels can exceed 50% total load; with active, extensive, consistent channel erosion more typical than not (Rosgen, 1996).

A review of the Colorado's 1989 Nonpoint Source Assessment Report (plus updates), the 305(b) report, the 303(d) list, the White River Resource Area RMP, and the Unified Watershed Assessment was done to see if any water quality concerns have been identified. It should be noted that the White River from Piceance Creek to Douglas Creek has been listed on the states monitoring and evaluation list (M&E list) for sediment impairments. All surface disturbing activities in the Black Sulphur Creek and Ryan Gulch catchment areas will directly influence sedimentation rates to Piceance Creek, White River, and eventually the Colorado River.

Stream segment 16 of the White River Basin is defined as all tributaries to Piceance Creek, including all wetlands, lakes and reservoirs, from the source to the confluence with the White River, except for the specific listings in segments 17 and 20. Stream segment 16 has been designated "Use Protected". The antidegradation review requirements in the Antidegradation Rule are not applicable to waters designated use-protected. For those waters, only the protection specified in each reach will apply. The state has classified segment 16 as being beneficial for the following uses: Warm aquatic life 2, Recreation 2, and Agriculture. For stream segment 16 minimum standards for four parameters are listed as follows: dissolved oxygen = 5.0 mg/l, pH = 6.5 - 9.0, Fecal Coliform = 2000/100 ml, and 630/100 ml E. coli.

Stream segment 20 of the White River Basin is defined as the mainstems of Black Sulphur and Hunter Creeks from their sources to their confluences with Piceance Creek. Segment 20 has not

been designated use-protected. An intermediate level of water quality protection applies to waters that have not been designated outstanding waters or use-protected waters. For these waters, no degradation is allowed unless deemed appropriate following an antidegradation review. The state has classified segment 20 as being beneficial for the following uses: Cold aquatic life 1, Recreation 2, and Agriculture.

**Ground Water:** Surface geologic formation at the proposed location is Tertiary in age (Uinta Formation) and consists primarily of sandstone and siltstone. A review of the US Geological Survey Ground Water Atlas of the United States (Topper et al., 2003) was done to assess ground water resources at the location of the proposed action. The proposed action is located in the Piceance Creek structural basin. Primary hydrogeologic units within the Piceance Basin are listed in the following table.

Summary of Hydrogeologic Units						
Hydrogeologic Unit	Stratigraphic Unit	Physical Description	Thickness	Hydraulic Conductivity	Yield	TDS
			(ft)	(ft/day)	(gpm)	mg/L
<b>Upper Piceance Basin aquifer</b>	Uinta Formation	sandstone, fractured siltstone, fractured marlstone	0 – 1,400	<0.2 to >1.6	1- 900	500-1,000
Mahogany confining unit	Green River Formation	dolomitic marlstone and shale	500-1,800	<0.01	<25	NL
<b>Lower Piceance Basin aquifer</b>	Green River Formation	shale, fine-grained sandstone, fractured marlstone	0 – 1,870	<0.1 to >1.2	1-1,000	1,000-10,000
Basal confining unit	Green River Formation, Wasatch Formation	claystone, siltstone, clay rich oil shale, marlstone, channel sandstone	0-6,800	<0.01	<10-100	NL
<b>Fort Union aquifer</b>	Fort Union Formation	Coarse-grained sandstone	Very thin	NL	NL	NL
<b>Mesaverde aquifer</b>	Mesaverde Group	sandstone interbedded shale and coal	Averages 3,000	0.0001-1.0	NL	NL
Mancos confining unit	Mancos Shale	mostly shale but Frontier Sandstone may be local aquifer	>7,000	NL	NL	NL
Abbreviations: ft = feet, approx = approximate, avg = average, gpm = gallons per minute, mg = milligrams, L = liters, and NL = not listed.						

Table information from Topper et al. (2003)

The Piceance Creek drainage basins upper and lower aquifers are separated by the semi-confining Mahogany Zone. Information presented in Topper et al. (2003) indicates the following approximate depths to potentiometric surfaces (elevation at which water level would have stood in tightly cased wells, 1985/1986) within hydrogeologic units: Based on a surface elevation of 7,000 feet along Wagonroad Ridge; upper Piceance basin aquifer 600 feet, lower Piceance basin aquifer 500 feet, and Mesaverde aquifer 0 feet. Based on a surface elevation of 6,700 feet near location 398-7-3 along Black Sulphur Creek approximate potentiometric surfaces are as follows: upper Piceance basin aquifer 100 feet, lower Piceance basin aquifer 0 feet, and Mesaverde aquifer +500 feet (flowing artesian). Water well data from the Colorado Division of Water



Resources (Topper et al., 2003) indicated that in central Rio Blanco County water wells are uncommon. Based on existing water well data near the project area, total concentration of dissolved constituents in the upper and lower aquifers is generally lower than 1000 milligrams per liter.

*Environmental Consequences of the Proposed Action:* Surface Water: New surface disturbing activities associated with the proposed actions will increase soil exposure to erosional processes. New surface disturbance will destroy existing vegetation and increase compaction. Increased compaction combined with reduced vegetation will further decrease infiltration rates and elevate erosive potential due to runoff (overland flows) and raindrop impact during storm events. Sediment loads to Black Sulphur Creek will be further elevated as a result of surface disturbance at location 398-7-3, its associated access road and pipeline.

In addition, given the moderately rapid permeability rates of the affected soils, leaks or spills of environmentally unfriendly substances are likely to be carried down gradient in local ground water. Contaminants being transported by local ground water may discharge into surface waters of Black Sulphur Creek and ephemeral tributaries during wet periods, be transported down gradient and potentially deteriorate surface water quality in Piceance Creek and the White River.

Ground Water: In the event of any leaks or spills, local ground water may be adversely impacted as runoff could carry contaminants down gradient to alluvial aquifers such as the Black Sulphur and Piceance Creek alluvium. Potential for ground water contamination increases if fractures in confining units are formed. Hydraulic conductivity increases exponentially along fracture zones resulting in rapid transport of fluids/contaminants in these areas. The upper and lower Piceance Basin aquifers have differing water qualities, mixing will degrade water quality in the upper aquifer which is generally of better quality. Storage or surface disposal methods (e.g. evaporation ponds) for produced water would also elevate potential for contaminating ground water of the Upper Piceance Basin Aquifer and Piceance Creek Alluvial Aquifer.

*Environmental Consequences of the No Action Alternative:* None

*Mitigation:* The operator will be responsible for complying with all local, state, and federal water quality regulations (such as but not limited to Phase I Storm Water Permit, and Industrial Wastewater/Produced Water Permits). The operator will also be required to provide the BLM with documentation that all required permits were obtained.

Surface Water: All surface disturbing activities will strictly adhere to “Gold Book” surface operating standards for oil and gas exploration and development (copies of the “Gold Book” can be obtained at the WRFO). Corrugated metal pipes (CMPs) are not recommended on slopes less than 10% and will NOT be used as drainage relief structures for stream crossings/gullies or to drain inside drain ditches on slopes less than 3%. Based on the nature of the affected soils, drain dips will be utilized in place of CMPs in these locations. Energy dissipaters such as large gravels/small cobbles will be used at culvert and drainage dip outlets to minimize additional erosion. To mitigate water being channelized down roadways, all activity must stop when soils or road surfaces become saturated to a depth of three inches. Mud blading will be prohibited in attempts to reduce further soil displacement. Furthermore, following abandonment of the well

pad all disturbed surfaces will be recontoured to the original grade promptly covered with a sufficient amount of woody debris (if available) and seeded with the appropriate seed mixture as outlined in the vegetation section of this document.

To mitigate surface erosion at well pads, interim reclamation will be required as outlined in the Wildlife, Aquatic and Air Quality mitigation sections above. In addition, for location 398-7-3 daily water quality monitoring in Black Sulphur Creek will be required approximately 100 meters above and below the location (e.g. automated water sampler) starting one month prior to surface disturbing activities and will continue until the BLM ID team agrees successful interim reclamation is completed. Bi-monthly grab samples will be sufficient during winter months during ice over. Parameters which will be monitored are as follows: suspended sediment, hydrocarbons, total dissolved solids (TDS), and pH. A copy of the water quality data will be submitted to the BLM on a monthly basis. Furthermore, pipeline construction for location 398-7-3 will be positioned on the cut side of the roadway and silt fences will be utilized on all slopes exceeding 5 %.

Ground Water: Shallow aquifers shall be protected from hydrofracturing and the production of oil and gas by installation and cementing of surface and intermediate casing. Any groundwater produced from the Fort Union or Mesaverde Formations will be hauled off and disposed of due to poor water quality and therefore preventing adverse impacts to valuable surface and ground water resources. Environmentally unfriendly substances (e.g. diesel) must not be allowed to contact soils. The use of spill-guards (or equivalent spill prevention equipment) under and around pumping equipment will be required for location 398-7-3 and is suggested at other locations to intercept such contaminants prior to contacting soils. Furthermore, to protect shallow ground water recharging Black Sulphur Creek location 398-7-3 will be double lined. A single liner will suffice at all other locations. All wastes associated with construction and drilling will be properly treated and disposed of.

