

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

## **ENVIRONMENTAL ASSESSMENT**

**NUMBER:** DOI-BLM-CO-110-2011-0115-EA

**CASEFILE/PROJECT NUMBER:** RGU 24-25-198: COC-60735 and RGU 32-25-198: COC-60733; COC75077 (natural gas pipeline ROW); COC75077-01 (temporary use permit); COC75078 (water lines ROW)

**PROJECT NAME:** Williams 17 APD's for RGU 24-25-198 existing pad and RGU 32-25-198 new pad

**LEGAL DESCRIPTION:** RGU 24-25-198: T1S-R98W-Sec.25 SESW and RGU32-25-198: T1S-R98W-Sec.25 SWNE

**APPLICANT:** Williams Production RMT Company LLC

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

***Background/Introduction:***

The onsite for the RGU 32-25-198 was conducted 10/2/2008. A cultural resource inventory and botanical survey have been completed for the project area and resulted in no significant findings for cultural or botanical resources. A raptor survey was conducted 6/20/2010 in the project area.

The onsite for the RGU 24-25-198 was conducted 9/30/2010, at which time BLM determined that no raptor or threatened/endangered (T/E) species would be required.

**Proposed Action:**

**Ryan Gulch Unit (RGU) 24-25-198 well pad**

Williams Production RMT Company LLC (hereafter Williams, the operator, or proponent) proposes to expand the existing Ryan Gulch Unit (RGU) 24-25-198 well pad to accommodate the drilling of eight additional wells, which are as follows: RGU 413-25-198, RGU 424-25-198, RGU 314-25-198, RGU 321-25-198, RGU 11-36-198, RGU 521-36-198, RGU 423-25-198, and RGU 24-25-198 (See Attachment 1. RGU 24-25-198 Proposed Location Map). No new road construction or upgrades would be required to access the site. The existing pipeline would be removed and replaced with one 8" gas- line, and two (2) four inch and two (8) eight inch water lines for produced water and well completions. The proposed well pad would be expanded with the earthen construction materials native to the site location. The operator anticipates that

expansion work would begin in September or October 2011. The proposed wells would be drilled by March 2012. The anticipated production life of each well is 35 years. Additional details regarding materials and methods can be found in the operator-submitted Master Surface Use Plan and the site-specific Surface Use Plan (SUP) proposed for the RGU 24-25-198 well pad (See Attachment 2. RGU 24-25-198 Proposed Interim Reclamation for the well plat design after interim reclamation).

The following surface disturbance would result in conjunction with the development of this location:

**Table 1. Total surface disturbance required to develop RGU 24-25-198**

	Acres Disturbance	After Interim reclamation (Acres)
Well Pad including Stormwater features and stockpiled soils	7.95	1.64

**RGU 32-25-198 well pad**

The operator also proposes to construct the RGU 32-25-198 well pad to accommodate the drilling of nine wells, which are as follows: RGU 332-25-198, RGU 22-25-198, RGU 532-25-198, RGU 442-25-198, RGU 531-25-198, RGU 422-25-198, RGU 23-25-198, RGU 42-25-198, and RGU 43-25-198 (See Attachment 3. RGU 32-25-198 Proposed Location Map). Construction of 620ft of new BLM local road would be required to access the site, alongside which, one new 8in gas-line and two 4in water lines would be installed. A 70ft right-of-way (ROW) for 620ft would be issued to Bargath, a wholly owned subsidiary of Williams, in order to construct the road and install the pipelines. No fence or cattle-guards are proposed. The proposed well pad would be constructed with the earthen construction materials native to the site location. The operator anticipates that construction work would begin in August 2011, and that drilling would begin in November 2011 and end towards the end of April 2012. The anticipated production life of each well is 35 years. Additional details regarding materials and methods can be found in the operator-submitted Master Surface Use Plan and the site-specific Surface Use Plan proposed for the RGU 32-25-198 well pad. (See Attachment 4. RGU 32-25-198 Proposed Interim Reclamation for the well plat design after interim reclamation).

The following surface disturbance would result in conjunction with the development of this location:

**Table 2. Total surface disturbance required to develop RGU 32-25-198**

	Acres Disturbance	After Interim Reclamation (Acres)
Well Pad including Stormwater features and stockpiled soils	7.4	1.8
Road and pipeline	2.65	1.8
	10.05	3.6

**No Action Alternative:** The APDs would not be permitted, nor would the well pad sites and associated infrastructure be expanded or constructed. The natural gas resource would not be developed.

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

**PURPOSE & NEED FOR THE ACTION:** The purpose of the Proposed Action is to manage the exploration and development of mineral resources on Public Lands in a manner that avoids, minimizes, reduces, or mitigates potential impacts to other resource values.

The purpose of the action is to allow the development of Federal Leases on BLM surface through the drilling of the proposed wells and associated actions. The need for the action is established by the BLM's responsibility under the authority of the Mineral Leasing Act of 1920 as amended by the Federal Land Policy and Management Act of 1976 (FLPMA) to respond to the request to develop the Federal Leases.

**Decision to be Made:** The BLM will decide whether or not to approve the 17 APDs and associated infrastructure, and if so, under what conditions.

**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:** Page 2-5

**Decision Language:** "Make federal oil and gas resources available for leasing and development in a manner that provides reasonable protection for other resource values."

## **AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES / 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:

## **NATURAL, BIOLOGICAL, AND CULTURAL RESOURCES**

### **AIR QUALITY**

*Affected Environment:* Based on a review of designated non-attainment areas for criteria pollutants, published by the Environmental Protection Agency (EPA 2010), the Proposed Action is an attainment area for national and state air quality standards. The Proposed Action is also located outside a 10-mile radius of any special designation airsheds or non-attainment areas. Non-attainment areas are areas designated by U.S. Environmental Protection Agency (EPA) as having air pollution levels that persistently exceed the national ambient air quality (NAAQ) standards. Projects that could impact special designation areas and non-attainment areas may require special consideration from the air quality regulatory agencies of Colorado Department of Public Health and Environment (CDPHE) and the EPA. The closest special designation areas are Dinosaur National Monument which is located northwest of the project area (designated Class II airshed with Prevention of Significant Deterioration (PSD) thresholds for sulfur oxides and visibility), and the Mount Zirkel and Flat Tops Wilderness Areas located to east and the north of the Proposed Action (designated Class I areas). General conformity regulations require that federal activities do not cause or contribute to a new violation of NAAQ standards; that actions do not cause additional or worsen existing violations of the NAAQ standards; and that attainment of these standards is not delayed by federal actions in non-attainment areas.

The Proposed Action is in the White River Basin where industrial facilities include coal mines, soda ash mines, oil shale research and development, and natural gas processing and compression plants. Volatile organic compounds (VOCs), nitrogen oxides (NO<sub>x</sub>), and dust (particulate matter) are likely to increase into the future due to industrial uses in the White River and in the nearby Unita and Yampa River Basins, increased population, power plants and oil and gas development in this region and, emissions of air pollutants due to exhaust emissions. However, with the exception of ozone, overall air quality conditions in the White River Basin are likely to continue to be in attainment of NAAQ standards due to effective atmospheric dispersion and limited transport of air pollutants from outside the area. Ozone is a secondary pollutant, formed photochemically (by the sun) by combining VOCs and nitrogen oxides (NO<sub>x</sub>) emissions. Data collected in Dinosaur, Meeker, and Rangely have measured exceedance in standards for 1-hour and 8-hour values for ozone (120 ppb and 75 ppb, respectively). To date, these exceedances have not been persistent enough to result in a violation of NAAQ standards.

The Proposed Action is located in the western Counties monitoring region and the 2010 CDPHE monitoring assessment for this area showed there were 11 particulate monitors in this region (CDPHE, 2010). This regional assessment did not include two BLM sponsored sites established in 2010 in the local area. Local air quality parameters, including particulates are being measured at monitoring sites located at Meeker, Rangely, Dinosaur, and Ripple Creek Pass near the Flat Tops Wilderness Area.

*Environmental Consequences of the Proposed Action:* Construction of the proposed facilities would result in low and short-term impacts on air quality during construction, drilling, completion and, to a lesser extent, from vehicles and gas processing and compression facilities

during the production phase. Increases in the following criteria pollutants would occur due to combustion of fossil fuels during construction activities: carbon monoxide, ozone, nitrogen dioxide, and sulfur dioxide. Non-criteria pollutants (NAAQ standards have not been set for non-criteria pollutants) such as nitric oxide, air toxics (e.g., benzene), and total suspended particulates may also experience slight, temporary increases as a result of the Proposed Action.

Additional low, short-term impacts to air quality may occur due to venting or flaring of gas from the wells and VOCs from pits and tanks during completion activities. Venting and/or flaring of natural gas is typically done for short periods of time in order to determine potential production amounts and characterize the quality of the gas. VOCs will also be released during production activities, from tanks, separation equipment, and due to transportation of natural gas, produced water, and condensate by pipeline or trucks.

There is the potential in the next three to five years to have a violation of the ozone standards at the Rangely or Dinosaur monitoring sites, due to more persistent high ozone levels measured at these sites from inversions and emissions in the White River Basin and from the nearby Unita and Yampa River basins. However, since this project is located at least 50 miles southwest of these sites it is unlikely to contribute to future violations for ozone standards. Even with increases in criteria and non-criteria pollutants, the project would be unlikely to result in an exceedance of NAAQ standards and Colorado ambient air quality (CAAQ) standards and would most likely be under PSD thresholds.

The majority of dust pollution in Colorado is from miscellaneous fugitive dust sources (CDPHE, 2009). Soil disturbance resulting from construction, heavy equipment, and drill rigs is expected to cause increases in fugitive dust and inhalable particulate matter, specifically for particulate matter (PM) 10 microns ( $\mu\text{m}$ ) or less in diameter ( $\text{PM}_{10}$ ) and particles 2.5  $\mu\text{m}$  or less in diameter ( $\text{PM}_{2.5}$ ). During construction phases, dust production is likely, especially when conditions are dry and/or windy. Fugitive dust emissions due to drilling would cause low, short-term impacts to local air quality, specifically visibility. Dust particles are the major contributors to visibility problems because of their ability to scatter or absorb light.

Once the wells go into interim reclamation all the topsoil removed during road construction should be redistributed and stabilized alongside the road, the pipelines should be in final reclamation and the pads should be recontoured and stabilized. As vegetation establishes in the reclaimed areas, the only dust production will occur when vehicles travel on the access roads to service the wells. The increase in airborne particulate matter from this project and the other wells previously approved is not expected to exceed CAAQ or NAAQ standards on an hourly, 8-hour average, or daily basis.

In summary, soil disturbance resulting from construction of pads and roads, pipeline construction, and drilling is expected to cause increases in fugitive dust and inhalable particulate matter (specifically  $\text{PM}_{10}$  and  $\text{PM}_{2.5}$ ) in the project area and immediate vicinity which may contribute to reductions in visibility from this action. In addition, increases in the following criteria pollutants: carbon monoxide, VOCs, ozone, nitrogen dioxide, and sulfur dioxide would also occur due to combustion of fossil fuels during exploration and production activities. Non-criteria pollutants such as carbon dioxide, methane and nitrous oxide, greenhouse gases (GHGs),

air toxins (e.g., benzene), total suspended particulates (TSP), and increased impacts to visibility and atmospheric deposition may also increase as a result of natural gas exploration and development activities. Even with these increased pollutants the Proposed Action is unlikely to result in an exceedance of NAAQ and CAAQ standards, and is likely to comply with applicable PSD increments and other significant impact thresholds.

*Environmental Consequences of the No Action Alternative:* No impacts to air quality would result from the No Action Alternative beyond those previously identified in the environmental assessment for the existing wells on the 24-25-198 pad.

*Mitigation:*

1. All access roads will be built and maintained according to BLM Manual Section 9113 standards for road shape and drainage features at all times during pad construction, drilling, and production.
2. All access roads will be treated with water and/or a BLM-approved chemical dust suppressant during construction and drilling activities so that there is not a visible dust trail behind vehicles. All vehicles will abide by company or public speed restrictions during all activities. If water is used as a dust suppressant, there should be no traces of oil or solvents in the water and it should be properly permitted for this use by the State of Colorado. Only water needed for abating dust should be applied; dust abatement should not be used as a water disposal option under any circumstances.

**SOILS**

*Affected Environment:* The classifications of soils within 30 meters of the proposed surface disturbance and maybe impacted by the Proposed Action are shown in Table 3. There are no fragile soils or lands prone to landslides on Federal lands that will be impacted by this project.

