EXECUTIVE SUMMARY

Williams Production RMT Company (Williams) proposes to develop oil and gas resources in an area of approximately 1,293 acres of Federal, private, and split-estate lands located in the Piceance Basin about 6 miles southwest of Rifle and 9 miles east of Parachute, Garfield County, Colorado. The proposed development plan, referred to as the Spruce Creek Master Development Plan (SCMDP), was prepared by the Bureau of Land Management (BLM), Glenwood Springs Energy Office (GSEO) to meet the requirements for an Environmental Assessment (EA) under the National Environmental Policy Act (NEPA). The SCMDP was prepared based on information provided by Williams and its consultants and on independent review and analysis by a BLM Interdisciplinary (ID) Team.

The proposed action put forth by Williams and described in the SCMDP consists of drilling up to 58 new wells from three new and one existing well pad (three on Federal surface and one on private surface). The bottomhole locations of the 58 wells would include 45 completed in Federal mineral estate and 13 in private mineral estate. The drilling rate is expected to result in eight wells to be completed in 2008, with the remainder to be completed from 2009 to 2012.

The proposed action would be structured so that well pads could undergo two phases of activity: 1) an exploration phase using a conventional drilling rig, and 2) a development phase using an efficiency drilling rig. Phasing would be conducted such that exploration activities on some well pads would occur concurrently with development activities on other pads.

Total surface disturbance from construction of well pads and centralized facilities would total approximately 31.6 acres (including staging areas), reflecting pad sizes ranging from 3 to 4.5 acres. Following drilling and completion activities, interim reclamation would reduce the long-term surface disturbance on the four pads to approximately 8 acres, which would extend through the anticipated 35-year life of the wells.

Other ground-disturbing activities described in the SCMDP would include approximately 4,200 linear feet of new access road and 9,163 linear feet of new pipelines. The access roads would result in approximately 2.39 acres of new disturbance; the pipeline would be collocated with the road and would not result in additional long-term disturbance. Most of pipelines would be installed within an existing 50-foot right-of-way. New finished road surface would average 25 feet wide. Long-term surface disturbance along the finished road surfaces and adjacent drainage ditches would be 2.39 acres or less.

Permanent surface facilities needed to support oil and gas development would include the wellheads, separation and dehydration units, and above-ground tanks for storage of condensate and produced water. Each pad would also have a reserve pit or a cuttings trench, depending on the type of drill rig used, for the disposal of drill cuttings and miscellaneous drilling debris. Following completion of the wells at a pad, the reserve pit or cuttings trench would have hydrocarbons and debris removed and then be dried, backfilled, covered, and reclaimed. Produced water from the wells would be transported by truck or buried pipeline to a water treatment facility owned and operated by Williams or an approved commercial disposal facility.

Following completion activities at a pad, areas not needed during production would be revegetated using reclamation methods, standards, and species prescribed by BLM. When all of the wells at a pad are no longer producing economic quantities of gas, the wells would be closed and abandoned, and the pad would undergo final reclamation.

INTRODUCTION

Williams Production RMT Company (Williams), a natural gas company production company, is proposing a 4-year program of natural gas exploration and development on approximately 1,293 acres of public, split-estate, and private lands located in the Piceance Basin about 6 miles southwest of Rifle and 9 miles east of Parachute, Garfield County, Colorado (Figure 1). This proposal, referred to as the Spruce Creek Master Development Plan (SCMDP), includes portions of Sections 4 and 9, Township 7 South (T7S), Range 94 West (R94W), Sixth Principal Meridian.

The proposal consists of constructing, drilling, completing, and operating up to 58 new wells from one existing and three new surface locations. Ancillary facilities connected to the project that would be constructed or upgraded include access roads, gathering pipelines, and a variety of surface production equipment locations.

PURPOSE AND NEED FOR THE ACTION

Exploration and development of Federal oil and gas leases by private industry is an integral part of the BLM's oil and gas leasing program under authority of the Mineral Leasing Act of 1920 as amended; the Mining and Minerals Policy Act of 1970; the Federal Land Policy and Management Act of 1976; the National Materials and Minerals Policy, Research, and Development Act of 1980; and the Federal Onshore Oil and Gas Leasing Reform Act of 1987.

The purpose of the action is to develop natural gas resources on Federal leases COC046030, COC056040, COC063721, and COC 006935 consistent with existing Federal lease rights. Lease holders retain rights to drill for, extract, remove, and market gas products. National mineral leasing policies and the regulations by which they are enforced recognize the statutory right of lease holders to develop federal mineral resources to meet continuing national needs and economic demands so long as undue and unnecessary environmental degradation does not occur. Also included is the right of the lease holder to build and maintain necessary improvements, subject to renewal or extension of the lease or leases in accordance with the appropriate authority. The proposed project would allow the lease holder, Williams, to determine through natural gas exploration if and where, additional development and production is feasible.