*Finding on the Public Land Health Standard for water quality:* Stream segments 16 and 20 of the White River Basin currently meet water quality standards set by the state. Many of the upper tributaries are ephemeral, flow only in direct response to storm events/snowmelt and do not meet the standards during periods of flow. By following all suggested mitigation measures, water quality in the affected stream segment should continue to meet standards.

## **WETLANDS AND RIPARIAN ZONES (includes a finding on Standard 2)**

*Affected Environment:* There are no wetlands or riparian zones potentially influenced by those locations located along Wagonroad Ridge (399-15-1, 399-15-2, 399-15-3, 399-15-4, and Left Fork P36-299). The nearest persistent waters (Ryan Gulch) are separated from these wells by 2 to 6 miles of ephemeral channel.

Site 398-7-3 is located on an alluvial fan along Black Sulphur Creek, a larger perennial system whose BLM-administered reaches are characterized primarily by stands of yellow and coyote willow. BLM-administered portions of this stream are largely in a functional-at-risk category with much of the channel stability reliant on dams constructed and maintained by beaver. Since

fall 2003, many of the beaver ponds in the vicinity of the proposed action have become silt-filled and it is likely that they will ultimately fail and initiate intermittent and unavoidable episodes of channel readjustment, including downcutting and bank caving. Although ephemeral side channels are likely a major source of coarse sediments accumulating in these ponds, historic livestock use, the existing road, and previous oil and gas developments were identified in prior stream surveys as contributing to sediment loads and accelerated maturation of beaver ponds.

*Environmental Consequences of the Proposed Action:* Assuming diligent observance of applied BMPs pertaining to water quality and soil erosion, and lengthy downstream separation (i.e., 0.5 to 2 miles) via ephemeral channels, there is no reasonable probability of riparian conditions or function (privately owned reaches) being potentially influenced by the proposed Wagonroad Ridge well locations.

Surface disturbances associated with the 398-7-3 pad and access upgrades would be expected to contribute to sediment loading in adjacent and downstream portions of Black Sulphur Creek. Contributions would likely be more pronounced prior to rehabilitation (short term), but depending on the success and timing of reclamation, chronic sediment yields could be sustained in the long term. Increases in sediments entering Black Sulphur Creek would elevate the rate and concurrent incidence of dam failures and would lead to increasing extensive and prolonged forms of channel instability and riparian degradation. Although beaver can generally be expected to keep pace with pond succession patterns and maintain overall system stability in the long term, increased demands for structure restoration and maintenance due to accelerated erosion could rapidly outstrip this system's limited resource base (i.e., willow). In conjunction BMPs applied as Conditions of Approval, mitigation is expected to reduce cumulative sediment yields to Black Sulphur Creek to negligible levels.

*Environmental Consequences of the No Action Alternative:* There would be no action authorized that would have any conceivable influence on downstream riparian communities.

*Mitigation:* See Aquatic Habitat section.

*Finding on the Public Land Health Standard for riparian systems:* With diligent observance of applied BMPs, the proposed Wagonroad Ridge locations and the no-action alternative would have no conceivable influence on the condition or function of downstream channel or riparian systems. These actions are even more distantly removed from the nearest BLM-administered lands (i.e., minimum additional 10 miles to Piceance Creek) and they would have no potential to influence the status of land health standards as applied to those stream reaches.

Public land portions of Black Sulphur Creek generally meet the Public Land Health Standard for riparian and channel systems, but the creek suffers locally from excessive sedimentation that is at least partially attributable to past oil and gas development activities. With application and diligent maintenance of proposed mitigation, it is expected that sediment originating from the proposed action would be reduced to negligible levels and would therefore not accelerate current sedimentation patterns nor detract from continued meeting of the standard.

**CRITICAL ELEMENTS NOT PRESENT OR NOT AFFECTED:**

No ACEC’s, flood plains, prime and unique farmlands, Wilderness, or Wild and Scenic Rivers, threatened, endangered or sensitive plants exist within the area affected by the proposed action. For threatened, endangered and sensitive plant species Public Land Health Standard is not applicable since neither the proposed nor the no-action alternative would have any influence on populations of, or habitats potentially occupied by, special status plants. There are also no Native American religious or environmental justice concerns associated with the proposed action.

**NON-CRITICAL ELEMENTS**

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

**SOILS** (includes a finding on Standard 1)

*Affected Environment:* The following data is a product of an order III soil survey conducted by the Natural Resources Conservation Service (NRCS) in Rio Blanco County, CO. The following table highlights important soil characteristics. A complete summary of this information can be found at the White River Field Office. CSU-1 “fragile soils” have been mapped near the project area along Wagonroad Ridge and at location 399-1-4. Observation of a topographic map and an onsite evaluation (10/12/2005) of the Wagonroad Ridge locations revealed that none of the proposed actions would occur on slopes exceeding 35 percent. Observation of a topographic map indicates that location 399-1-4 is situated on fragile soils however this site is located on private land.

Soil Number	Soil Name	Acres (with 30m buffer)	Slope	Ecological site	Salinity	Run Off	Erosion Potential	Bedrock
6	Barcus channery loamy sand	0.49	2-8%	Foothills Swale	<2	Slow	Moderate	>60
15	Castner channery loam	4.99	5-50%	Pinyon-Juniper woodlands	<2	Medium to rapid	Moderate to very high	10-20
40	Hagga loam	8.15		Swale Meadow	2-8	Slow	Slight	>60
64	Piceance fine sandy loam	2.7	5-15%	Rolling Loam	<2	Medium	Moderate to high	20-40
70	Redcreek-Rentsac complex	21.34	5-30%	PJ woodlands/PJ woodlands	<2	Very high	Moderate to high	10-20
73	Rentsac channery loam	0.22	5-50%	Pinyon-Juniper woodlands	<2	Rapid	Moderate to very high	10-20

Soil Number	Soil Name	Acres (with 30m buffer)	Slope	Ecological site	Salinity	Run Off	Erosion Potential	Bedrock
91	Torriorthents-Rock Outcrop complex	0.21	15-90%	Stoney Foothills		Rapid	Very high	10-20

*6-Barcus channery loamy sand* (2 to 8 percent slopes) is a deep, somewhat excessively drained soil found on alluvial fans and in narrow valleys. It formed in alluvium derived from calcareous sandstone and shale. Areas are fan shaped, triangular, or elongated and are 20 to 100 acres. The native vegetation is mainly low shrubs and grasses. Elevation is 5,800 to 6,800 feet. The average annual precipitation is 14 to 16 inches, the average annual air temperature is 42 to 44 degrees F, and the average frost-free period is 80 to 105 days. Typically, the surface layer is pale brown channery loamy sand 6 inches thick. The upper part of the underlying material is light yellowish brown channery sand 10 inches thick, and the lower part to a depth of 60 inches or more is stratified, light yellowish brown and pale brown very channery sand and very channery loamy fine sand. The soil is calcareous throughout. In some areas the surface layer is channery fine sandy loam or channery sand. Permeability of the Barcus soil is rapid. Available water capacity is low. Effective rooting depth is 60 inches or more. Runoff is slow, and the hazard of water erosion is moderate.

*15-Castner channery loam* (5 to 50 percent slopes) is a shallow, well drained soil located on mountainsides, ridgetops, and uplands. It formed in residuum derived from sandstone. Areas are elongated and are 20 to 750 acres. The native vegetation is mainly pinyon and juniper and an understory of brush and grasses. Elevation is 6,900 to 7,800 feet. The average annual precipitation is 15 to 18 inches, the average annual air temperature is 39 to 42 degrees F, and the average frost-free period is 80 to 105 days. Typically, the upper part of the surface layer is dark grayish brown channery loam about 7 inches thick. The lower part is dark grayish brown very channery loam about 4 inches thick. The underlying material is grayish brown, calcareous very channery loam about 6 inches thick. Sandstone is at a depth of 17 inches. Depth to sandstone ranges from 10 to 20 inches. Permeability of the Castner soil is moderate. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium to rapid, and the hazard of water erosion is moderate to very high.