**Table 3. Soil Classifications within 30 Meters of the Surface Disturbance Proposed and/or the Centerline of Roads and Pipelines**

<b>Soil Classification</b>	<b>Range Site Description</b>	<b>Potentially Impacted Acres</b>
Rentsac channery loam, 5-50% slopes	Pinyon Juniper Woodlands	7
Redcreek-Rentsac complex, 5-30% slopes	Pinyon Juniper Woodlands	21

The master surface use plan describes the minimum road width as 20 feet. The access road to pad 24-25-198 is already constructed, however the access road on pad 32-25-198 will be constructed and there is an existing road that will not be used or reclaimed (see the plan of development diagram in the SUP). This existing road was not addressed on the onsite or in the SUP and its purpose is uncertain. The current proposed access road has two sharp turns into the 32-25-198 pad and typical resource road construction is 14-18 feet in width with turn-outs as needed. Since the current plan does not address these access road issues very clearly it is likely some additional surface disturbance may occur to accommodate roads. No culverts are shown on the diagrams in the SUP, however two culverts are described in the narrative for the entrance of the road and

another culvert about half way to the main road. Secondary cuttings disposal options are listed and may have impacts to soils, any proposed changes to the primary cuttings disposal plan should be approved by the BLM.

*Environmental Consequences of the Proposed Action:* Building/expanding the well pads, road and installing the pipeline would directly disturb an estimated 18 acres including drilling/production facility pads, access road, pipelines and installation of stormwater best management practices (BMPs). Compaction of soil due to construction activities would reduce aeration, permeability and water-holding capacities of soils. An increase in surface runoff could be expected from these areas and they are likely to be less resilient to erosion from surface runoff after disturbance. With proper BMPs for stormwater, construction practices, reclamation practices, and mitigation described below impacts outside the maximum disturbance area is not expected.

Direct impacts from the expansion/construction of the well pads, the access road, and pipeline installation would include removal of vegetation, exposure of the soil, mixing of horizons, the loss of topsoil productivity, and an increase in the susceptibility of soils to wind and water erosion. These direct impacts could result in increased indirect impacts to soils off the site such as increased runoff and erosion. Implementation of BMPs for stormwater, mitigation and reclamation will reduce impacts from this project and should limit impacts to the disturbed areas. However, there is the potential for intense storm events and BMP failures resulting in erosion off the site such as gully initiation and potentially sediment deposition on or off the site.

The SUP anticipated small amounts of topsoil along the access road and does not specify how much topsoil will be removed before road construction. Also, the SUP describes taking an estimated six inches of topsoil for the well pad construction. If not enough topsoil is retrieved during access road construction, reclamation will not be as successful as it should be and soil productivity will be impacted. Soils with surface compaction will not be as successful for reclamation and are more likely to generate surface runoff due to the loss of aeration. Therefore, mitigation requiring a minimum amount of topsoil to be removed and requiring decompaction of soils prior to seeding should reduce these potential impacts and improve reclamation potential.

This project could result in contamination of surface and subsurface soils due to unintentional leaks or spills from pipelines, construction equipment, storage tanks, and production equipment. If these spills occurred they would affect the productivity of soils.

*Environmental Consequences of the No Action Alternative:* No impacts to soils would occur.

*Mitigation:* The following should be attached as Conditions of Approval (COAs):

1. All construction activity shall cease when soils or road surfaces become saturated to a depth of three inches unless there are safety concerns or activities are otherwise approved by the Authorized Officer.
2. In order to protect rangeland health standards for soils, erosion features such as rilling, gullyng, piping, and mass wasting on the surface disturbance or adjacent to the surface disturbance as a result of this action will be addressed immediately after observation by contacting the Authorized Officer (AO) and by submitting a plan to assure successful soil stabilization with BMPs to address erosion problems.
3. All topsoil will be removed in areas of surface disturbance for the road, pads and pipeline. Topsoil piles will be covered, seeded, labeled and stored unmixed with other soils for spreading during reclamation
4. Soil storage areas will be clearly marked to restrict vehicle/equipment use to only what is necessary to move the soil. Metal fence posts, construction fencing, construction barriers or other physical barriers will be placed at regular intervals between the working surfaces and soil storage areas when necessary.
5. The operator will submit for BLM approval a diagram showing the location of proposed culverts and a plan for access roads that addresses the tight turns on the proposed access road.
6. All areas where the topsoil has been removed and soils have become compacted will be ripped below the finished grade. Another suitable method of de-compaction may be used before topsoil is re-spread with approval of the BLM AO. This soil preparation should be done before spreading the topsoil and seeding and be part of the earthwork for interim and final reclamation. Areas where the topsoil has not been removed, but have been compacted, must be de-compacted by disking or other methods to prepare the soils for reclamation.
7. During pipeline construction, the ROW will remain undisturbed to the maximum extent possible. That is, only the minimum necessary disturbance will occur to make the working surface safe and passable. Topsoil will not be removed under areas used for the storage of soils and, if possible, topsoil will not be removed from working surfaces.
8. Under no circumstances will topsoil, soil material below or adjacent to the trench spoils, or subsoil excavated from the trench down to the ERD (Effective Rooting Depth) for the reclamation plants (Reclamation ERD) be used as padding in the trench, to fill sacks for trench breakers, or for any other use as construction material. Reclamation ERD will be a minimum of 16 inches and a maximum of 24 inches below the ground surface for all soils.
9. If soil productivity is diminished from its pre-disturbance condition, then reseedng, hydro-mulching, or other efforts will be initiated to re-establish soil productivity during reclamation activities.

10. Secondary cuttings disposal options described in the SUP will not be allowed without prior approval from the BLM, specifically the use of cuttings for pipeline bedding or fill in cut areas of the pad.

11. All cuttings placed in trenches for final disposal will have at least three feet of clean native fill above them before the topsoil is placed for reclamation.

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

## **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:* The proposed activities will use regulated materials and will generate some solid and sanitary wastes. The potential for harm to human health or the environment is presented by risks associated with spills of fuel, oil, and/or hazardous substances during oil and gas operations. Accidents and mechanical breakdown of machinery are also possible.

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

### *Mitigation:*

1. All lessees and/or operators and right-of-way holders shall comply with all federal, state and/or local laws, rules, and regulations, including but not limited to onshore orders and notices to lessees, addressing the emission of and/or the handling, use, and release of any substance that poses a risk of harm to human health or the environment.
2. Where required by law or regulation to develop a plan for the prevention of releases or the recovery of a release of any substance that poses a risk of harm to human health or the environment, provide a current copy of said plan to the BLM WRFO.
3. Through all phases of oil and gas exploration, development, and production, all lessees and/or operators and holders of rights-of-way shall employ, maintain, and periodically update to the best available technology(s) aimed at reducing: 1) emissions, 2) fresh water use, and 3) utilization, production, and release of hazardous material.

4. All substances that pose a risk of harm to human health or the environment shall be stored in appropriate containers. Fluids that pose a risk of harm to human health or the environment, including but not limited to produced water, shall be stored in appropriate containers and in secondary containment systems at 110% of the largest vessel's capacity. Secondary fluid containment systems, including but not limited to tank batteries shall be lined with a minimum 24 mil impermeable liner.
5. Construction sites and all facilities shall be maintained in a sanitary condition at all times; waste materials shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.
6. As a reasonable and prudent lessee/operator in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will report all emissions or releases that may pose a risk of harm to human health or the environment, regardless of a substance's status as exempt or nonexempt and regardless of fault, to the BLM WRFO (970) 878-3800.
7. As a reasonable and prudent lessees/operator and/or right-of-way holder in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or non-exempt. Where the lessee/operator or right-of-way holder fails, refuses or neglects to provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the BLM WRFO may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action will not relieve the lessee/operator of any liability or responsibility.
8. With the acceptance of this authorization, the commencement of operations under this authorization, or within thirty calendar days from the issuance of this authorization, whichever occurs first, and during the life of the pipeline, the right-of-way holder and the lessee/operator, and through the right-of-way holder and lessee/operator, its agents, employees, subcontractors, successors and assigns, stipulate and agree to indemnify, defend and hold harmless the United States Government, its agencies, and employees from all liability associated with the emission or release of substances that pose a risk of harm to human health or the environment.

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

*Affected Environment:* Surface Water: This project is in the headwaters of Horse Draw, an ephemeral tributary to Yellow Creek. Table 4 describes water segments that may be impacted by this project.

**Table 4. Water Quality Classification Table\***

Segment	Segment Name	Use Protected	Protected Beneficial Uses		
			Aquatic Life	Recreation	Agriculture
15	Mainstem Piceance Creek from the source to the confluence with the White River	No	Warm 2	Primary Contact Recreation	Yes
16	Tributaries to Piceance Creek from the source to the confluence with the White River	No	Warm 2	Primary Contact Recreation	Yes

\* Colorado Department Of Public Health And Environment, Water Quality Control Commission, Regulation No. 37 Classifications and Numeric Standards For Lower Colorado River Basin, Effective June 30, 2011

Segment 15 and 16 are protected for warm water aquatic life (Warm 2). The warm designation means the classification standards would be protective of aquatic life normally found in waters where the summer weekly average temperatures frequently exceed 20 °C. The Warm 2 designation means that it has been determined that these waters are not capable of sustaining a wide variety of warm water biota. This segment also has standards that are protective of recreation and agriculture.

Groundwater: Precipitation in this area generally moves from areas of recharge to surface waters via alluvial aquifers and on the surface during spring melt and rain storms. A substantial portion of annual precipitation infiltrates to deeper bedrock aquifers that contribute to contact springs. Springs and ground water inputs generally occur in both bedrock and alluvial aquifers along valley bottoms.

Contact springs are common in the area and are often the result of upper bedrock aquifers consisting of fractured, lean oil shale zones and siltstones of the Green River Formation above and below the Mahogany Zone or from fractured marlstone and sandstones of the saturated portions of the overlying Uinta Formation. Perched groundwater zones occur locally within the Uinta Formation when these saturated zones contact the surface. These perched zones can occur in the ridges between surface water drainages and may be manifested as springs and seeps above the valley floor in outcrop areas.

*Environmental Consequences of the Proposed Action:* Surface Waters: Clearing, grading, and soil stockpiling activities associated with the Proposed Action would alter overland flow and natural groundwater recharge patterns. Potential impacts include surface soil compaction caused by construction equipment and vehicles, which would likely reduce the soil's ability to absorb water and increase the volume and rate of surface runoff, which in turn would increase surface erosion.

Runoff associated with storm events may increase sediment/salt loads in surface waters down gradient of disturbed areas. Sediment can be deposited and stored in minor drainages where it

would be moved into Piceance Creek during heavy convection storms. Surface erosion for this project is most likely during the construction and early production phases of the project and would be mitigated using BMPs for stormwater as discussed in the soils section.

The SUP discloses several sources of freshwater for drilling out of Black Sulphur Creek or Piceance Creek. Water withdrawals directly from these creeks could be a potential source of contamination and impact water quality. These impacts would occur if water trucks are not properly rinsed and if there is not a backflow preventer on the intake hoses. Therefore, documentation of the use of a backflow preventer is required as mitigation.

Groundwaters: Two zones of potential water (A-groove and the B-groove) are anticipated to be drilled through; the deepest of these zones is estimated at 1,700 feet below the surface. These zones would be protected by installing a surface casing to a depth of approximately 3,900 feet and cementing behind this casing to the surface.

If drilling additives such as diesel fuel are used during drilling of the surface casing and drilling fluids are lost in groundwater aquifers, aquifers may be contaminated. Using bentonite, freshwater, and other additives that cannot contaminate groundwater mitigates the loss of drilling fluids that can be common during drilling since the introduction of these substances would not impact the quality of these groundwater features.

Impacts to groundwater resources could occur due to failure of well integrity, surface spills, and/or the loss of drilling, completion, and hydraulic fracturing fluids into groundwater. Types of chemical additives used in drilling activities may include acids, hydrocarbons, thickening agents, lubricants, and other additives that are operator and location specific. Concentrations of these additives also vary considerably and are not always known since different mixtures can be used for different purposes in gas development and even in the same well bore. Loss of drilling fluids may occur at any time in the drilling process due to changes in porosity or other properties of the rock being drilled through for both the surface casing and the production hole. When this occurs, drilling fluids may be introduced into groundwater and freshwater zones.

Hydraulic fracturing is designed to change the producing formations' physical properties by increasing the flow of water and gas around the well bore. Hydraulic fracturing may also introduce chemical additives into the producing formations. Chemical additives used in completion activities for the well will be introduced into the producing formations, but should mostly be pumped back out before production. Producing formations would be from the Mesaverde down (estimated at about 7,800 to 8,500 feet). The production zones are all in the Mesaverde Group and are between 9,400 to 12,900 feet below the surface. The production zones do not contain freshwater.