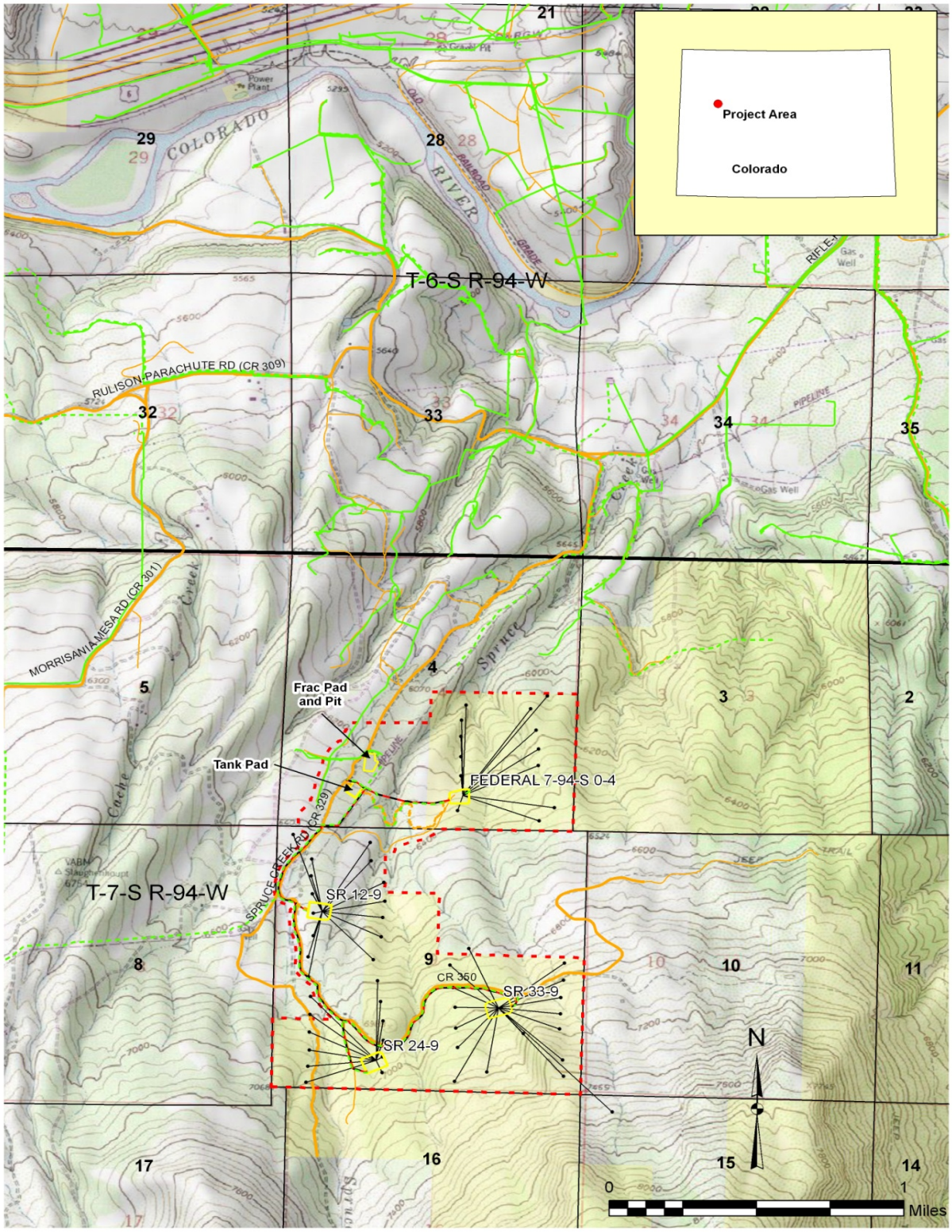
The purpose and need for action would have been met by structuring the development of the leases as a series of individual proposals. However, the current Glenwood Springs Resource Area Resource Management Plan[1] (RMP)(BLM 1999a), in addition to more recent BLM policy, specifies the use of multiple well development plan proposals as a means to more effectively manage Federal lease development.

PROPOSED ACTION

The SCMDP is intended to describe a future development strategy given current market conditions and company constraints. If fully implemented, this proposal would result in up to 58 downhole locations drilled over the course of 4 years (2008 through 2012) at four surface locations, including one existing and three new well pads (Figure 1 and Table 1). The total number of wells drilled would depend largely on factors out of Williams' control, such as geologic success, engineering technology, economic factors, availability of commodity markets, and lease notices. Implementation of the full proposed drilling schedule is anticipated to take 4 years; however, potential timing limitations, rig availability, and natural gas prices (economics) may extend this timeline.