*40-Hagga loam* (0 to 5 percent slopes) is a deep, poorly drained soil found on flood plains and alluvial valley floors. It formed in alluvium derived dominantly from sandstone and shale. Areas are long and narrow and are 20 to 300 acres. The native vegetation is mainly water-tolerant grasses. Elevation is 5,800 to 7,200 feet. The average annual precipitation is 15 to 16 inches, the average annual air temperature is 43 to 45 degrees F, and the average frost-free period is 85 to 105 days. Typically, the surface layer is light brownish gray loam 5 inches thick. Below this to a depth of 60 inches or more is stratified silty clay loam to loamy fine sand. The color is variable because of wetness and stratification. Permeability of this Hagga soil is moderately slow. Available water capacity is high. Effective rooting depth is 60 inches or more for water-tolerant plants, but it is limited to depths between 10 and 20 inches for non-water-tolerant plants. Runoff is slow, and the hazard water erosion is slight. A seasonal high water table is at a depth of 12 to 24 inches in spring and early in summer. This soil is subject to brief periods of flooding in spring and summer. The concentration of salts and alkali in the surface layer limits the

production of plants suitable for hay and pasture. Leaching of the salts from the surface layer is limited by the high water table. Drainage and irrigation water management reduce the concentration of salts. Salt-tolerant species are most suitable for planting. Proper grazing practices, weed control, and fertilizer are needed to insure maximum quality of forage.

*64-Piceance fine sandy loam* (5 to 15 percent slopes) is a moderately deep, well drained soil located on uplands and broad ridgetops. It formed in eolian material and colluvium derived dominantly from sandstone. Areas are elongated and are 20 to 600 acres. The native vegetation is mainly low shrubs, grasses, and a few pinyon trees. Elevation is 6,300 to 7,500 feet. The average annual precipitation is 15 to 18 inches, the average annual air temperature is 42 to 45 degrees F, and the average frost-free period is 80 to 105 days. Typically, the surface layer is brown fine sandy loam 4 inches thick. The upper 5 inches of the subsoil is brown loam, and the lower 13 inches is light yellowish brown loam. The substratum is very pale brown channery loam 8 inches thick. Hard sandstone is at a depth of 30 inches. Permeability of this Piceance soil is moderate. Available water capacity is moderately low. Effective rooting depth is 20 to 40 inches. Runoff is slow to medium, and the hazard of water erosion is moderate to high.

*70-Redcreek-Rentsac complex* (5 to 30 percent slopes) is located on mountainsides and ridges. Areas are elongated and are 40 to 300 acres. The native vegetation is mainly pinyon and juniper trees with an understory of shrubs and grasses. Elevation is 6,000 to 7,400 feet. The average annual precipitation is 14 to 18 inches, the average annual air temperature is 42 to 45 degrees F, and the average frost-free period is 85 to 105 days. This unit is 60 percent Redcreek sandy loam and 30 percent Rentsac channery loam. The Redcreek soil is shallow and well drained. It formed in residual and eolian material derived dominantly from sandstone. Typically, the surface layer is brown sandy loam about 4 inches thick. The next layer is brown, calcareous sandy loam about 7 inches thick. The underlying material is very pale brown, calcareous channery loam 5 inches thick. Hard sandstone is at a depth of 16 inches. Depth to hard sandstone or hard shale ranges from 10 to 20 inches. Permeability of the Redcreek soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate to high.

The Rentsac soil is shallow and well drained. It formed in residuum derived dominantly from sandstone. Typically, the upper part of the surface layer is grayish brown channery loam about 5 inches thick. The next layer is brown very channery loam about 4 inches thick. The underlying material is very pale brown extremely flaggy loam 7 inches thick. Hard sandstone is at a depth of 16 inches. Depth to hard sandstone or hard shale ranges from 10 to 20 inches. Permeability of the Rentsac soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is medium, and the hazard of water erosion is moderate to high.

*73-Rentsac channery loam* (5 to 50 percent slopes) is a shallow, well drained soil located on ridges, foothills, and side slopes. It formed in residuum derived dominantly from calcareous sandstone. The native vegetation is mainly pinyon, juniper, brush, and grasses. Elevation is 6,000 to 7,600 feet. The average annual precipitation is 14 to 18 inches, the average annual air temperature is 42 to 45 degrees F, and the average frost-free period is 80 to 105 days. Typically, the surface layer is grayish brown channery loam about 5 inches thick. The next layer is very channery loam about 4 inches thick. The underlying material is extremely flaggy light loam 7

inches thick. Hard sandstone is at a depth of 16 inches. Depth to sandstone ranges from 10 to 20 inches. Permeability of this Rentsac soil is moderately rapid. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is rapid, and the hazard of water erosion is moderate to very high.

*91-Torriorthents-Rock outcrop complex* (15 to 90 percent slopes) is located on extremely rough and eroded areas on mountains, hills, ridges, and canyonsides. Slopes mainly face south. The native vegetation is mainly sparse shrubs and grasses with some pinyon and juniper trees. Elevation is 5,100 to 7,500 feet. The average annual precipitation is 8 to 18 inches, the average annual air temperature is 40 to 50 degrees F, and the average frost-free period is 70 to 130 days. This unit is 50 percent Torriorthents that have slopes of 15 to 65 percent and 30 percent Rock outcrop that has slopes of 35 to 90 percent. Torriorthents are very shallow to moderately deep and are well drained and somewhat excessively drained. They formed in residuum and colluvium derived dominantly from sandstone, shale, limestone, and siltstone. Torriorthents are highly variable. No single profile of Torriorthents is typical, but one commonly observed in the survey area has a surface layer of pale brown channery loam about 3 inches thick. The underlying material is very pale brown channery loam, very channery loam, or fine sandy loam about 13 inches thick. Shale or sandstone is at a depth of 16 inches. Torriorthents are calcareous throughout. In some areas the surface layer is stony or flaggy. Permeability of the Torriorthents is moderate. Available water capacity is very low. Effective rooting depth is 10 to 20 inches. Runoff is very rapid, and the hazard of water erosion is very high. Rock outcrop consists of barren escarpments, ridge caps, and points of sandstone, shale, limestone, or siltstone. The escarpments are 3 to 50 feet thick and 25 to 2,500 feet long.

*Environmental Consequences of the Proposed Action:* Well pads, access roads and pipelines are situated on soils which range from slight to very high erosive potential. Improper drainage from the project areas will increase potential for overland flows accelerating erosion rates leading to soil piping, head cutting and gully formation. Removal of limited ground cover will also expose soils to erosional processes. All of surface disturbing activities will occur on soils which are calcareous in nature (soil units 6, 15, 40, 70, and 91) or have high concentrations salts/alkali minerals (soil unit 40). Improper drainage in these areas may lead to gully formation, sink holes, and soil piping. These erosional problems were documented at Riata location 398-7-2 (10/12/2005) in the Black Sulfur Creek drainage approximately 1200 feet downstream of proposed location 398-7-3. Heavy traffic will increase soil compaction decreasing infiltration rates which in turn will also increase potential for erosive overland flows.

Leaks or spills of environmentally unfriendly substances on or near pad sites may contaminate soils hindering revegetation efforts. Soils unable to support a healthy plant community will be less cohesive (due to lack of root structure) and more vulnerable to erosional processes.

*Environmental Consequences of the No Action Alternative:* None

*Mitigation:* Comply with “Gold Book” surface operating standards for constructing well pads, pipelines and access roads (copies of the “Gold Book” can be obtained at the WRFO). Interim reclamation will be required as addressed in the Wildlife, Aquatic and Air Quality portions of this document.

To mitigate contamination of soils and local ground water, environmentally unfriendly substances (e.g. diesel) must not be allowed to contact soils. The use of impermeable matting under equipment (tanks, pumps, or other equipment used in handling potentially hazardous liquids) will be *required* at location 398-7-3 (adjacent to Black Sulfur Creek) to intercept contaminants prior to contacting soils.

Complete reclamation will follow abandonment of well pads. New access roads and well pads will be recontoured and 100% of disturbed surfaces will be revegetated with the suggested seed mixture as outlined in the vegetation section of this document.

*Finding on the Public Land Health Standard for upland soils:* Currently, soils in the vicinity of the proposed action exhibit infiltration and permeability rates that are appropriate to soil type, landform, climate, and geologic processes. The proposed actions will cause decreases in both infiltration and permeability rates due to soil compaction and loss of vegetal cover. However, with proper mitigation soils health standards will continue to be met.

## **VEGETATION** (includes a finding on Standard 3)

*Affected Environment:* The proposed locations are primarily located in mix pinyon-juniper woodlands and Wyoming big sagebrush parks in stage one of a pinyon invasion process. The corresponding ecological sites are pinyon-juniper woodland and rolling loam.

*Environmental Consequences of the Proposed Action:* The proposed action will create about (20) twenty acres of new earthen disturbance. The principal impact to vegetation will be complete removal of vegetation on the well sites, access roads and pipelines, and the earthen disturbance associated with it. In terms of plant community composition, structure and function, the principal negative impact over the long term would occur if cheatgrass or noxious weeds are allowed to establish and proliferate on the disturbed areas resulting from pad, pipeline, and access road construction.

*Environmental Consequences of the No Action Alternative:* There will be no change from the present situation.

*Mitigation:* The operator will monitor the right of way for a minimum of five years post construction to detect the presence of noxious and invasive species.

*Finding on the Public Land Health Standard for plant and animal communities* (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): Vegetation in the project area currently meets the Standard on a watershed basis and is expected to continue to meet the Standard in the future following implementation of the proposed action.