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

*Environmental Consequences of the No Action Alternative:* No fluids would be released into aquifer zones and there would be no generation of produced waters, therefore there are no impacts to be identified.

*Mitigation:*

1. If surface sources are used for freshwater, water hauling trucks must use backflow preventers to avoid contamination of Black Sulphur and Piceance Creek. Trucks used for hauling produced water or waste disposal will not be used for freshwater delivery for this project without prior written approval from BLM.
2. To protect surface waters below the project area, keep road inlet and outlet ditches, sediment retention basins, and culverts free of obstructions, particularly before and during spring run-off and summer convective storms. Provide adequate drainage spacing to avoid accumulation of water in ditches or road surfaces. Install culverts with adequate armoring of inlet and outlet. Patrol areas susceptible to road or watershed damage during periods of high runoff.
3. When drilling to set the surface casing, drilling fluid will be composed only of fresh water, bentonite, and/or a benign lost circulation material that does not pose a risk of harm to human health or the environment (e.g., cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs, or cotton hulls).
4. The operator will submit via Sundry Notice (SN) to the Natural Resource Specialist (NRS) for review by the WRFO Hydrologist a report that describes the backflow preventer or other method used to protect water quality of Black Sulphur Creek and Piceance Creek.

*Finding on the Public Land Health Standard for water quality:* It is unlikely that construction of the well pads and the access roads and installation of the pipeline would result in an exceedence of state water quality standards.

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

*Affected Environment:* There are no wetlands or riparian areas that would be potentially influenced by the Proposed Action. The nearest system which supports riparian resources is Piceance Creek, which is separated from the project area by nearly three miles of ephemeral channel.

*Environmental Consequences of the Proposed Action:* The Proposed Action would have no conceivable influence on riparian or wetland resources. With the application of BMPs associated with soil erosion there is no reasonable likelihood that fugitive sediments would have any influence on the function or condition of the Piceance Creek channel or its associated riparian characteristics.

*Environmental Consequences of the No Action Alternative:* There would be no direct or indirect influence on downstream riparian or wetland resources under the No Action Alternative.

*Mitigation:* None.

*Finding on the Public Land Health Standard for riparian systems:* The nearest system supporting riparian habitats is located nearly three miles from the project area. Neither the Proposed nor the No Action Alternative would have any reasonable potential to influence the function or condition of the Piceance Creek channel or its riparian values.

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

*Affected Environment:* The proposed well pads are located within a Pinyon/Juniper ecological site. Vegetation cover of this site is comprised primarily of pinyon (*Pinus edulis*), Utah juniper (*Juniperus osteosperma*) trees, Wyoming big sagebrush (*Artemisia tridentata*), and mountain shrubs including mahogany (*Cercocarpus montanus*). The perennial grass understory consists primarily of needle and thread (*Stipa comata*) and slender wheatgrass (*Agropyron trachycaulum*).

*Environmental Consequences of the Proposed Action:* The Proposed Action would disturb approximately 18 acres. The principal impact to vegetation would be complete removal of vegetation on the well pads and access road and the earthen disturbance associated with removing vegetation. In terms of plant community composition, structure, and function, the principal impact over the long term would occur if cheatgrass or noxious weeds are allowed to establish and proliferate on the disturbed areas associated with well pads and access road construction. If revegetation is prompt and effective, there likely would be no long term negative impact. Following successful reclamation, it is expected that herbaceous vegetation will increase as the area is converted from pinyon/juniper woodland to a grass and forb-dominated community.

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

*Mitigation:* Disturbed areas shall be reseeded with Seed Mix Three from the WRFO Surface Reclamation Protocol listed below. Reclamation shall be completed following practices outlined in the Master Surface Use Plan of Operations submitted by Williams. Seeding rates listed in Table 5 below are for drill seed application; if broadcast seeding is to be done the rate shall be doubled.

**Table 5. Prescribed Seed Mix**

Seed Mix	Cultivar	Species	Scientific Name	Application Rate (lbs PLS/acre)	
3	Rosanna	Western Wheatgrass	<i>Pascopyrum smithii</i>	4	
	Whitmar	Bluebunch Wheatgrass	<i>Pseudoroegneria spicata ssp. inermis</i>	3.5	
	Rimrock	Indian Ricegrass	<i>Achnatherum hymenoides</i>	3	
		Needle and Thread Grass	<i>Hesperostipa comata ssp. comata</i>	2.5	
	Maple Grove	Lewis Flax	<i>Linum lewisii</i>	1	
		Scarlet Globemallow	<i>Sphaeralcea coccinea</i>	0.5	
	Alternates:				
	Critana	Thickspike Wheatgrass	<i>Elymus lanceolatus ssp. lanceolatus</i>	3	
		Sulphur Flower	<i>Eriogonum umbellatum</i>	1.5	

*Finding on the Public Land Health Standard for plant and animal communities* (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): Upland plant communities in the project area currently meet the Standard and are expected to meet the Standard in the future following project implementation and successful reclamation.

**INVASIVE, NON-NATIVE SPECIES**

*Affected Environment:* There are two invasive, non-native species known to occur within the project area. The invasive alien cheatgrass (*Bromus tectorum*) is present in the project area in areas of unvegetated earthen disturbance associated with roads, pipelines, and well locations. The invasive annual forb halogeton (*Halogeton glomeratus*) is also known to occur in the vicinity of the proposed project and is also commonly found within unvegetated earthen disturbance.

*Environmental Consequences of the Proposed Action:* The Proposed Action would create about 18 acres of new earthen disturbance; which if it is not revegetated with desirable species and/or treated with herbicides to eradicate invasive, non-native species, would be invaded and dominated by undesirable species, increasing the potential for fire and the consequent further proliferation of cheatgrass. Noxious weeds could also spread from the project sites to surrounding native rangelands resulting in a long term negative impact by competing with native vegetation for habitat and nutrients. If left untreated, invasive/non-native species may eventually overtake native vegetation communities, resulting in degraded range sites with higher risk of erosion and low forage production. The resulting increase of noxious weeds/cheatgrass could perpetuate a downward cycle of environmental degradation that would be largely irreversible if native vegetation communities are replaced by invasive/non-native species. There

would be a low likelihood of long term negative impact if the proposed mitigation is properly implemented.

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

*Mitigation:* The area should be surveyed for the presence of noxious/invasive species before and after construction. If undesirable species are found, they should be promptly eradicated using approved materials and methods. If invasive, non-native species establish within the project area, and spread onto adjoining BLM lands, the applicant will be responsible for control of those populations. The operator should eliminate any noxious plants before any seed production has occurred. Application of pesticides and herbicides on public lands will conform to BLM manual 9015, BLM White River Resource Management Plan, and WRFO Integrated Weed Management Plan. The applicant shall ensure that all off-road equipment is cleaned to remove seed and soil prior to commencing operations on public lands within the project area.

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

*Affected Environment:* The nearest populations of special status plant species are over 2,000 m to the east of the Proposed Action. There are no plant species listed, proposed, or candidate to the Endangered Species Act, nor plants considered sensitive by the BLM, that are known to inhabit areas potentially influenced by the Proposed Action.

*Environmental Consequences of the Proposed Action:* The construction/expansion of the well pads and associated activities would have no conceivable influence on special status species or associated habitats.

*Environmental Consequences of the No Action Alternative:* There would be no action authorized that would have potential to influence special status species or associated habitats.

*Mitigation:* None.

*Finding on the Public Land Health Standard for Threatened & Endangered species:* The Proposed Action and No-Action Alternative would have no influence on populations or habitats of plants associated with the Endangered Species Act or BLM sensitive species and, as such, would have no influence on the status of applicable land health standards.

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

*Affected Environment:* There are no threatened or endangered animal species that are known to inhabit or derive important use from the project area. The White River below Rio Blanco Lake is designated critical habitat for Colorado pikeminnow populations that are

currently confined to the river below Taylor Draw dam. The Proposed Action is separated from the White River's critical habitat by roughly 3 miles of ephemeral channel and 13 valley miles of Piceance Creek, and from occupied pikeminnow habitat by an additional 26 miles of river. The endangered bonytail, humpback chub, and razorback sucker do not occur in Colorado portions of the White River, but water depletions in the White River system may affect downstream habitats occupied by these species in the Green River.

Pinyon-juniper woodlands surrounding the proposed locations are younger-aged and have no potential to provide habitat for northern goshawk, a BLM-sensitive species. Goshawks are a relatively rare resident in the White River Resource Area. In general this species prefers to nest in contiguous aspen stands, or spruce-fir/aspen mix stands. Within the last several decades however, approximately half a dozen nests have been found in low to mid elevation pinyon-juniper woodlands throughout the Piceance Basin. A goshawk was observed in the area in May 2010, however no active nests are known within the vicinity of the project area. The nearest known goshawk nest is over six miles from the project area.

Pinyon and juniper which surround the proposed location has limited potential to serve as roost sites for the three BLM sensitive bat species (Townsend's big-eared bat, fringed myotis and big free-tailed bat). The overall abundance of bats in the project area is likely constrained by the paucity of maternity and hibernation roost habitat that could be expected to harbor larger numbers of bats (e.g., caves, mines, buildings) and use of the project area is likely limited to the support of small numbers of non-breeding animals during the summer months.

*Environmental Consequences of the Proposed Action:* Cumulative water depletions from the Colorado River Basin are considered likely to jeopardize the continued existence of the Colorado pikeminnow, as well as downstream populations of humpback chub, bonytail, and razorback sucker and result in the destruction or adverse modification of their critical habitat. In 2008, BLM prepared a Programmatic Biological Assessment (PBA) that addressed water depleting activities associated with BLM's fluid minerals program in the Colorado River Basin in Colorado, including water used for well drilling, hydrostatic testing of pipelines, and dust abatement on roads. In response, the U.S. Fish and Wildlife Service (FWS) prepared a Programmatic Biological Opinion (PBO) that addressed water depletions associated with fluid minerals development on BLM lands. The PBO included reasonable and prudent alternatives which allowed BLM to authorize oil and gas wells that result in water depletion while avoiding the likelihood of jeopardy to the endangered fishes and avoiding destruction or adverse modification of their critical habitat. The reasonable and prudent alternative authorized BLM to solicit a one-time funding contribution to the Recovery Implementation Program for Endangered Fish Species in the Upper Colorado River Basin (Recovery Program) in an amount based on the average annual acre-feet depleted by fluid minerals activities on BLM lands. This contribution was ultimately provided to the Recovery Program through an oil and natural gas development trade association. The Proposed Action is covered by this agreement and water-use figures associated with this project would be entered into the White River Field Office fluid minerals water depletion log that will be submitted to the Colorado State Office at the end of the fiscal year.

The Proposed Action is not anticipated to have any influence on nesting activities of northern goshawks. Construction of the RGU 32-25-198 location and expansion of the RGU 24-25-198 location would mainly remove younger-aged pinyon-juniper. These younger-aged woodlands do not provide nesting or roosting substrate for bat or woodland raptors. Mature woodlands that may potentially support woodland raptors are small, isolated stands and relatively removed (~300 and 600 meters) from the proposed locations.

*Environmental Consequences of the No Action Alternative:* There would be no direct or indirect influence on special status species under the no action alternative.

*Mitigation:* None.

*Finding on the Public Land Health Standard for Threatened & Endangered species:* The area potentially influenced by the Proposed Action and No Action Alternative does not currently support habitats associated with listed animal species, therefore, neither alternative would influence the applicable rangeland health standards. The project area currently meets applicable land health standards for sensitive animal species at the landscape scale. Neither the proposed nor the no action alternative would detract from the continued meeting of these standards.

## **MIGRATORY BIRDS**

*Affected Environment:* The RGU 24-25-198 is currently an existing location but would involve an approximate 3.7 acre expansion to accommodate 8 additional wells. The RGU 32-25-198 location would be a newly constructed well pad roughly 7.4 acres in size, with 2.6 acres of disturbance associated with road and pipeline construction. Both locations, which are situated along ridgelines, abut existing county and/or BLM roads. Numerous wells (~ a dozen) are located within 1 -2 miles of the proposed well locations. The project area is broadly encompassed by younger-aged (regeneration) pinyon-juniper interspersed with Wyoming big sagebrush and mountain shrub species. These communities provide suitable nesting habitat for many species of migratory birds during the breeding season (May 15 – July 15) including: spotted and green-tailed towhee, vesper sparrow and blue-gray gnatcatcher. Typically, these regeneration communities do not support the full contingent of pinyon-juniper associates.

The only Bird of Conservation Concern (BOCC; designated regionally by the US Fish and Wildlife Service for long-term declining population trends) within the project area is Brewer's sparrow (see discussion in Threatened, Endangered and Sensitive Animal Species section).

Although these locations 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:* Combined, the two well locations, including access roads and pipelines, would directly remove approximately 18 acres of immature pinyon-juniper (regeneration) with interspersed Wyoming big sagebrush and mountain shrub communities. As currently proposed, construction activities are scheduled to occur outside the

nesting season and therefore, would have no potential to directly influence nesting activities. If construction/vegetation removal were to be postponed until spring/summer 2012, there would be a greater chance of displacement, nest abandonment, and mortality (particularly of nestlings). Additionally, if drilling activities were to occur during the breeding season, the Proposed Action may have the potential to indirectly impact an additional 13 to 15 acres of functional forage and cover resources due to reductions in nest densities and avoidance of habitats associated with increased human activity. Due to the proximity of both well locations to well-traveled roads (County Road (CR) 83 and BLM 1019), it is suspected that nest densities are likely suppressed to a certain degree and based on breeding bird densities in the Resource Area, the Proposed Action may potentially impact up to five nesting pair.

It has been brought to BLM's attention that in certain situations migratory waterfowl 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 direct or indirect influence on migratory birds or associated habitats under the No Action Alternative.

*Mitigation:*

1. 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 migratory waterfowl, shorebirds, wading birds and raptors during completion and after completion activities have ceased. Methods may include netting 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.
2. All earthwork (vegetation removal) associated with the development of the proposed pads, access road and pipeline will take place outside of the migratory bird nesting season (May 15 – July 15). Vegetation removal will be allowed from July 16 – May 14.

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

*Affected Environment:* The nearest system supporting higher-order aquatic vertebrate populations is Piceance Creek. This system provides habitat for native fish species such as speckled dace and mountain sucker, a BLM sensitive species. The northern leopard frog, another BLM sensitive species, has also been documented along the lower reaches of Piceance Creek. The project area is separated from Piceance Creek by nearly three miles of ephemeral channel.

*Environmental Consequences of the Proposed Action:* Construction and/or expansion of the proposed well pads and access road would have no direct or indirect impact on aquatic resources. With the application of BMPs associated with soil erosion there is no reasonable likelihood that fugitive sediments would have any influence on the function or condition of Piceance Creek, its aquatic wildlife, or associated habitats.

*Environmental Consequences of the No Action Alternative:* There would be no direct or indirect influence on downstream aquatic habitats.

*Mitigation:* None.

*Finding on the Public Land Health Standard for plant and animal communities* (partial, see also Vegetation and Wildlife, Terrestrial): The nearest system supporting aquatic wildlife is separated from the project area by nearly three miles of ephemeral channel. Neither the Proposed Action nor the No Action Alternative would have any reasonable potential to influence the function or condition of Piceance Creek or its aquatic habitat values.

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

*Affected Environment:* The proposed well pads are broadly encompassed by younger-aged (regeneration) pinyon-juniper interspersed with Wyoming big sagebrush and mountain shrub species. The western edge of both locations is bordered by CR 83, with BLM Road 1019 bordering the southern edge of RGU-24-25-198 location. These low to mid elevation pinyon-juniper and sagebrush communities are categorized by Colorado Parks and Wildlife as mule deer severe winter range – a specialized component of winter range that supports virtually all an area's deer during the most severe winters (heavy snowfall, extreme temperatures). These ranges receive heaviest use between January and April.

While raptors may opportunistically forage in and around the project area, the woodlands immediately surrounding the proposed locations do not provide adequate nesting substrate for woodland raptors. Small, isolated pockets of mature woodlands are located approximately 300 to 600 meters from the RGU 24-25-198 and RGU 32-25-198 locations, respectively. A Cooper's hawk nest was located in a small stand approximately 300 meters from the RGU 24-25-198 location. The nest was last active 2010. Several nest structures are located in the woodlands approximately 600 meters from the RGU 32-25-198 location although none have been active in recent years.

The distribution and abundance of small mammal populations are poorly documented within the project area; however, the species that are likely to occur in this area display broad ecological tolerance and are widely distributed throughout the Resource Area. Trapping efforts undertaken in 2010 indicate a high tendency, in both sagebrush and pinion-juniper communities for more generalized species such as deer mouse and least chipmunk. No narrowly distributed or highly specialized species or subspecific populations are known to occur in the project area.

*Environmental Consequences of the Proposed Action:* The Proposed Action would remove approximately 18 acres of predominately younger-aged pinyon-juniper regeneration and Wyoming sagebrush communities which, under natural succession regimes would take anywhere from 20-60 years to return to preconstruction conditions.

In November 2009 an agreement was reached by Colorado Parks and Wildlife (CPAW), Williams, and BLM that supports CPAW's research that is designed to better define deer response to applied BMPs and increased, but spatially confined natural gas development. To provide the necessary contrast in experimental design, gas development projects within a pre-defined area of William's Ryan Gulch Unit have been excepted from big game winter timing limitations through the year 2013. The exception area encompasses about 11% of the deer severe winter range encompassed by William's leaseholdings in Piceance Basin or about 1% of the total severe winter range available within Game Management Unit (GMU) 22. Both locations are located in this exception area.

Development of the proposed well pads would have little direct involvement with habitats typically utilized by breeding raptors (i.e., mature woodlands). However, indirectly, development of the RGU 24-25-198 location during the raptor breeding season may disrupt nesting activity adjacent to the site due to noise associated with increased traffic, construction, and drilling activities.

*Environmental Consequences of the No Action Alternative:* There would be no action authorized that would have any direct or indirect influence on terrestrial wildlife or associated habitats.

*Mitigation:*

1. There will be no construction and/or drilling activities allowed from January 1 – April 30 to avoid unnecessary activity in mule deer severe winter range. The WRFO will except/modify (via sundry notice) RMP-prescribed timing limitations for those projects where there is written documentation affirming mutual consent among CPAW, the project proponent, and BLM. Outside such agreements, WRFO will consider excepting/modifying prescribed timing limitations upon written request from CPAW on a project proponent's behalf.
2. Should drilling activities on the RGU 24-25-198 location begin after March 15, 2012, the Cooper's hawk nest will need to be revisited to determine activity. If the nest is found to be active, no drilling activities will be allowed from March 15 – August 15 or until young have fledged and left the nest stand.

*Finding on the Public Land Health Standard for plant and animal communities* (partial, see also Vegetation and Wildlife, Aquatic): The project area generally meets the land health standards on a landscape scale. The Proposed Action is expected to incrementally reduce local habitat capacity over the life of the project. As conditioned by reclamation-related provisions, implementation of the Proposed Action would not interfere with continued landscape level maintenance of the land health standards.

## **WILD HORSES**

*Affected Environment:* The Proposed Action is not located within the designated Piceance-East Douglas Herd Management Area (HMA). This HMA is located approximately three miles to the west of the proposed project. The WRFO currently knows of one large band of wild horses (approximately 12 to 15 wild horses) that has left the HMA and has been seen in or near the project area.

*Environmental Consequences of the Proposed Action:* The Proposed Action would have no impacts on the wild horse management area.

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

*Mitigation:* None.

## **CULTURAL RESOURCES**

*Affected Environment:* RGU 24-25-198 well pad expansion: The proposed well pad expansion has been inventoried at the Class III (100 percent pedestrian) level by all or parts of four project inventories (Conner and Davenport 2007b Compliance Dated 6/14/2007, Conner et al. 2088 Compliance Dated 5/26/2009, Davenport 2011 Compliance Dated 7/13/2011, Hauck 2001 Compliance Dated 6/22/2001) with no new cultural resources identified by any of the inventories.

RGU 32-25-198 well pad: The well pad location was initially inventoried to the Class III (100 percent pedestrian) level only to a maximum area of ten acres oriented north-south and east-west to true north (Conner and Davenport 2007a Compliance Dated 2/28/2007). The inventory identified one site that will be impacted by well pad construction. The site, 5RB.4162, has been officially determined to be ineligible for nomination to or listing on the National Register of Historic Places (NRHP). The site has been impacted by construction of RBC 83 and other linear projects. Soil depth at the well pad and site are unknown and there could be buried remains on the site.

There is a NRHP eligible site, 5RB.945, immediately to the southeast of the area inventoried by Conner and Davenport (2007) which has been officially determined to be potentially eligible for nomination on the NRHP. The site boundary is only about 60 feet (18.2 meters) from the 10 acre inventory boundary.

An Isolated Find was located within the 10 acre survey area but Isolated Finds are not considered NRHP eligible and will not be considered further here.

*Environmental Consequences of the Proposed Action:* The proposed RGU 24-25-198 well pad expansion would not impact any known cultural resources. However, the possibility of buried resources that could be impacted by construction cannot be completely ruled out.

Construction of the RGU 32-25-198 well pad well pad location will directly impact site 5RB.4162. Although the site has been determined ineligible for the NRHP based on surface data there is no assurance that subsurface remains are not present that would be impacted by construction. The presence of previously unknown subsurface features could alter the evaluation of the site's importance.

Any surface disturbance outside of the ten acre inventory plot covered by Conner and Davenport (20071) would adversely impact site 5RB.945. Without data recovery there could be a potentially large and permanent loss of regional archaeological data.

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

*Mitigation (for both well pad locations):*

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.

3. For initial ground clearing of well pad RGU 32-25-198, particularly within the boundaries of site 5RB.4162, shall be monitored for the potential presence of subsurface remains.

4. Site 5RB.945 must be avoided. Williams has the option of a) moving all activities north and east along RBC 83 up to 330 feet (100 meters); if the well pad is relocated additional NEPA analysis will be required, b) performing data recovery excavations on the site, or c) fencing the site or assuming full responsibility for site integrity for the life of the well(s). The condition of approval (COA) for ensuring site integrity is:

“Williams Field Services assumes responsibility for the integrity of site 5RB.945 for the duration of the life or operation of the RGU32-25-198 well pad. This includes, but may not be limited to, the yearly monitoring of 5RB.945 through an approved archaeological consultant. It shall also include any stabilization or data recovery, through an approved archaeological consultant, necessitated by site degradation, whether resulting from construction and operation of features on the RGU 32-25-198 well pad, vandalism, erosion, or any other cause. *See* Beartooth Oil & Gas Co. (January, 1985; 85 IBLA 11). An approved archaeological monitor shall be present to locate the fence line and monitor construction and drilling operations to ensure site integrity.”

The operator must notify the BLM of the option it chooses to follow before well pad construction begins.

## PALEONTOLOGY

*Affected Environment:* Both the RGU 24-25-198 and RGU 32-25-198 well pads are located in an area generally mapped as the Uinta Formation (Tweto 1979) which the BLM, WRFO has classified as a PFYC4/5 formation meaning it is known to produce scientifically noteworthy fossil resources (c.f. Armstrong and Wolny 1989).

*Environmental Consequences of the Proposed Action:* If it becomes necessary to excavate into the underlying sedimentary rock formations to level the wells pads, bury any well tie pipelines, or excavate any reserve/blooi/cuttings pits there is a relatively high potential to impact scientifically noteworthy fossil resources.

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

*Mitigation (for both well pad locations):*

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 If it becomes necessary to excavate into the underlying sedimentary rock formation to level the well pads, bury any pipelines or excavate any reserve/blooi/cuttings pits all such excavations shall have an approved paleontological monitor present before such excavations begin and present until all such excavations have been completed.

**ELEMENTS NOT PRESENT OR NOT AFFECTED:**

No flood plains or prime and unique farmlands exist within the area affected by the Proposed Action. There are also no known Native American religious or environmental justice concerns associated with the Proposed Action.

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

**Table 6. Other elements considered for analysis**

Other Element	NA or Not Present	Applicable or Present, Not Brought Forward for Analysis	Applicable & Present and Brought Forward for Analysis
Visual Resources			X
Fire Management		X	
Forest Management			X
Hydrology/Water Rights		X	
Rangeland Management			X
Realty Authorizations			X
Recreation			X
Access and Transportation			X
Geology and Minerals			X
Areas of Critical Environmental Concern	X		
Wilderness	X		
Wild and Scenic Rivers	X		
Cadastral	X		
Socio-Economics	X		
Law Enforcement	X		

**VISUAL RESOURCES**

*Affected Environment:* The Proposed Actions are located in an area with a Visual Resource Management (VRM) III classification. The objective of this class is to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

*Environmental Consequences of the Proposed Action:* The Proposed Actions would not be visible to a casual observer traveling along RBC 5 (Piceance Creek) which is the paved route in the area most frequently utilized by a casual observer. However the Proposed Actions would be visible from RBC 83 (Bar D Mesa) and BLM Road 1019A, which lie adjacent to each of these roadways. The majority of the traffic in the area of the Proposed Actions would be energy related personnel, with occasional ranchers and seasonal big game hunters traveling along some of the dirt roads in the area. The wells could be seen for short periods of time, but would not dominate the view. The wells would be located in stands of pinyon/juniper with scattered pinyon/juniper in the back drop. By painting all above ground facilities Juniper Green, to mimic and blend with the surrounding and distant vegetation types, the level of change to the characteristic landscape would be less than moderate, and the objectives of the VRM III classification would be retained.