## **WILDLIFE, AQUATIC** (includes a finding on Standard 3)



*Affected Environment:* Site 398-7-3 is located along Black Sulphur Creek, a larger perennial system that supports a fishery composed of rainbow and non-native forms of cutthroat trout. BLM-administered portions of this stream are largely in a functional-at-risk category with much of the channel stability reliant on dams constructed and maintained by beaver. Fish densities fluctuate dramatically in response to the availability and condition of beaver ponds. Since fall 2003, many of the beaver ponds in the vicinity of the proposed action have become silt-filled and are occupied by far fewer fish. Although ephemeral side channels are likely a major source of coarse sediments accumulating in these ponds, historic livestock use, the existing road, and previous oil and gas developments were identified in prior stream surveys as contributing to sediment loads.

*Environmental Consequences of the Proposed Action:* Surface disturbances associated with pad development and access upgrades would be expected to contribute to sediment loading in adjacent and downstream portions of Black Sulphur Creek. Contributions would likely be more pronounced prior to rehabilitation (short term), but depending on the success and timing of reclamation, chronic sediment yields could be sustained in the long term. Increases in sediments entering Black Sulphur Creek may not only impede successful reproduction (e.g., sediment deposition on gravel spawning beds), but abbreviate the functional lifespan of beaver ponds (e.g., minimize longevity of deep water pool habitat and destabilize lateral and vertical channel profiles). The mitigation, as proposed, is intended to provide a means to capture and retain fugitive sediments through the life of the project. In conjunction with BMPs applied as Conditions of Approval, this mitigation is expected to reduce cumulative sediment yields to the Black Sulphur fishery to negligible levels.

*Environmental Consequences of the No Action Alternative:* There would be no action authorized that would contribute additional sediments to Black Sulphur Creek.

*Mitigation:* To capture and retain fine sediments originating from surface disturbance associated with this pad, it is recommended that a braced, 4-strand barbed wire fence be installed immediately after the pad is constructed. The fence is expected to extend across the top of the pad's fill slope and the eastern margin of the access road right-of-way on either side of the pad such that the fence encloses a buffer that extends 50 feet (easterly) from the toe of the pad fill and captures at least 50 feet of the channels carrying diverted runoff around the north and south ends of the pad (see figure). Disturbed or barren acreage within this area should be immediately seeded with a mixture of the approved herbaceous components (without the fourwing saltbush) and lightly harrowed or dragged. Pending the success of initial seeding efforts, supplemental seeding may be required. Fence maintenance would remain the responsibility of the applicant.

*Finding on the Public Land Health Standard for plant and animal communities* (partial, see also Vegetation and Wildlife, Terrestrial): Public land portions of Black Sulphur Creek generally meet the Public Land Health Standard for this fisheries, but the creek suffers locally from excessive sedimentation that is at least partially attributable to past oil and gas development activities. With application and diligent maintenance of proposed mitigation, it is expected that sediment originating from the proposed action would be reduced to negligible levels and would thereby not detract from continued meeting of the standard.

## **WILDLIFE, TERRESTRIAL** (includes a finding on Standard 3)

*Affected Environment:* The proposed well locations along Wagonroad Ridge are encompassed by general winter range distribution for elk and with the exception of P36-299, summer range distribution for deer. A misnomer, the summer range category represents the lower margin of summer range extent and upper elevation winter ranges. These transitional ranges are used predominantly from September through December and again April through mid May. Site 398-7-3, located along Black Sulphur Creek, is encompassed by general winter range distribution for both deer and elk. These ranges are typically occupied from October through January and again in April and early May. The five locations located on Wagonroad Ridge are adjacent to a maintained county road. Site 398-7-3 is located along a less-traveled, privately-controlled two-track.

While raptors may opportunistically forage throughout the area, the early successional pinyon-juniper stands located throughout the project area do not provide adequate nesting substrate for woodland raptors (on-site surveys conducted by BLM biologist, 12 October 2005). Cliff substrate in the vicinity of the 398-7-3 pad supports no evidence of past or recent raptor nest activity. Non-game wildlife using this area are typical and widely distributed in extensive like habitats across the Resource Area and northwest Colorado; there are no narrowly endemic or highly specialized species known to inhabit those lands potentially influenced by this action.

*Environmental Consequences of the Proposed Action:* Although short-term animal displacement is likely to occur in the vicinity of active drilling and completion operations (e.g., 30-50 acres at any given time), the affects would be minor since the project area involves more expansive transition and early winter range extent (i.e., fewer animals affected as winter progresses) and the majority of activity would be generally confined to maintained access corridors (8 of 10 total wells, 6 of 6 BLM surface wells). Much of the proposed surface disturbance would occur in situations where habitat utility is currently compromised by existing features (road margins) or that support limited woody forage production (e.g., pinyon-juniper encroached Wyoming big sagebrush, basin big sagebrush bottomlands). Longer term occupation of these lands and the reduction in the herbaceous and woody forage base for big game would be discountable. Short term reductions in the herbaceous forage base on pipeline and pad (i.e., interim reclamation) acreage would be largely regained through reclamation by the following growing seasons. Similarly, the loss of forage and cover for non-game animals would be negligible at the local scale.

Access requirements for these pads would be minor and would not add substantively to the density of local road networks (i.e., relating to habitat disuse adjacent to disturbance and elevated energetic demands associated with harassment). The only opportunity to minimize unnecessary roadbed development is conditioning the pipeline right-of-way that would extend from the P36-29 pad to the existing fenceline and on to RBC 144.

*Environmental Consequences of the No Action Alternative:* No immediate action would be authorized that would have potential to adversely modify terrestrial wildlife habitats or be capable of disrupting animal behavior within the project area.

*Mitigation:* See interim reclamation provision presented in Threatened and Endangered Species section above.

To minimize unnecessary roadbed development, the applicant will be responsible for conditioning the pipeline right-of-way that would extend from the P36-29 pad to the existing fenceline and on to RBC 144 to effectively deter any subsequent motorized vehicle use of the right-of-way over the life of the project.

*Finding on the Public Land Health Standard for plant and animal communities* (partial, see also Vegetation and Wildlife, Aquatic): The project area presently meets the public land health standards for terrestrial animal communities. The proposed action and no-action alternatives would have negligible short and long term influence on the utility or function of big game, raptor, or nongame habitats in the vicinity of these sites. Although pads and access associated with the proposed action cannot be considered as meeting the definition of the land health standard, the overall shrubland communities comprising this landscape retain sufficient character to support viable populations of resident game and nongame species. Thus, in an overall context, lands affected by the no-action or proposed action would continue to meet the land health standard for terrestrial animals.

**OTHER NON-CRITICAL ELEMENTS:** For the following elements, only those brought forward for analysis will be addressed further.

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

## ACCESS AND TRANSPORTATION

*Affected Environment:* Rio Blanco County road 144 will be impacted in addition to BLM road 1184.

*Environmental Consequences of the Proposed Action:* An increase in traffic is expected due to construction and maintenance of wells. An increased likelihood of road surface damage and traffic accidents should be expected.

*Environmental Consequences of the No Action Alternative:* None.

*Mitigation:* None.

## **FIRE MANAGEMENT**

*Affected Environment:* The proposed 399-1-2, 399-1-3, 399-1-4, 399-1-5, 399-15-1, 399-15-2, 399-15-3, and the P36-299 well pads involve approximately 0.8 miles of road and pipeline construction and/or road improvement and about 12.3 acres of drill pad clearing for an approximate total of 17.4 acres of disturbance in pinyon/juniper stands.

The National Fire Plan calls for “firefighter and public safety” to be the highest priority for all fire management activities. In the pinion, juniper, and brush types common on the White River Resource Area, roads and other man-made openings are commonly used as fuel breaks or barriers to control the spread of both wildland and prescribed fires. By reducing the activity fuels created from this proposal, future fire management efforts in this area should be safer for those involved and more effective.

*Environmental Consequences of the Proposed Action:* Due to the existing tree cover of pinion and juniper, there will be a need for the operator to clear the trees associated with the disturbance. If not adequately treated, these trees will result in elevated hazardous fuels conditions and remain on-site for many years. These accumulations of dead material are very receptive to fire brands and spotting from wind driven fires and can greatly accelerate the rate of spread of the fire front. The road(s) associated with this project may be used by the general public for a variety of uses, including access for fire wood gathering, hunting and other dispersed recreational activities. Increased public use of an area will nearly always result in an increased potential for man-caused wildland fires. If not treated the slash and woody debris will create an elevated hazardous dead fuel loading which could pose significant control problems in the event of a wildfire. Additionally there would be greater threat to public, oil and gas personnel, and fire suppression personnel.

*Environmental Consequences of the No Action Alternative:* There would be no tree removal or disturbance to cause significant dead fuel loading.

*Mitigation:* The operator has two options for treatment of slash from this project. A hydro-ax or other mulching type machine could be used to remove the trees. The machines are capable of shredding trees up to 12" in diameter and 15' tall as well as mowing brush like a conventional brush beater. It generally leaves small branches and pieces of wood from pencil

size up to bowling ball size and the mulch is evenly scattered across the surface. This would effectively breakdown the woody fuel and scatters the debris thereby eliminating any hazardous fuel load adjacent to the new road and well pad. The other option would be to cut trees and have them removed for firewood, posts, or other products. The branches and tops should be lopped and scattered to a depth of 24 inches or less. If the products are left for collection by the general public, they should be stacked in small manageable piles along the roadside or pad to facilitate removal. For material brought back onto the pipeline r-o-w the material should be evenly scattered, so as to not create jackpots, and the material should not exceed 5 tons /acre.

## **GEOLOGY AND MINERALS**

*Affected Environment:* The surface geologic formation of the all the well location, except for 398-7-3, is the Uinta formation. Surface geology for well location 398-7-3 is alluvium. Riata's targeted zone is in the lower Mesaverde. During drilling potential water, oil shale, sodium, and gas zones will be encountered from surface to the targeted zone. All of the proposed wells are located in the area identified in the ROD/RMP as available for oil shale leasing and development. Well locations 399-1-2, 399-1-3, 399-1-4, 399-1-5 and P-36-299 are also located in area identified in the ROD/RMP as available for sodium leasing. Fresh water aquifers that will be encountered during drilling are; the Perched in the Uinta, the A-groove, B-groove and the Dissolution Surface in the Green River formation. These geologic zones along with upper portion of the Wasatch are known for difficulties in drilling and cementing. The wells will develop the natural gas resources on Federal oil and gas leases COC-056050, COC-060760, COC-060758 and COC-060743.

*Environmental Consequences of the Proposed Action:* Drilling and completion of this well may adversely affect the aquifers if there is loss of circulation or problems cementing the casing. However, the proposed cementing and completion procedure of the proposed action isolates the formations and will prevent the migration of gas, water, and oil between formations. Development of these wells will deplete the hydrocarbon resources in the targeted formation. Well locations may prevent an orderly future development of sodium and oil shale resources.

*Environmental Consequences of the No Action Alternative:* The natural gas resources in the targeted zones will not be developed at this time.

*Mitigation:* None

## **HYDROLOGY AND WATER RIGHTS**

*Affected Environment:* The majority of the resource area was inventoried in the early 1980's for springs. Two perennial springs P173.02 and P173.05 have been identified within 1 mile of the proposed action. Both springs are situated in the Swizer Gulch catchment area (tributary to Black Sulphur Creek) above the proposed actions. In addition, perennial spring P173.03 is situated ~1.37 miles gradient of location P36-299 and ~1.75 miles gradient of location 398-7-3. The following table lists springs which were identified in the WRFO Water Atlas.

Map Code	Quarter	Sec#	Twp	Rng	Water Right	SC	pH	Q in gpm	Date	Comments
173-03	Lot 8-SESW	32	2S	98W	85CW361	1480	7.8	2.7	8/30/83	Perennial
173-05	SESE	22	3S	99W	85CW349	2044	8.2	9.6	8/25/83	Perennial
173-02	SWNW	23	3S	99W	AR-72	1925	7.8	3.11	8/30/83	G/N/Perennial

The BLM has obtained water rights on all of the potentially impacted perennial springs.

*Environmental Consequences of the Proposed Action:* Contamination of local ground water up gradient of BLM spring 173-02 could adversely impact water quality at the spring source. BLM springs 173-03 and 173-05 should be unaffected by the proposed actions.

*Environmental Consequences of the No Action Alternative:* None

*Mitigation:* See water quality section above.

## PALEONTOLOGY

*Affected Environment:* The proposed 398-7-3 well pad, access road and well tie pipeline are located in an area generally mapped as the Uinta Formation (Tweto 1979) which the BLM has classified as a Condition I formation, meaning it is known to produce scientifically important fossil resources. Portions of this well pad are located in what appears to be quaternary alluvium in the drainage bottom and are not expected to contain important fossil resources.

The proposed 399-22-1 well pad, access road and well tie pipeline are located in an area generally mapped as the Uinta formation (Tweto 1979) which the BLM has classified as a Condition I formation meaning it is known to produce scientifically important fossil resources.

The proposed 399-15-1 well pad, access road and well tie pipeline are located in an area generally mapped as the Uinta formation (Tweto 1979) which the BLM has classified as a Condition I formation meaning it is known to produce scientifically important fossil resources.

The proposed 399-15-2 well pad, access road and well tie pipeline are located in an area generally mapped as the Uinta formation (Tweto 1979) which the BLM has classified as a Condition I formation meaning it is known to produce scientifically important fossil resources.

The proposed 399-15-3 well pad, access road and well tie pipeline are located in an area generally mapped as the Uinta formation (Tweto 1979) which the BLM has classified as a Condition I formation meaning it is known to produce scientifically important fossil resources.

The proposed 399-1-2 well pad, access road and well tie pipeline are located in an area generally mapped as the Uinta formation (Tweto 1979) which the BLM has classified as a Condition I formation meaning it is known to produce scientifically important fossil resources.

The proposed 399-1-3 well pad, access road and well tie pipeline are located in an area generally mapped as the Uinta formation (Tweto 1979) which the BLM has classified as a Condition I formation meaning it is known to produce scientifically important fossil resources.

The proposed 399-1-4 well pad, access road and well tie pipeline are located in an area generally mapped as the Uinta formation (Tweto 1979) which the BLM has classified as a Condition I formation meaning it is known to produce scientifically important fossil resources.

The proposed 399-1-5 well pad, access road and well tie pipeline are located in an area generally mapped as the Uinta formation (Tweto 1979) which the BLM has classified as a Condition I formation meaning it is known to produce scientifically important fossil resources.

The proposed Left Fork P-36-299 well pad, access road and well tie pipeline are located in an area generally mapped as the Uinta formation (Tweto 1979) which the BLM has classified as a Condition I formation meaning it is known to produce scientifically important fossil resources.

*Environmental Consequences of the Proposed Action:* The proposed 398-7-3 well pad, access road and well tie pipeline: if it should become necessary to excavate into the underlying rock formation to construct the access road, bury the well tie pipeline, level the well pad or excavate the reserve/blooiie pit there is a potential to impact scientifically important fossil resources.

The proposed 399-22-1 well pad, access road and well tie pipeline: if it should become necessary to excavate into the underlying rock formation to construct the access road, bury the well tie pipeline, level the well pad or excavate the reserve/blooiie pit there is a potential to impact scientifically important fossil resources.

The proposed 399-15-1 well pad, access road and well tie pipeline: if it should become necessary to excavate into the underlying rock formation to construct the access road, bury the well tie pipeline, level the well pad or excavate the reserve/blooiie pit there is a potential to impact scientifically important fossil resources.

The proposed 399-15-2 well pad, access road and well tie pipeline: if it should become necessary to excavate into the underlying rock formation to construct the access road, bury the well tie pipeline, level the well pad or excavate the reserve/blooiie pit there is a potential to impact scientifically important fossil resources.

The proposed 399-15-3 well pad, access road and well tie pipeline: if it should become necessary to excavate into the underlying rock formation to construct the access road, bury the well tie pipeline, level the well pad or excavate the reserve/blooiie pit there is a potential to impact scientifically important fossil resources.

The proposed 399-1-2 well pad, access road and well tie pipeline: if it should become necessary to excavate into the underlying rock formation to construct the access road, bury the well tie pipeline, level the well pad or excavate the reserve/blooiie pit there is a potential to impact scientifically important fossil resources.

The proposed 399-1-3 well pad, access road and well tie pipeline: if it should become necessary to excavate into the underlying rock formation to construct the access road, bury the well tie pipeline, level the well pad or excavate the reserve/blooiie pit there is a potential to impact scientifically important fossil resources.

The proposed 399-1-4 well pad, access road and well tie pipeline: if it should become necessary to excavate into the underlying rock formation to construct the access road, bury the well tie pipeline, level the well pad or excavate the reserve/blooiie pit there is a potential to impact scientifically important fossil resources.

The proposed 399-1-5 well pad, access road and well tie pipeline: if it should become necessary to excavate into the underlying rock formation to construct the access road, bury the well tie pipeline, level the well pad or excavate the reserve/blooiie pit there is a potential to impact scientifically important fossil resources.

The proposed Left Fork P-36-299 well pad, access road and well tie pipeline: if it should become necessary to excavate into the underlying rock formation to construct the access road, bury the well tie pipeline, level the well pad or excavate the reserve/blooiie pit there is a potential to impact scientifically important fossil resources.

*Environmental Consequences of the No Action Alternative:* There would be no new impacts to fossil resources under the No Action Alternative.