*Environmental Consequences of the No Action Alternative:* There would be no additional impacts to visual resources.

*Mitigation:* All permanent (onsite for six months or longer) structures, facilities, and equipment placed onsite shall be painted Juniper Green from the BLM Standard Environmental Color Chart, June 2008, within six months of installation.

## **FOREST MANAGEMENT**

*Affected Environment:* The Proposed Action is located within a formerly chained area where there is regenerating pinyon/juniper. The area is classified as a young productive exposure stand class of pinyon/juniper woodland as defined by a survey performed by WRFO personnel from 2003-2005. Productive exposure types occur on primarily lower gradient slopes and north and east aspects. Growth rates are higher in these areas due to soil features which allow for effective use of precipitation. Encroachment and revegetation sites of young pinyon trees are valuable for Christmas tree harvest and post and poles for fencing.

*Environmental Consequences of the Proposed Action:* Table 7 below shows the estimated loss of woodland acres as a result of the Proposed Action. Following reclamation it is expected that pinyon and juniper will invade the site within 50-70 years and would develop a mature stand within 250-350 years. Under the Proposed Action, of the 18 acres disturbed, about 7.5 acres of woodlands would be removed. The loss of pinyon/juniper woodland would adversely affect wildlife and nesting habitat. Impacts would be long-term until woodlands regenerate successfully. Removal of young pinyon and juniper trees would reduce the potential for outbreak

of woodland diseases and pest infestations. The average size of the trees in the area is in general not the size of what is referred to as suitable for fuel wood. They are suitable for posts and poles for fencing maintenance and construction. If the standard removal technique (bulldozing or hydroaxing) is used then it is possible that the company or the public will not remove the material as it would be of little use. However it is plausible that if the trees were removed of limbs and left as material suitable for post and pole use, both the company and/or the public would facilitate removal.

**Table 7. Estimated loss of woodland acres as a result of the Proposed Action**

Well Name	Acreage In Woodlands				
	Pad Acres	Pipeline	Acres Disturbed (Total)	Stand Class	Total Cords
RGU 24-25-198	6.8	0.2	7	Young Productive Exposure	2.1
RGU 32-25-198	0.5	0	0.5	Young Productive Exposure	0.2

*Environmental Consequences of the No Action Alternative:* Under this alternative there would be no expansion/construction of wellpads and no removal of pinyon and juniper woodlands.

*Mitigation:* In accordance with the 1997 White River ROD/RMP, all trees removed in the process of construction shall be purchased from the BLM. Trees should first be used in reclamation efforts and then any excess material made available for firewood or other uses.

- a) Woody materials required for reclamation shall be removed in whole with limbs intact and shall be stockpiled along the margins of the authorized use area separate from the topsoil piles. Once the disturbance has been recontoured and reseeded, stockpiled woody material shall be scattered across the reclaimed area where the material originated. Redistribution of woody debris will not exceed 20 percent ground cover. Limbed material shall be scattered across reclaimed areas in a manner that avoids the development of a mulch layer that suppresses growth or reproduction of desirable vegetation. Woody material will be distributed in such a way to avoid large concentrations of heavy fuels and to effectively deter vehicle use.
- b) Trees that must be removed for construction and are not required for reclamation shall be cut down to a stump height of six inches or less prior to other heavy equipment operation. These trees shall be cut in eight foot lengths and placed in manageable stacks immediately adjacent to a public road to facilitate removal for company use or removal by the public for use as post and/or poles.

## **RANGELAND MANAGEMENT**

*Affected Environment:* The proposed well pads and access routes are located within the Horse Draw pasture of the Square S grazing allotment (06027). Authorized livestock use within this pasture occurs during the spring for three weeks, typically 5/7-5/30.

*Environmental Consequences of the Proposed Action:* The Proposed Action would result in a short-term loss of approximately two Animal Unit Months (AUMs) of livestock forage. This initial loss of forage would be considered short term, if revegetation is prompt and effective there would be no net loss of forage over the long term. The Proposed Action is not likely to impact any range improvement projects.

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

*Mitigation:* Although not likely, if any range improvement projects such as fences, water developments, or other livestock handling/distribution facilities that are damaged or destroyed as a result of implementation of the Proposed Action shall be promptly repaired or replaced by the applicant to restore pre-disturbance functionality.

## **RECREATION**

*Affected Environment:* The Proposed Action occurs within the White River Extensive Recreation Management Area (ERMA). The BLM custodially manages the ERMA to provide for unstructured recreation activities such as hunting, dispersed camping, hiking, horseback riding, wildlife viewing, and off-highway vehicle use.

The project areas have been delineated a Recreation Opportunity Spectrum (ROS) class of Semi-Primitive Motorized (SPM). The physical and social recreation setting for a SPM class is typically characterized by a natural appearing environment with few administrative controls and low interaction between users, but evidence of other users may be present. The SPM recreation experience is characterized by a high probability of isolation from the sights and sounds of humans in an environment that offers challenge and risk.

However, due to other human developments such as well pads, facilities and a soda processing plant, the project area currently resembles more of a Recreation Opportunity Spectrum (ROS) class of Roded Natural (RN). The physical and social recreation setting for a RN class may have modifications which range from being easily noticed to strongly dominant to observers within the area. However, from sensitive travel routes and use areas these alterations would remain unnoticed or visually subordinate. There may be strong evidence of designed roads and/or highways. Structures are generally scattered, remaining visually subordinate or unnoticed to the sensitive travel route observer. Structures may include utility corridors, microwave installations, and so on. The frequency of contact can be moderate to high on roads and low to moderate on trails and away from roads. The RN recreation experience is characterized by a

moderate probability of isolation from the sights and sounds of humans that offers an environment that offers challenge and risk. The Proposed Action is located within the CPAW Game Management Unit (GMU) 22, which is a popular big game hunting area where the hunter has good opportunities to pursue both mule deer and elk.

*Environmental Consequences of the Proposed Action:* Due to the Proposed Action, there would be a direct loss of approximately 18 acres of land available for dispersed recreation during construction and operation. Some displacement of recreationists may occur during construction, particularly to those seeking a more primitive oriented backcountry recreation experience. Post construction, big game hunters are still expected to hunt in the general vicinity of the well assuming big game is present in the area. If pad development and drilling activities coincide with the various hunting seasons (late August through December), there may be a disruption to the hunting experience, however this disruption will be temporary in nature and of short duration. As such, this could be considered a minor impact.

With the introduction of a new well pad and road, 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 additional loss of dispersed recreation potential and no impact to hunting recreationists.

*Mitigation:* None.

## **ACCESS AND TRANSPORTATION**

*Affected Environment:* The Proposed Action will occur wholly within Open Motorized areas of BLM land. The primary access for the Proposed Action will be via RBC Roads 83 and 5, as well as BLM road 1019A. Affected roads in the project area are generally maintained, native surface roads with the exception of RBC 5 which is a paved surface road.

*Environmental Consequences of the Proposed Action:* Approximately 620 feet of new road will be constructed as part of the Proposed Action. It is likely that with the continued increase in oil and gas development, there will also be an associated increase in use of the local roads. Use of native surface roadways in dry conditions may result in an increase of fugitive dust and may reduce visibility along the roadway when encountering oncoming traffic. Frequent use during wet conditions may cause road damage in the form of ruts that may require repairs.

*Environmental Consequences of the No Action Alternative:* Under the No Action Alternative, there would be no increase in traffic along the county roads.

*Mitigation:* Damage to existing roads as a result of the Proposed Action will be repaired to a condition that is similar to the original state or better than what existed prior to the commencement of construction or recoating.

## REALTY AUTHORIZATIONS

*Affected Environment:* Existing rights-of-way (ROWs) for natural gas pipelines are authorized to Bargath, Williams Northwest Pipeline, Enterprise Products Operating, and Encana Oil & Gas. A power line ROW is authorized to White River Electric Association. Exxon Mobil has an existing access road ROW on BLM Road 1019A.

*Environmental Consequences of the Proposed Action:* The natural gas pipelines and water lines will require a right-of-way, and the temporary work area necessary for construction of the pipelines and water lines will require a temporary use permit. The water lines would be constructed within the pipeline ROW. To avoid impacts to existing facilities, existing ROW holders should be notified prior to construction of the pipelines and water lines. The following ROWs will be authorized as a result of the Proposed Action:

**Table 8. Rights-of-Way required to implement Proposed Action**

Case file	Description	Length (feet)	Width (feet)	Acres
COC75077	Natural gas pipeline to RGU 32-25-198	620	50	0.71
	Replace natural gas pipeline to RGU 24-25-198	800	50	0.92
COC75078	Water lines to RGU 32-25-198	620	15	0.21
	Water lines to RGU 24-25-198	800	15	0.28
COC75077-01	Temporary work area for RGU 32-25-198	620	20	0.28
	Temporary work area for RGU 24-25-198	800	20	0.37

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

### *Mitigation:*

1. The holder shall provide the BLM Authorized Officer with data in a format compatible with the WRFO's ESRI ArcGIS Geographic Information System (GIS) to accurately locate and identify the right-of-way and all constructed infrastructure, within 60 days. Acceptable data formats are: (1) corrected global positioning system (GPS) files with sub-meter accuracy or better; (2) ESRI shapefiles or geodatabases; or at last resort, (3) AutoCAD .dwg or .dxf files. Option 2 is highly preferred. In ALL cases the data must be submitted in UTM Zone 13N, NAD 83, in units of meters. Data may be submitted as: (1) an email attachment; or (2) on a standard compact disk (CD) in compressed (WinZip only) or uncompressed format. All data shall include metadata, for each submitted layer, that conforms to the Content Standards for Digital Geospatial Metadata from the Federal Geographic Data Committee standards. Questions should be directed to WRFO BLM GIS staff at (970) 878-3800.

2. All activities shall comply with all applicable local, state, and federal laws, statutes, regulations, standards, and implementation plans. This includes acquiring all required state and/or local permits, effectively coordinating with existing facility ROW holders, and implementing all applicable mitigation measures required by each permit.
3. At least 90 days prior to termination of the right-of-way, the holder shall contact the AO to arrange a joint inspection of the right-of-way. This inspection will be held to agree to an acceptable termination and rehabilitation plan. This plan shall include, but is not limited to, removal of facilities, drainage structures, of surface material; recontouring, topsoiling, or seeding. The AO must approve the plan in writing prior to the holder's commencement of any termination activities.
4. The holder shall conduct all activities associated with the construction, operation, and termination of the right-of-way within the authorized limits of the right-of-way.

## **GEOLOGY AND MINERALS**

*Affected Environment:* The surficial geologic formation of the proposed well locations is Uinta and William's targeted zone is located in the Mesaverde formation. During drilling, potential water, oil shale, sodium, and gas zones will be encountered from surface to the targeted zone. Fresh water aquifers zones that will be encountered during drilling are in the upper portion (2,000 feet) of the wells. These are located in the Green River formation and are commonly known as: the Perched in the A-groove, B-groove, and the Dissolution Surface. These aquifer zones and portions of the Wasatch formation are known for difficulties in drilling and cementing.

Both pads are located on Natural Soda Inc.'s (NSI) Federal Sodium Lease COC-0118327. NSI is an active solution mining operation that mines a bedded nahcolite (sodium bicarbonate) horizon geologically known as the Boies Bed in the Green River Formation at a depth of approximately 1,950 feet below surface. COC-118327 became effective July 6, 1971 and solution mining of the nahcolite resource on the lease commenced in 1991. According to the approved NSI mine plan, NSI is required by the EPA, BLM, and Colorado Department of Reclamation Mining and Safety to monitor the water quality and hydrostatic head of the fresh aquifer zones in and around the mining operations. The aquifers zones are monitored to determine if the solution mining activities have any effect on these zones. Monitoring the hydrostatic head of the dissolution surface is used in daily operations to balance the injection and recovery rates of the mining solutions.

Well pad 24-25-198 has the nearest proximity of the two pads to current active sodium solution mining. It is located approximately 800 feet due east of NSI's 10 and 11 production wells and 1,500 feet east of 2 NSI water monitoring wells.

Both well pads are located on Federal Oil and Gas Lease COC-60733 which was effective October 1, 1997 and is included in the Ryan Gulch Exploratory Oil and Gas Unit COC 68239X

*Environmental Consequences of the Proposed Action:* Drilling and completion of the proposed wells could affect the aquifers in the Green River formation if there is loss of circulation or difficulties encountered cementing the surface casing. Proper implementation of the proposed cementing and completion procedures would isolate the formations and prevent the migration of gas, water, and oil between formations along the annulus of the well bore and casing. Development of these wells will deplete the hydrocarbon resources in the targeted formation.