*Mitigation:* The proposed 398-7-3, 399-22-1, 399-15-1, 399-15-2, 399-15-3, 399-1-2, 399-1-3, 399-1-4, 399-1-5, Left Fork P-36-299 well pads, access roads and well tie pipelines: 1. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing paleontological sites, or for collecting fossils. If fossil materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear to be of noteworthy scientific interest
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not feasible)

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.



2. A paleontological monitor shall be present before any excavation into the underling rock for building of access roads, burying of well tie pipelines, leveling of well pads and/or excavation of reserve/bloolie pits.

**RANGELAND MANAGEMENT**

*Affected Environment:* All the proposed locations, access roads and pipelines but 298-27-6, 298-27-7, 298-27-8, and 298-26-9 are within the Reagle allotment (06026). The Reagle allotment is permitted for cattle use with two operators; the remaining four locations are within the Black Sulphur allotment (06029) and are permitted as follows:

Allotment	Operator	Livestock # and Kind		Period of Use	Percent Public Land	Authorized Use (AUM)
Reagle Allotment (06026)	Larry Mautz	70	C	05/1 – 12/15	65	343
	Dean Mantle	81	C	11/01-11/30	100	610
Black Sulphur Allotment (06029)	Mantle Ranch	118	C	05/1 – 06/15	86	153
		50	C	04/1 – 06/15	86	107
		200	C	11/2 – 02/28	86	679
	Boone Vaughn	100	C	05/01 – 06/15	100	151
		100	C	11/01 – 11/30	100	99

*Environmental Consequences of the Proposed Action:* The proposed action will result in the long term loss of about 4 AUMs of livestock forage. If the integrity of the affected fences is not maintained, intra-allotment livestock trespass could occur. If airborne dust coats vegetation adjacent to roads, the usability of that vegetation for forage will be negatively impacted

*Environmental Consequences of the No Action Alternative:* There will be no change from the present situation.

*Mitigation:* All fences crossed by an access road to a well location, pipeline and/or gas plant will have a cattle guard installed and maintained to BLM specifications for the lifetime of the project. All cattle guard/fence work will take place prior to well location, pipeline or facility construction.

Any and all fences intersected by an access road or pipeline will be braced to BLM specifications prior to cutting. A temporary wire gate will be constructed. This work will take place prior to access road/ pipeline ROW construction.

Reserve pit fencing will comply with BLM specifications as described in the BLM Gold Book (Fourth Edition, 2005). Reserve pit fence specifications will be included as part of the conditions of approval.

Promptly recontour and revegetate all disturbed areas with Native Seed mix # 3. No trees or other woody debris will be redistributed on the pipeline rights of way until seeding operations are completed. The operator will monitor the right of way for a minimum of five years post construction to detect the presence of noxious and invasive species.

Seed mixture rates are Pure Live Seed (PLS) pounds per acre.

Native Seed mix # 3.			
3	Western wheatgrass (Rosanna)	1	Gravelly 10"-14", Pinyon/Juniper Woodland, Stony Foothills, 147 (Mountain Mahogany)
	Bluebunch wheatgrass (Whitmar)	2	
	Thickspike wheatgrass (Critana)	1	
	Indian ricegrass (Rimrock)	2	
	Needle and thread	1	
	Fourwing saltbush (Wytana)	1	
	Utah sweetvetch	1	

Rates are for drill seeding; for broadcast application double the seeding rate and provide for seed coverage. Seed should be certified.

## REALTY AUTHORIZATIONS

*Affected Environment:* Access roads and pipelines to fee wells 399-1-2, 399-1-3, 399-1-4, and 399-1-5 are entirely on private surface. The off-lease (COC60743) access road to the 398-7-3 is authorized under ROW COC55123. The pipeline will be on-lease. Access and pipelines to the 399-22-1, 399-15-1, 399-15-2, and 399-15-3 wells are all on-lease (COC60760).

*Environmental Consequences of the Proposed Action:* Access and pipelines are on private lands, on-lease, or on previously authorized right-of-way.

*Environmental Consequences of the No Action Alternative:* None

*Mitigation:* None

## RECREATION

*Affected Environment:* The proposed action occurs within the White River Extensive Recreation Management Area (ERMA). 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 area has been delineated a Recreation Opportunity Spectrum (ROS) class of Semi-Primitive Motorized (SPM). SPM physical and social recreation setting is typically characterized by a natural appearing environment with few administrative controls, low interaction between

users but evidence of other users may be present. SPM recreation experience is characterized by a high probability of isolation from the sights and sounds of humans that offers an environment that offers challenge and risk.

*Environmental Consequences of the Proposed Action:* The public will lose approximately 13 acres of dispersed recreation potential while wells are in operation. The public will most likely not recreate in the vicinity of these facilities and will be dispersed elsewhere. If action coincides with hunting seasons (September through November) it will most likely disrupt the experience sought by those recreationists.

With the introduction of new well pads and roads, an increase of traffic could be expected increasing the likelihood of human interactions, the sights and sounds associated with the human environment and a less naturally appearing environment.

*Environmental Consequences of the No Action Alternative:* No loss of dispersed recreation potential and no impact to hunting recreationists.

*Mitigation:* None.

## **VISUAL RESOURCES**

*Affected Environment:* The proposed actions would be located in areas with VRM II and VRM III classifications. The objective of the VRM II classification is to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. The objective of the VRM III classification is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

*Environmental Consequences of the Proposed Action:* The proposed actions would be located along the crest of Wagon Road Ridge in vegetation ranging from pinyon/juniper stands to lower shrub species of serviceberry/sage brush. The proposed actions located on private surface are not subject to the VRM standards applied to public lands, but all well pads are located in similar vegetation types. A dirt road exists in close proximity to the proposed actions. Travel on this existing road consists primarily of ranchers, energy related activities, and hunters during the fall big game seasons. Since the road currently has no winter maintenance, travel in the winter/snow months would be primarily by snowmobile. The route traveled by a casual observer would be the paved road (RBC 5) along Piceance Creek. The proposed actions would not be visible from that route. The proposed actions would be visible for short periods of time by travelers along the Wagon Road Ridge route. By painting all above ground facilities Juniper Green as stated in the APD, the level of change to the characteristic landscape would be low and the objectives of both the VRM II and VRM III classification would be retained.

*Environmental Consequences of the No Action Alternative:* There would be no impacts.

*Mitigation:* None.

**CUMULATIVE IMPACTS SUMMARY:** Cumulative impacts from oil and gas development were analyzed in the White River Resource Area Proposed Resource Management Plan/Final Environmental Impact Statement (PRMP/FEIS) completed in June 1996. Current development, including the proposed action, has not exceeded the cumulative impacts from the foreseeable development analyzed in the PRMP/FEIS.

**REFERENCES CITED:**

Conner, Carl E. and Barbara J. Davenport

2005 Class III Cultural Resources Inventory of Ten Proposed Well Locations and Their Related Access/Pipeline Routes in Rio Blanco County, Colorado, for Riata Energy, Inc. and Sagebrush Pipeline LLC. Grand River Institute, Grand Junction, Colorado.

Rosgen, Dave. 1996. Applied River Morphology. Wildland Hydrology, Pagosa Springs, Colorado: 5-178, 5-182 pp.

Topper, R., K.L. Spray, W.H. Bellis, J.L. Hamilton, and P.E. Barkmann. 2003. Groundwater Atlas of Colorado, Special Publication 53. Prepared for State of Colorado Department of Natural Resources, Division of Minerals and Geology. Colorado Geological Survey. Denver, Colorado.

Tweto, Ogden

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

**PERSONS / AGENCIES CONSULTED:** None

**INTERDISCIPLINARY REVIEW:**

<b>Name</b>	<b>Title</b>	<b>Area of Responsibility</b>
Nate Dieterich	Hydrologist	Air Quality
Tamara Meagley	Natural Resource Specialist	Areas of Critical Environmental Concern
Tamara Meagley	Natural Resource Specialist	Threatened and Endangered Plant Species
Michael Selle	Archeologist	Cultural Resources Paleontological Resources
Mark Hafkenschiel	Rangeland Management Specialist	Invasive, Non-Native Species, Vegetation, Soils, Rangeland Management
Ed Hollowed	Wildlife Biologist	Migratory Birds
Ed Hollowed	Wildlife Biologist	Threatened, Endangered and Sensitive Animal Species, Wildlife
Melissa Kindall	Hazmat Collateral	Wastes, Hazardous or Solid
Nate Dieterich	Hydrologist	Water Quality, Surface and Ground Hydrology and Water Rights, Soils
Ed Hollowed	Wildlife Biologist	Wetlands and Riparian Zones
Chris Ham	Outdoor Recreation Planner	Wilderness
Ed Hollowed	Wildlife Biologist	Wildlife Terrestrial and Aquatic
Chris Ham	Outdoor Recreation Planner	Access and Transportation
Ken Holsinger	Natural Resource Specialist	Fire Management
Bob Fowler	Forester	Forest Management
Paul Daggett	Mining Engineer	Geology and Minerals
Linda Jones	Realty Specialist	Realty Authorizations
Chris Ham	Outdoor Recreation Planner	Recreation
Keith Whitaker	Natural Resource Specialist	Visual Resources
Valerie Dobrich	Natural Resource Specialist	Wild Horses

# **Finding of No Significant Impact/Decision Record (FONSI/DR)**

## **CO-110-2005-223-EA**

**FINDING OF NO SIGNIFICANT IMPACT (FONSI)/RATIONALE:** The environmental assessment and analyzing the environmental effects of the proposed action have been reviewed. The approved mitigation measures (listed below) result in a Finding of No Significant Impact on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the proposed action.