*Environmental Consequences of the No Action Alternative:* The natural gas resources in the targeted zone would not be recovered at this time.

*Mitigation:*

1. Williams should notify NSI of their plans to drill wells on 24-25-198 prior to the commencement of surface disturbing activities to coordinate the mobilization of equipment to the drill site and drilling operations to minimize interference with NSI operations.
2. To indicate ownership of any aquifer impacts due to drilling and completion, a fluorescent dye other than Rhodamin WT should be added to all drilling fluids used during the surface casing drilling operations.
3. Williams should inform NSI during drilling and cementing of the surface casing and during fracing operations.

**CUMULATIVE IMPACTS SUMMARY:**

This action is consistent with the scope of impacts addressed in the White River ROD/RMP. The cumulative impacts of oil and gas activities are addressed in the White River ROD/RMP for each resource value that would be affected by the Proposed Action.

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2010 Colorado 5 Year Monitoring Network Assessment. Available online at:  
<http://www.colorado.gov/airquality/>. Accessed May 13, 2011.

Conner, Carle E., and Barbara J. Davenport

2077a Class III Cultural Resource Inventory Report for Twenty-on Proposed Ryan Gulch Well Locations and Related Access Routes in Rio Blanco County, Colorado for Williams Production RMT. Grand River Institute, Grand Junction, Colorado. (17—07-11-07: SHPO #RB.LM.R999)

2007b Class III Cultural Resource Inventory Report for Three Proposed Ryan Gulch Unit Well Locations (Federal NRG 41-9-198, RGU 11-25-198, and RGU 14-25-198) Related Access Routes in Rio Blanco County, Colorado for Williams Production RMT. Grand River Institute, Grand Junction, Colorado. (07-11-14: SHPO number RB.LM.R1067)

Conner, Carl E., Nicole Darnell, Curtis Martin, Barbara Davenport, James C. Miller, and Thomas F. Rome.

2008 Class III Cultural Resources Inventory for the Proposed Colorado Hub Connection Project in Rio Blanco County, Colorado, for Northwest pipeline GP. Grand River Institute, Grand Junction, Colorado. (09-11-18: SHPO number RB.LM.R1102)

Davenport, Barbara

2011 Class III Cultural Resources Inventory for the Proposed Federal RGU #24-25-198 Well Location in Rio Blanco County, Colorado for Williams Field Services. Grand River Institute, Grand Junction, Colorado. (11-11-20: SHPO # RB.LM.NR2265)

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2010 Currently Designated Non-Attainment Areas for all Criteria Pollutants.

Hauck, F. Richard

2001 Cultural Resource Evaluation of 11 Proposed Mallard Well Locations & Associated Pipeline/Access Corridors in the Piceance Creek Locality of Rio Blanco County, Colorado. Archeological-Environmental Research Corporation, Bountiful, Utah. (01-38-08: SHPO number RB.LM.R441)

Tweto, Ogden

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

**INTERDISCIPLINARY REVIEW:** The Proposed Action was presented to, and reviewed by the White River Field Office interdisciplinary team on 5/24/11.

**Table 9. Interdisciplinary Review Team**

<b>Name</b>	<b>Title</b>	<b>Area of Responsibility</b>	<b>Date Signed</b>
Bob Lange	Hydrologist	Air Quality, Water Quality (Surface and Ground), Hydrology and Water Rights, and Soils	8/4/2011
Zoe Miller	Ecologist	Areas of Critical Environmental Concern, Threatened and Endangered Plant Species	7/20/2011
	Archaeologist	Cultural Resources, Paleontological Resources	
Tyrell Turner	Rangeland Management Specialist	Invasive, Non-Native Species, Vegetation , Rangeland Management	7/31/2011
Lisa Belmonte	Wildlife Biologist	Migratory Birds, Threatened, Endangered and Sensitive Animal Species, Terrestrial and Aquatic Wildlife, Wetlands and Riparian Zones	7/26/2011
Christina Barlow	Natural Resource Specialist/HazMat Coordinator	Wastes, Hazardous or Solid	7/25/2011
Chad Schneckenberger	Outdoor Recreation Planner	Wilderness, Access and Transportation, Recreation,	7/25/2011
Jim Michels	Forester /Fire / Fuels Technician	Forest Management	8/2/2011
Garner Harris	Zone Fire Management Officer	Fire Management	6/22/2011
Paul Daggett	Mining Engineer	Geology and Minerals	7/25/2011
Stacey Burke	Realty Specialist	Realty Authorizations	8/3/2011
Chad Schneckenberger	Natural Resource Specialist / Outdoor Recreation Planner	Visual Resources	7/25/2011
Melissa J. Kindall	Range Technician	Wild Horses	7/29/2011

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

## **DOI-BLM-CO-110-2011-0115-EA**

**FINDING OF NO SIGNIFICANT IMPACT (FONSI)/RATIONALE:** The environmental assessment and analysis of 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 the expansion of the RGU 24-25-198 well pad and construction of the RGU 32-25-198 in order to enable the drilling of the 17 proposed gas wells, with the following mitigation measures.

### **MITIGATION MEASURES:**

#### *TIMING LIMITATIONS*

1. All earthwork (vegetation removal) associated with the development of the proposed pads, access road and pipeline will take place outside of the migratory bird nesting season (May 15 – July 15). Vegetation removal will be allowed from July 16 – May 14.
2. There will be no construction and/or drilling activities allowed from January 1 – April 30 to avoid unnecessary activity in mule deer severe winter range. The WRFO will except/modify RMP-prescribed timing limitations for those projects (via sundry notice) where there is written documentation affirming mutual consent among CPAW, the project proponent, and BLM. Outside such agreements, WRFO will consider excepting/modifying prescribed timing limitations upon written request from CPAW on a project proponent's behalf.

#### *NOTIFICATION REQUIREMENTS*

3. Williams should notify NSI of their plans to drill wells on 24-25-198 prior to the commencement of surface disturbing activities to coordinate the mobilization of equipment to the drill site and drilling operations to minimize interference with NSI operations.
4. Williams should inform NSI during drilling and cementing of the surface casing and during fracing operations.

### *AIR QUALITY*

5. All access roads will be built and maintained according to BLM Manual Section 9113 standards for road shape and drainage features at all times during pad construction, drilling, and production.

6. All access roads will be treated with water and/or a BLM-approved chemical dust suppressant during construction and drilling activities so that there is not a visible dust trail behind vehicles. All vehicles will abide by company or public speed restrictions during all activities. If water is used as a dust suppressant, there should be no traces of oil or solvents in the water and it should be properly permitted for this use by the State of Colorado. Only water needed for abating dust should be applied; dust abatement should not be used as a water disposal option under any circumstances.

### *SOILS*

7. All construction activity shall cease when soils or road surfaces become saturated to a depth of three inches unless there are safety concerns or activities are otherwise approved by the Authorized Officer.

8. In order to protect rangeland health standards for soils, erosion features such as rilling, gullyng, piping, and mass wasting on the surface disturbance or adjacent to the surface disturbance as a result of this action will be addressed immediately after observation by contacting the AO and by submitting a plan to assure successful soil stabilization with BMPs to address erosion problems.

9. All topsoil will be removed in areas of surface disturbance for the road, pads and pipeline. Topsoil piles will be covered, seeded, labeled and stored unmixed with other soils for spreading during reclamation

10. Soil storage areas will be clearly marked to restrict vehicle/equipment use to only what is necessary to move the soil. Metal fence posts, construction fencing, construction barriers or other physical barriers will be placed at regular intervals between the working surfaces and soil storage areas when necessary.

11. The operator will submit for BLM approval a diagram showing the location of proposed culverts and a plan for access roads that addresses the tight turns on the proposed access road.

12. All areas where the topsoil has been removed and soils have become compacted will be ripped below the finished grade. Another suitable method of de-compaction may be used before topsoil is re-spread with approval of the BLM AO. This soil preparation should be done before spreading the topsoil and seeding and be part of the earthwork for interim and final reclamation. Areas where the topsoil has not been removed, but have been compacted, must be de-compacted by disking or other methods to prepare the soils for reclamation.

13. During pipeline construction, the ROW will remain undisturbed to the maximum extent possible. That is, only the minimum necessary disturbance will occur to make the working surface safe and passable. Topsoil will not be removed under areas used for the storage of soils

and, if possible, topsoil will not be removed from working surfaces.

14. Under no circumstances will topsoil, soil material below or adjacent to the trench spoils or subsoil excavated from the trench down to the ERD (Effective Rooting Depth) for the reclamation plants (Reclamation ERD) be used as padding in the trench, to fill sacks for trench breakers, or for any other use as construction material. Reclamation ERD will be a minimum of 16 inches and a maximum of 24 inches below the ground surface for all soils.

15. If soil productivity is diminished from its pre-disturbance condition, then reseeded, hydro-mulching or other efforts will be initiated to re-establish soil productivity during reclamation activities.

16. Secondary cuttings disposal options described in the SUP will not be allowed without prior approval from the BLM, specifically the use of cuttings for pipeline bedding or fill in cut areas of the pad.

17. All cuttings placed in trenches for final disposal will have at least three feet of clean native fill above them before the topsoil is placed for reclamation.

#### *WATER QUALITY, SURFACE AND GROUND*

18. If surface sources are used for freshwater, water hauling trucks must use backflow preventers to avoid contamination of Black Sulphur and Piceance Creek. Trucks used for hauling produced water or waste disposal will not be used for freshwater delivery for this project without prior written approval from BLM.

19. To protect surface waters below the project area, keep road inlet and outlet ditches, sediment retention basins, and culverts free of obstructions, particularly before and during spring run-off and summer convective storms. Provide adequate drainage spacing to avoid accumulation of water in ditches or road surfaces. Install culverts with adequate armoring of inlet and outlet. Patrol areas susceptible to road or watershed damage during periods of high runoff.

20. When drilling to set the surface casing, drilling fluid will be composed only of fresh water, bentonite, and/or a benign lost circulation material that does not pose a risk of harm to human health or the environment (e.g., cedar bark, shredded cane stalks, mineral fiber and hair, mica flakes, ground and sized limestone or marble, wood, nut hulls, corncobs, or cotton hulls).

21. The operator will submit via Sundry Notice (SN) to the Natural Resource Specialist (NRS) for review by the WRFO Hydrologist a report that describes the backflow preventer or other method used to protect water quality of Black Sulphur Creek and Piceance Creek.

## *GEOLOGY and MINERALS*

22. To indicate ownership of any aquifer impacts due to drilling and completion, a fluorescent dye other than Rhodamin WT should be added to all drilling fluids used during the surface casing drilling operations.

## *ACCESS and TRANSPORTATION*

23. Damage to existing roads as a result of the Proposed Action will be repaired to a condition that is similar to the original state or better than what existed prior to the commencement of construction or recoating.

24. The holder shall provide the BLM Authorized Officer with data in a format compatible with the WRFO's ESRI ArcGIS Geographic Information System (GIS) to accurately locate and identify the right-of-way and all constructed infrastructure, within 60 days. Acceptable data formats are: (1) corrected global positioning system (GPS) files with sub-meter accuracy or better; (2) ESRI shapefiles or geodatabases; or at last resort, (3) AutoCAD .dwg or .dxf files. Option 2 is highly preferred. In ALL cases the data must be submitted in UTM Zone 13N, NAD 83, in units of meters. Data may be submitted as: (1) an email attachment; or (2) on a standard compact disk (CD) in compressed (WinZip only) or uncompressed format. All data shall include metadata, for each submitted layer, that conforms to the Content Standards for Digital Geospatial Metadata from the Federal Geographic Data Committee standards. Questions should be directed to WRFO BLM GIS staff at (970) 878-3800.

25. All activities shall comply with all applicable local, state, and federal laws, statutes, regulations, standards, and implementation plans. This includes acquiring all required state and/or local permits, effectively coordinating with existing facility ROW holders, and implementing all applicable mitigation measures required by each permit.

26. At least 90 days prior to termination of the right-of-way, the holder shall contact the authorized Officer to arrange a joint inspection of the right-of-way. This inspection will be held to agree to an acceptable termination and rehabilitation plan. This plan shall include, but is not limited to, removal of facilities, drainage structures, of surface material; recontouring, topsoiling, or seeding. The Authorized Officer must approve the plan in writing prior to the holder's commencement of any termination activities.

27. The holder shall conduct all activities associated with the construction, operation, and termination of the right-of-way within the authorized limits of the right-of-way.

## *WILDLIFE*

28. 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 migratory waterfowl, shorebirds, wading birds and raptors during completion and after completion activities have ceased. Methods may include netting 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.