**DECISION/RATIONALE:** It is my decision to approve development of the wells, access roads and associated pipelines as described in the proposed action, with the addition of the mitigation measures listed below. This development, with mitigation, is consistent with the decisions in the White River ROD/RMP, and environmental impacts will be minimal.

**MITIGATION MEASURES:** 1. The operator will be responsible for complying with all local, state, and federal air quality regulations as well as providing documentation to the BLM that they have done so.

2. To minimize production of fugitive particulate matter, vehicle speeds must not exceed 15 mph *or* dust plume must not be visible at appropriate designated speeds for road design. In addition, the application of a BLM approved dust suppressant (e.g. water or chemical stabilization methods) will be required during dry periods when dust plumes are visible at speeds less than or equal to 15 mph. Surfacing the roadway with gravels will also help mitigate production of fugitive particulate matter.

3. To reduce production of fugitive particulate matter originating from well pads and associated stockpiled soils (long term storage) interim reclamation will be required. Interim reclamation will consist of excess stockpiled soils associated with pad construction being pulled back over the portion of the well pad not being utilized for production facilities and access. Portions of the well pad undergoing interim reclamation will be returned to grade (as close as possible), promptly re-seeded, and biodegradable fabrics will be utilize on slopes exceeding 5% (e.g. fill slopes).

4. If interim reclamation is not practical (e.g. completion of drilling operation will require an extended period time (multiple well pads)), stockpiled topsoil will be covered with biodegradable fabrics such as (but not limited to) jute netting and seeded with a BLM approved seed mixture (see vegetation section of this document). Furthermore, soils stockpiled for short durations (e.g. during road/pipeline construction/maintenance) will be wetted during dry periods to reduce production of fugitive particulate matter.

5. The proposed 398-7-3, 399-22-1, 399-15-1, 399-15-2, 399-15-3, 399-1-2, 399-1-3, 399-1-4, 399-1-5, Left Fork P-36-299 well pads, access roads and well tie pipelines: 1. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not necessary)
- a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

6. If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

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

8. The operator will be responsible for eradication of noxious weeds and cheatgrass on the well pads and pipeline rights of way using materials and methods authorized in advance by the Field Manager.

9. The operator shall prevent use by migratory birds of reserve pits that store or are expected to store fluids which may pose a risk to such birds (e.g., migratory waterfowl, shorebirds, wading birds and raptors) during completion and after completion activities have ceased. Methods may include netting, the use of bird-balls, or other alternative methods that effectively prevent use and that meet BLM approval. It will be the responsibility of the operator to notify the BLM of the method that will be used to prevent use two weeks prior to when completion activities are expected to begin. The BLM approved method will be applied within 24 hours after completion activities have begun. All lethal and non-lethal events that involve migratory birds will be reported to the Petroleum Engineer Technician immediately.

10. Well development activity, including pad construction, well drilling, and well completion work associated with the 399-22-1 location will be conducted outside the sage-grouse nesting season of April 15 to July 7.
11. The use of interim reclamation techniques will be used to the extent practicable on all pads such that: 1) all available topsoil material would be used on recontoured cut and fill slopes and areas outside the anchors (maintaining the viability of the soils for final reclamation), 2) production facilities will be located to maximize the extent of surface disturbance available for effective reclamation during the production phase of the well (e.g., where access road enters pad), and 3) all disturbed areas outside the deadman anchors will be recontoured to the extent practicable and those areas seeded with the recommended seed mix once well completion activities have been finalized or at the direction of the Authorized Officer.
12. The applicant shall be required to collect and properly dispose of any solid waste generated by the proposed actions.
13. The operator will be responsible for complying with all local, state, and federal water quality regulations (such as but not limited to Phase I Storm Water Permit, and Industrial Wastewater/Produced Water Permits). The operator will also be required to provide the BLM with documentation that all required permits were obtained.
14. Surface Water: All surface disturbing activities will strictly adhere to “Gold Book” surface operating standards for oil and gas exploration and development (copies of the “Gold Book” can be obtained at the WRFO). Corrugated metal pipes (CMPs) are not recommended on slopes less than 10% and will NOT be used as drainage relief structures for stream crossings/gullies or to drain inside drain ditches on slopes less than 3%. Based on the nature of the affected soils, drain dips will be utilized in place of CMPs in these locations. Energy dissipaters such as large gravels/small cobbles will be used at culvert and drainage dip outlets to minimize additional erosion. To mitigate water being channelized down roadways, all activity must stop when soils or road surfaces become saturated to a depth of three inches. Mud blading will be prohibited in attempts to reduce further soil displacement. Furthermore, following abandonment of the well pad all disturbed surfaces will be recontoured to the original grade promptly covered with a sufficient amount of woody debris (if available) and seeded with the appropriate seed mixture as outlined in the vegetation section of this document.
15. To mitigate surface erosion at well pads, interim reclamation will be required as outlined in the Wildlife, Aquatic and Air Quality mitigation sections above. In addition, for location 398-7-3 daily water quality monitoring in Black Sulphur Creek will be required approximately 100 meters above and below the location (e.g. automated water sampler) starting one month prior to surface disturbing activities and will continue until the BLM ID team agrees successful interim reclamation is completed. Bi-monthly grab samples will be sufficient during winter months during ice over. Parameters which will be monitored are as follows: suspended sediment, hydrocarbons, total dissolved solids (TDS), and pH. A copy of the water quality data will be submitted to the BLM on a monthly basis. Furthermore, pipeline construction for location 398-7-3 will be positioned on the cut side of the roadway and silt fences will be utilized on all slopes exceeding 5 %.



16. Ground Water: Shallow aquifers shall be protected from hydrofracturing and the production of oil and gas by installation and cementing of surface and intermediate casing. Any groundwater produced from the Fort Union or Mesaverde Formations will be hauled off and disposed of due to poor water quality and therefore preventing adverse impacts to valuable surface and ground water resources. Environmentally unfriendly substances (e.g. diesel) must not be allowed to contact soils. The use of spill-guards (or equivalent spill prevention equipment) under and around pumping equipment will be required for location 398-7-3 and is suggested at other locations to intercept such contaminants prior to contacting soils.

Furthermore, to protect shallow ground water recharging Black Sulphur Creek location 398-7-3 will be double lined. A single liner will suffice at all other locations. All wastes associated with construction and drilling will be properly treated and disposed of.

17. Comply with “Gold Book” surface operating standards for constructing well pads, pipelines and access roads (copies of the “Gold Book” can be obtained at the WRFO). 18. Interim reclamation will be required as addressed in the Wildlife, Aquatic and Air Quality portions of this document.

19. To mitigate contamination of soils and local ground water, environmentally unfriendly substances (e.g. diesel) must not be allowed to contact soils. The use of impermeable matting under equipment (tanks, pumps, or other equipment used in handling potentially hazardous liquids) will be *required* at location 398-7-3 (adjacent to Black Sulfur Creek) to intercept contaminants prior to contacting soils.

20. Complete reclamation will follow abandonment of well pads. New access roads and well pads will be recontoured and 100% of disturbed surfaces will be revegetated with the suggested seed mixture as outlined in the vegetation section of this document.

21. The operator will monitor the right of way for a minimum of five years post construction to detect the presence of noxious and invasive species.

22. To capture and retain fine sediments originating from surface disturbance associated with this pad, it is recommended that a braced, 4-strand barbed wire fence be installed immediately after the pad is constructed. The fence is expected to extend across the top of the pad’s fill slope and the eastern margin of the access road right-of-way on either side of the pad such that the fence encloses a buffer that extends 50 feet (easterly) from the toe of the pad fill and captures at least 50 feet of the channels carrying diverted runoff around the north and south ends of the pad (see figure). Disturbed or barren acreage within this area should be immediately seeded with a mixture of the approved herbaceous components (without the fourwing saltbush) and lightly harrowed or dragged. Pending the success of initial seeding efforts, supplemental seeding may be required. Fence maintenance would remain the responsibility of the applicant.

23. To minimize unnecessary roadbed development, the applicant will be responsible for conditioning the pipeline right-of-way that would extend from the P36-29 pad to the existing fenceline and on to RBC 144 to effectively deter any subsequent motorized vehicle use of the right-of-way over the life of the project.