29. Should drilling activities on the RGU 24-25-198 location begin after March 15, 2012, the Cooper's hawk nest will need to be revisited to determine activity. If the nest is found to be active, no drilling activities will be allowed from March 15 – August 15 or until young have fledged and left the nest stand.

#### *RANGE*

30. Although not likely, if any range improvement projects such as fences, water developments, or other livestock handling/distribution facilities that are damaged or destroyed as a result of implementation of the Proposed Action shall be promptly repaired or replaced by the applicant to restore pre-disturbance functionality.

#### *RECLAMATION: Vegetation, Forest Products, Visual Resource*

31. All permanent (onsite for six months or longer) structures, facilities and equipment placed onsite shall be painted Juniper Green from the BLM Standard Environmental Color Chart, June 2008, within six months of installation.

32. In accordance with the 1997 White River ROD/RMP, all trees removed in the process of construction shall be purchased from the BLM. Trees should first be used in reclamation efforts and then any excess material made available for firewood or other uses.

- a) Woody materials required for reclamation shall be removed in whole with limbs intact and shall be stockpiled along the margins of the authorized use area separate from the topsoil piles. Once the disturbance has been recontoured and reseeded, stockpiled woody material shall be scattered across the reclaimed area where the material originated. Redistribution of woody debris will not exceed 20 percent ground cover. Limbed material shall be scattered across reclaimed areas in a manner that avoids the development of a mulch layer that suppresses growth or reproduction of desirable vegetation. Woody material will be distributed in such a way to avoid large concentrations of heavy fuels and to effectively deter vehicle use.
- b) Trees that must be removed for construction and are not required for reclamation shall be cut down to a stump height of six inches or less prior to other heavy equipment operation. These trees shall be cut in eight foot lengths and placed in manageable stacks immediately adjacent to a public road to facilitate removal for company use or removal by the public for use as post and/or poles.

33. Disturbed areas shall be reseeded with Seed Mix Three from the WRFO Surface Reclamation Protocol (Table 5). Reclamation shall be completed following practices outlined in the Surface Use Plan of Operations submitted by Williams. Seeding rates listed in Table 5. are for drill seed application; if broadcast seeding is to be done the rate shall be doubled.

**Table 5. Prescribed Seed Mix**

Seed Mix	Cultivar	Species	Scientific Name	Application Rate (lbs PLS/acre)	
3	Rosanna	Western Wheatgrass	<i>Pascopyrum smithii</i>	4	
	Whitmar	Bluebunch Wheatgrass	<i>Pseudoroegneria spicata ssp. inermis</i>	3.5	
	Rimrock	Indian Ricegrass	<i>Achnatherum hymenoides</i>	3	
		Needle and Thread Grass	<i>Hesperostipa comata ssp. comata</i>	2.5	
	Maple Grove	Lewis Flax	<i>Linum lewisii</i>	1	
		Scarlet Globemallow	<i>Sphaeralcea coccinea</i>	0.5	
	Alternates:				
	Critana	Thickspike Wheatgrass	<i>Elymus lanceolatus ssp. lanceolatus</i>	3	
		Sulphur Flower	<i>Eriogonum umbellatum</i>	1.5	

*INVASIVE, Non-native species*

34. The area should be surveyed for the presence of noxious/invasive species before and after construction. If undesirable species are found, they should be promptly eradicated using approved materials and methods. If invasive, non-native species establish within the project area, and spread onto adjoining BLM lands, the applicant will be responsible for control of those populations. The operator should eliminate any noxious plants before any seed production has occurred. Application of pesticides and herbicides on public lands will conform to BLM manual 9015 and the BLM WRFO ROD/RMP. The applicant shall ensure that all off-road equipment is cleaned to remove seed and soil prior to commencing operations on public lands within the project area.

*SOLID AND HAZARDOUS WASTES*

35. All lessees and/or operators and right-of-way holders shall comply with all federal, state and/or local laws, rules, and regulations, including but not limited to onshore orders and notices to lessees, addressing the emission of and/or the handling, use, and release of any substance that poses a risk of harm to human health or the environment.

36. Where required by law or regulation to develop a plan for the prevention of releases or the recovery of a release of any substance that poses a risk of harm to human health or the environment, provide a current copy of said plan to the BLM WRFO.

37. Through all phases of oil and gas exploration, development, and production, all lessees and/or operators and holders of rights-of-way shall employ, maintain, and periodically update to

the best available technology(s) aimed at reducing: 1) emissions, 2) fresh water use, and 3) utilization, production, and release of hazardous material.

38. All substances that pose a risk of harm to human health or the environment shall be stored in appropriate containers. Fluids that pose a risk of harm to human health or the environment, including but not limited to produced water, shall be stored in appropriate containers and in secondary containment systems at 110% of the largest vessel's capacity. Secondary fluid containment systems, including but not limited to tank batteries shall be lined with a minimum 24 mil impermeable liner.

39. Construction sites and all facilities shall be maintained in a sanitary condition at all times; waste materials shall be disposed of promptly at an appropriate waste disposal site. "Waste" means all discarded matter including, but not limited to, human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.

40. As a reasonable and prudent lessee/operator in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will report all emissions or releases that may pose a risk of harm to human health or the environment, regardless of a substance's status as exempt or nonexempt and regardless of fault, to the BLM WRFO (970) 878-3800.

41. As a reasonable and prudent lessees/operator and/or right-of-way holder in the oil and gas industry, acting in good faith, all lessees/operators and right-of-way holders will provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any substance that may pose a risk of harm to human health or the environment, regardless of that substance's status as exempt or non-exempt. Where the lessee/operator or right-of-way holder fails, refuses or neglects to provide for the immediate clean-up and testing of air, water (surface and/or ground) and soils contaminated by the emission or release of any quantity of a substance that poses a risk of harm to human health or the environment, the BLM WRFO may take measures to clean-up and test air, water (surface and/or ground) and soils at the lessee/operator's expense. Such action will not relieve the lessee/operator of any liability or responsibility.

42. With the acceptance of this authorization, the commencement of operations under this authorization, or within thirty calendar days from the issuance of this authorization, whichever occurs first, and during the life of the pipeline, the right-of-way holder and the lessee/operator, and through the right-of-way holder and lessee/operator, its agents, employees, subcontractors, successors and assigns, stipulate and agree to indemnify, defend and hold harmless the United States Government, its agencies, and employees from all liability associated with the emission or release of substances that pose a risk of harm to human health or the environment.

### *CULTURAL RESOURCES*

43. 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.

44. 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.

45. For initial ground clearing of well pad RGU 32-25-198, particularly within the boundaries of site 5RB.4162, shall be monitored for the potential presence of subsurface remains.

46. Site 5RB.945 must be avoided. Williams has the option of a) moving all activities north and east along RBC 83 up to 330 feet (100 meters); if the well pad is relocated additional NEPA analysis will be required, b) performing data recovery excavations on the site, or c) fencing the site or assuming full responsibility for site integrity for the life of the well(s). The condition of approval (COA) for ensuring site integrity is:

“Williams Field Services assumes responsibility for the integrity of site 5RB.945 for the duration of the life or operation of the RGU32-25-198 well pad. This includes, but may not be limited to, the yearly monitoring of 5RB.945 through an approved archaeological consultant. It shall also include any stabilization or data recovery, through an approved archaeological consultant, necessitated by site degradation, whether resulting from construction and operation of features on the RGU 32-25-198 well pad, vandalism, erosion, or any other cause. *See* Beartooth Oil & Gas Co. (January, 1985; 85 IBLA 11). An approved archaeological monitor shall be present to locate the fence line and monitor construction and drilling operations to ensure site integrity.”

The operator must notify the BLM of the option it chooses to follow before well pad construction begins.

*PAEONTOLOGICAL RESOURCES*

47. 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.

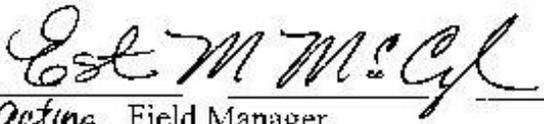
48. If it becomes necessary to excavate into the underlying sedimentary rock formation to level the well pad, bury any pipelines or excavate any reserve/blooi/cuttings pits all such excavations shall have an approved paleontological monitor present before such excavations begin and present until all such excavations have been completed.

**COMPLIANCE/MONITORING:** On-going compliance inspections and monitoring of these pads, pipelines, and access roads will be conducted by the BLM White River Field Office staff during and after construction. Specific mitigation developed in this document will be followed. The operator will be notified of compliance related issues in writing, and depending on the nature of the issue(s), will be provided 30 days to resolve such issues.

**NAME OF PREPARER:** Christina Barlow

**NAME OF ENVIRONMENTAL COORDINATOR:** Heather Sauls

**SIGNATURE OF AUTHORIZED OFFICIAL:**

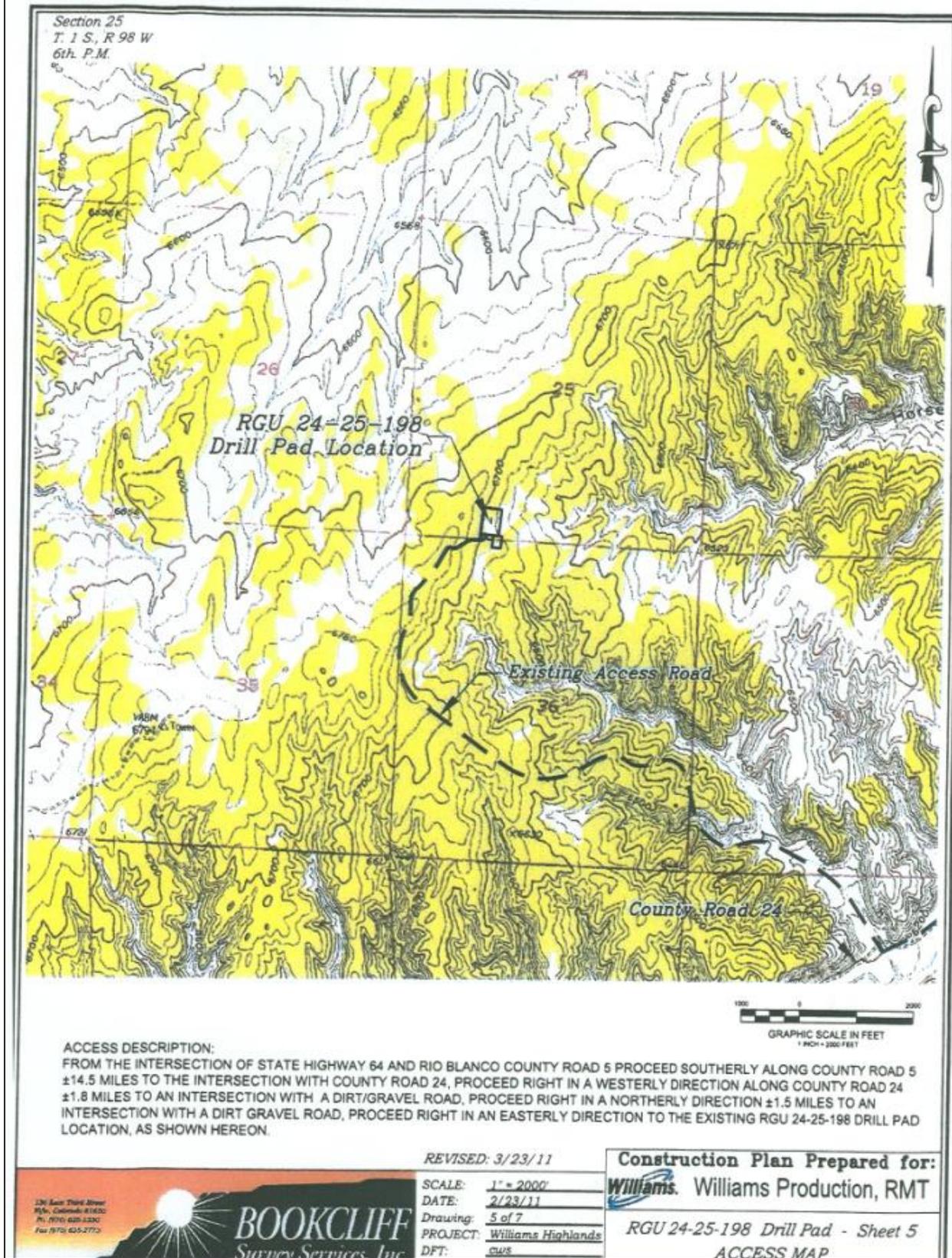
  
Acting Field Manager

**DATE SIGNED:** 8/12/11

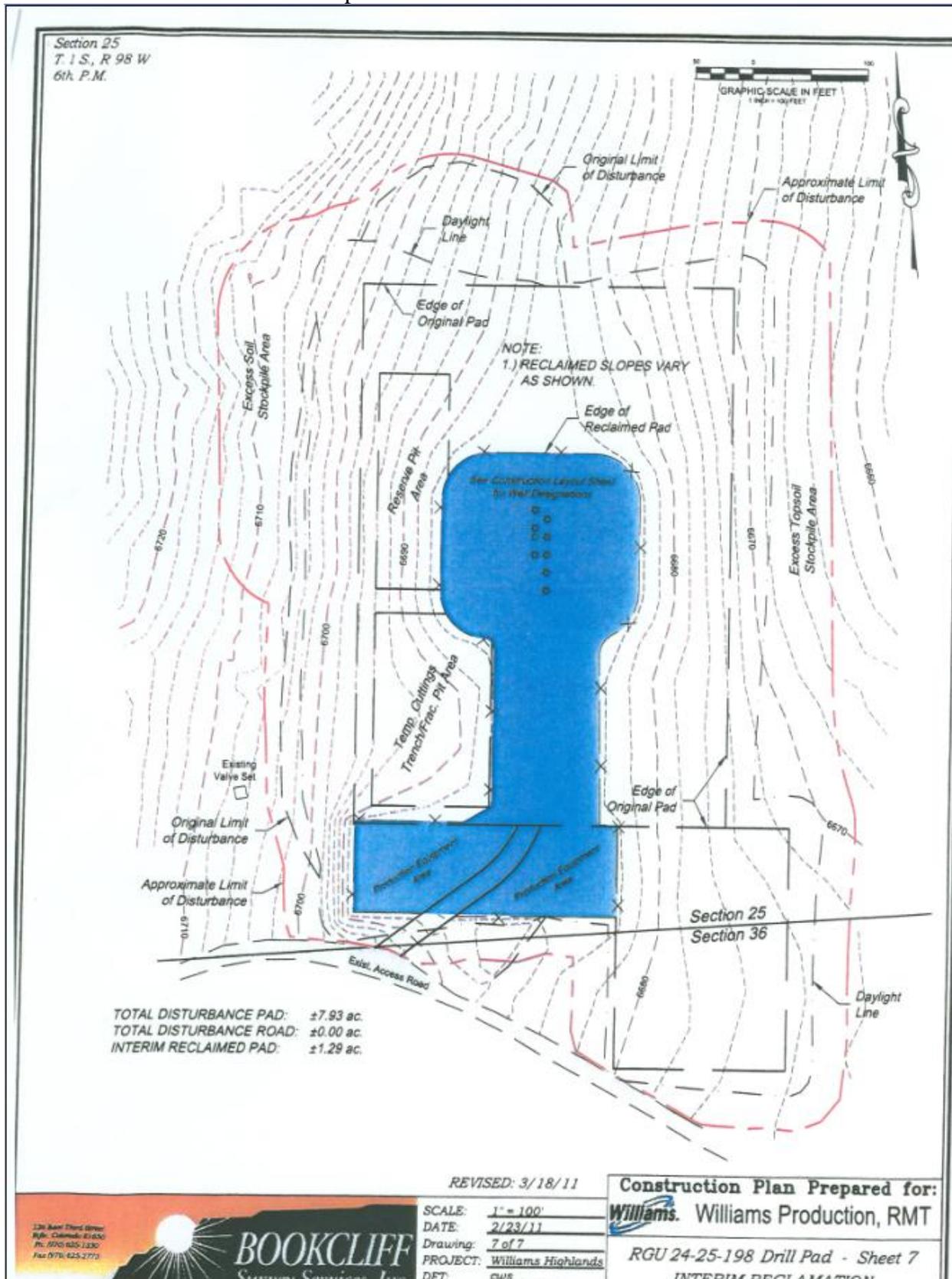
**ATTACHMENTS:**

- Attachment 1. RGU 24-25-198 Proposed Location Map.
- Attachment 2. RGU 24-25-198 Proposed Interim Reclamation.
- Attachment 3. RGU 32-25-198 Proposed Location Map.
- Attachment 4. RGU 32-25-198 Proposed Interim Reclamation.

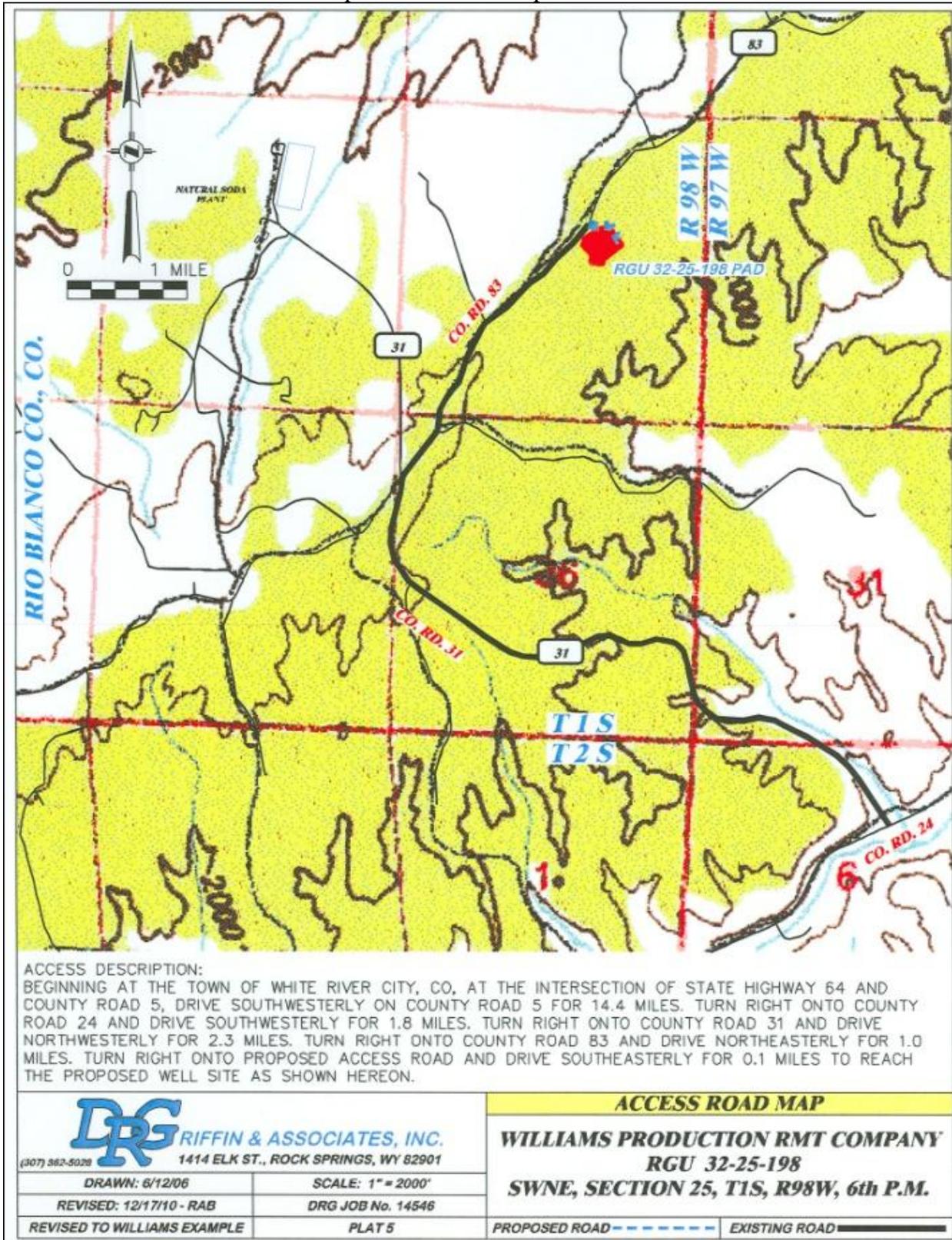
Attachment 1. RGU 24-25-198 Proposed Location Map.



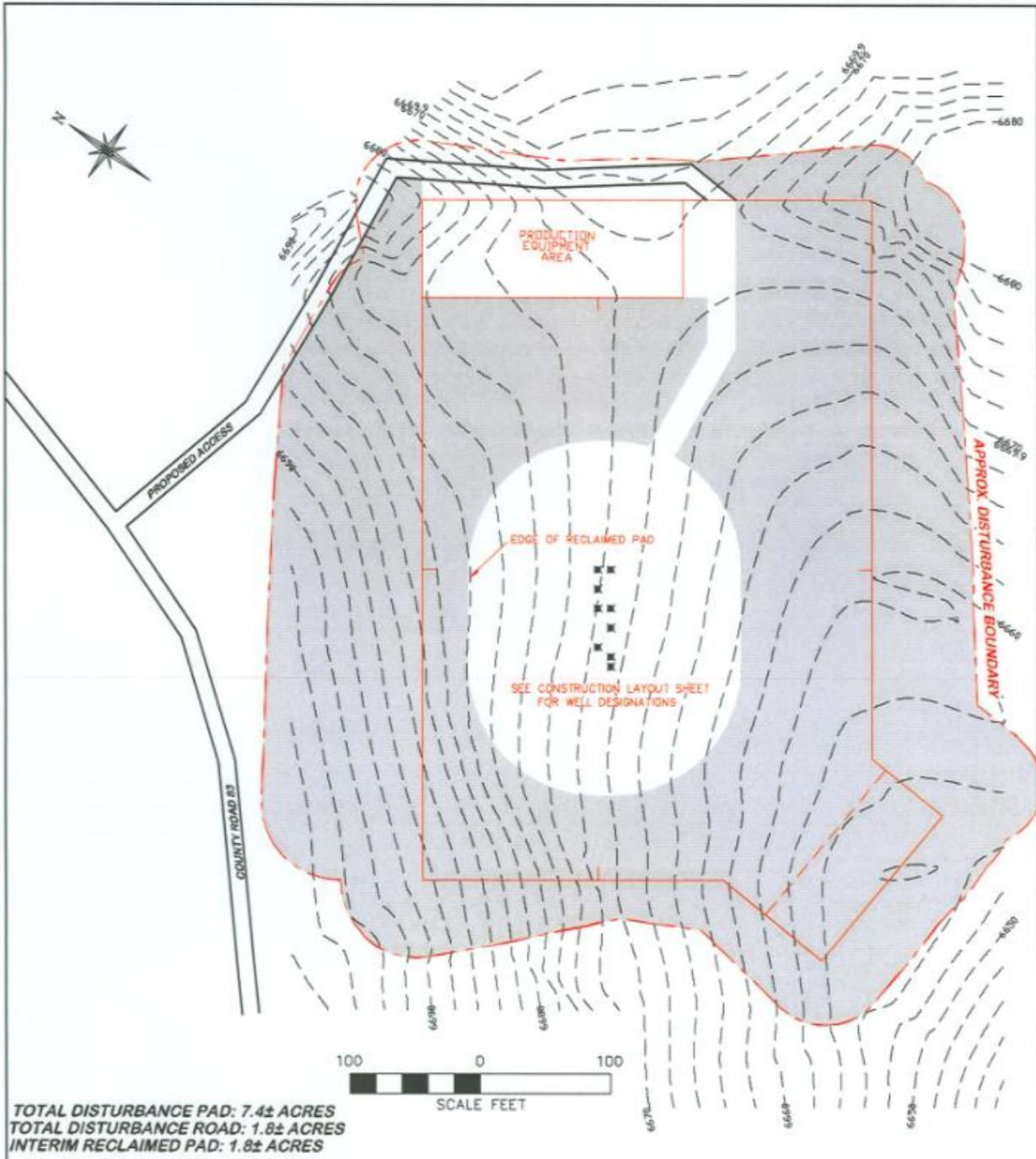
Attachment 2. RGU 24-25-198 Proposed Interim Reclamation.



Attachment 3. RGU 32-25-198 Proposed Location Map.



Attachment 4. RGU 32-25-198 Proposed Interim Reclamation.



 <b>DRG RIFFIN &amp; ASSOCIATES, INC.</b> 1414 ELK ST., ROCK SPRINGS, WY 82901 (307) 362-5026		<b>RECLAIMED PAD &amp; PRODUCTION EQUIPMENT</b>	
		<b>WILLIAMS PRODUCTION RMT COMPANY</b> <b>RGU 32-25-198</b> <b>SWNE, SECTION 25, T1S, R98W, 6th P.M.</b>	
DRAWN: 8/19/10 - DEH	SCALE: 1" = 100'		
REVISED: 12/17/10 - RAB	DRG JOB No. 14546		
REVISED TO WILLIAMS EXAMPLE	PLAT 7		