24. The operator has two options for treatment of slash from this project. A hydro-ax or other mulching type machine could be used to remove the trees. The machines are capable of shredding trees up to 12" in diameter and 15' tall as well as mowing brush like a conventional brush beater. It generally leaves small branches and pieces of wood from pencil size up to bowling ball size and the mulch is evenly scattered across the surface. This would effectively breakdown the woody fuel and scatters the debris thereby eliminating any hazardous fuel load adjacent to the new road and well pad. The other option would be to cut trees and have them removed for firewood, posts, or other products. The branches and tops should be lopped and scattered to a depth of 24 inches or less. If the products are left for collection by the general public, they should be stacked in small manageable piles along the roadside or pad to facilitate removal. For material brought back onto the pipeline r-o-w the material should be evenly scattered, so as to not create jackpots, and the material should not exceed 5 tons /acre.

25. The proposed 398-7-3, 399-22-1, 399-15-1, 399-15-2, 399-15-3, 399-1-2, 399-1-3, 399-1-4, 399-1-5, Left Fork P-36-299 well pads, access roads and well tie pipelines: 1. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing paleontological sites, or for collecting fossils. If fossil materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear to be of noteworthy scientific interest
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not feasible)

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

26. A paleontological monitor shall be present before any excavation into the underling rock for building of access roads, burying of well tie pipelines, leveling of well pads and/or excavation of reserve/bloolie pits.

27. All fences crossed by an access road to a well location, pipeline and/or gas plant will have a cattle guard installed and maintained to BLM specifications for the lifetime of the project. All cattle guard/fence work will take place prior to well location, pipeline or facility construction.

28. Any and all fences intersected by an access road or pipeline will be braced to BLM specifications prior to cutting. A temporary wire gate will be constructed. This work will take place prior to access road/ pipeline ROW construction.

28. Any and all fences intersected by an access road or pipeline will be braced to BLM specifications prior to cutting. A temporary wire gate will be constructed. This work will take place prior to access road/ pipeline ROW construction.

29. Reserve pit fencing will comply with BLM specifications as described in the BLM Gold Book (Fourth Edition, 2005). Reserve pit fence specifications will be included as part of the conditions of approval.

30. Promptly recontour and revegetate all disturbed areas with Native Seed mix # 3. No trees or other woody debris will be redistributed on the pipeline rights of way until seeding operations are completed. The operator will monitor the right of way for a minimum of five years post construction to detect the presence of noxious and invasive species.

Seed mixture rates are Pure Live Seed (PLS) pounds per acre.

Native Seed mix # 3.			
3	Western wheatgrass (Rosanna)	1	Gravelly 10"-14", Pinyon/Juniper Woodland, Stony Foothills, 147 (Mountain Mahogany)
	Bluebunch wheatgrass ( Whitmar)	2	
	Thickspike wheatgrass (Critana)	1	
	Indian ricegrass (Rimrock)	2	
	Needle and thread	1	
	Fourwing saltbush (Wytana)	1	
	Utah sweetvetch	1	

Rates are for drill seeding; for broadcast application double the seeding rate and provide for seed coverage. Seed should be certified.

**COMPLIANCE/MONITORING:**

**NAME OF PREPARER:** Tamara Meagley

**NAME OF ENVIRONMENTAL COORDINATOR:** Caroline Hollowed

**SIGNATURE OF AUTHORIZED OFFICIAL:**

*Keith E. Walter*

Field Manager

**DATE SIGNED:**

03/14/06

**ATTACHMENTS:**

Example sketch of fencing as vegetation filter  
Location map of the proposed action

# EXAMPLE FENCE LAYOUT

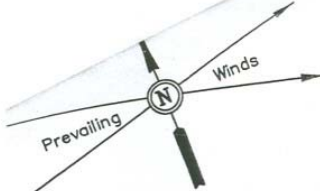
RIATA ENERGY, INC.

LOCATION LAYOUT FOR

SULFER CREEK FEDERAL #398-7-3

SECTION 7, T3S, R98W, 6th P.M.

2245' FNL 1606' FWL



SCALE: 1" = 50'  
DATE: 05-09-05  
Drawn By: C.G.

**NOTE:**  
Flare Pit is to be located a min. of 100' from the Well Head.

Total Pit Capacity  
W/2' of Freeboard  
= 5,450 Bbls. ±  
Total Pit Volume  
= 1,680 Cu. Yds

Approx. Top of Cut Slope

Reserve Pit Backfill & Spoils Stockpile

10' WIDE BENCH  
RESERVE PITS (8' Deep)  
SLOPE 1 : 1 1/2

Existing Drainage

Topsoil Stockpile

Construct Diversion Ditch

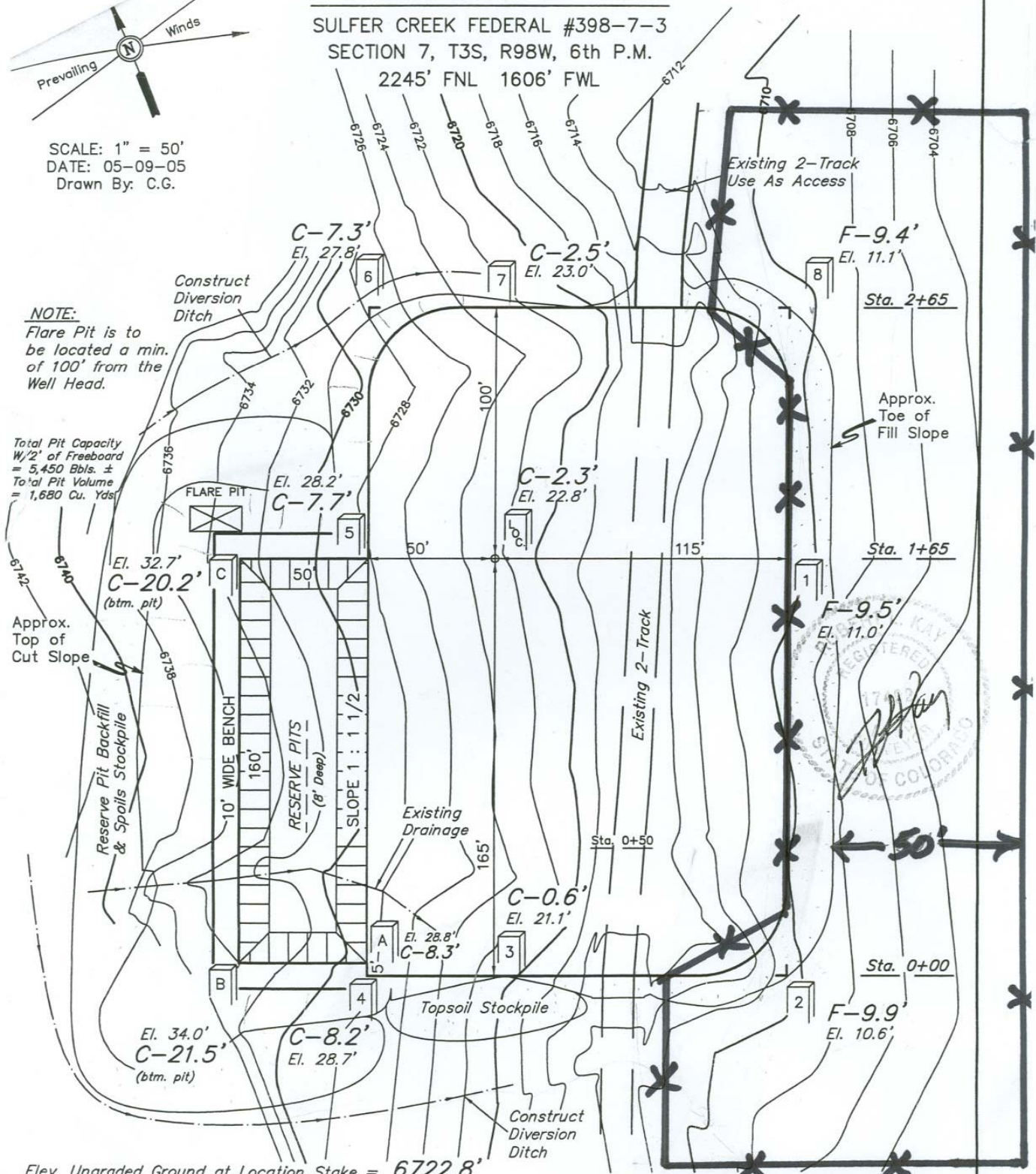
Existing 2-Track Use As Access

Approx. Toe of Fill Slope



Elev. Ungraded Ground at Location Stake = 6722.8'  
Elev. Graded Ground at Location Stake = 6720.5'

UINTAH ENGINEERING & LAND SURVEYING  
85 So. 200 East \* Vernal, Utah 84078 \* (435) 789-1017



# Location Map of the Proposed Action CO-110-2005-223-EA