Full development of the proposed action does not preclude additional future developments on these Federal leases. It might reasonably be anticipated that additional developments could occur in the future—either within the SCMDP or in offsite areas accessed by directional drilling techniques from pads in the SCMDP—due to alterations in downhole spacing orders or changes in environmental, economic, or technological conditions.

The proposed action would be structured as phased development in which each well pad would undergo one or both of two distinct phases: 1) exploration phase using a conventional drilling rig, and 2) development phase using an efficiency drilling rig. Phasing would be conducted such that activities associated with the exploration phase could be occurring at some well pads concurrently with activities associated with the development phase would be occurring at other pads.



Legend

- County Road
- Other Existing Road
- Existing Pipeline
- Proposed Pipeline (buried - gas, water, condensate)
- Proposed Frac Line
- Proposed Road
- Proposed Production Equipment Area
- Proposed Pad or Pit
- Downholes
- BLM
- EA Boundary

June 20, 2008

Figure 1
Spruce Creek
Master Development Plan
EA Proposed Action
Williams Production

O:\Projects\PIC\Rulison\08\0619_SpruceCreekMDPAction\ActionArea.mxd dcollett 6/20/2008 3:17:32 PM

A Regional Development Plan (RDP) would be submitted for each well pad when the application for a permit to drill (APD) is submitted. The RDP would provide detailed information for the proposed construction, drilling, completions, and operations, and steps taken during planning to minimize impacts to environmental or natural resources.

The life of the proposed project in its entirety could extend up to 35 years because the reasonable productive life of a gas well completed in the Wasatch and Mesaverde Formations is estimated to be 30 to 35 years.

The proposed action was designed after several early coordination meetings between Williams and the BLM during which various resource concerns were identified and addressed. For example, one pad location was chosen to avoid a sensitive plant population and another pad was reduced in size to avoid a riparian area.

Figure 1 and Table 1 present the locations of the proposed drilling activities and the property ownership in those areas. The area identified in the SCMDP encompasses the areas within which surface and subsurface activities are proposed on Federal property and the areas within which surface activities are proposed on private (fee) property. The SCMDP includes Federal and Fee surface in portions of section 4 and section 9, T7S, R94W.

Table 1. Proposed Action Well Pads and Wells

Well Pad	Well Pad Surface Location (Lease)*	Well Pad Surface Location (Legal)**	Proposed Number of Wells	Downhole Location (Legal)**	Downhole Location (Lease)*
Federal 7-94-S	Federal COC046030	SWSE Sec. 4	14	SE ¼ Sec. 4	Federal COC046030
SR 12-9	On private land	SWNW Sec. 9	15 (4 Fed; 11 private)	W½ Sec. 9	Federal COC006935
SR 24-9	Federal COC006935	SESW Sec. 9	12 (11 Fed; 1 private)	SW¼ Sec. 9	Federal COC006935, Federal COC056040
SR 33-9	Federal COC006935	NWSE Sec. 9	17 (16 Fed; 1 private)	SE¼ Sec. 9 NW¼ Sec. 15	Federal COC006935, Federal COC063721

*All Federal surface and subsurface property ownership in the SCMDP is BLM.
**All of the SCMDP area is within T7S, R94W.

The proposed action includes the following components, as illustrated in Figure 1:

- New well pads and expansion of an existing well pad
- New access roads and upgrades to existing roads
- New pipelines and upgrades to existing pipelines

- Staging areas for use in construction of pipelines and associated facilities
- Remote fracturing from one central frac pad
- Centralized production facilities – collecting water and fluids to a central tank battery (Figure 1.)

Exploration Phase: Conventional Drilling

The primary objective of the proposed exploratory drilling is to evaluate the following aspects of gas development in the SCMDP area:

- Potential productivity of the lease area
- Economics of drilling and completion techniques
- Feasibility of developing, capturing, producing, and transporting natural gas
- Depths or pressure windows that may be preferred as the target for economic gas production

Conventional rigs (designed to drill one to eight wells per well pad) would be used for the exploration phase of the proposed project. Conventional drilling rigs are better suited for exploratory work compared to efficiency drilling rigs because conventional drilling rigs require less space for the drilling operations and are easier to move. Efficiency drilling rigs are designed to drill many wells (up to 22 wells) from a location, and therefore, are typically not used for exploratory work.

Development Phase: Efficiency Drilling

This phase would implement new efficiency drilling rig technology which incorporates off-shore drilling methods with application to on-shore drilling. This technology allows drilling of multiple wells (up to 22) from a single location. In addition, this new technology allows for simultaneous drilling, completion, and production operations for all wells at a well pad location, thus significantly reducing the timeframe to develop all wells at the well pad location. This is referred to as simultaneous operations (SIMOPS). In general, clustered development using efficiency rigs would be used for the development phase of the proposed project because this approach:

- Reduces the need for additional well pads, roads, and traffic.
- Eliminates the need to reclaim and later re-disturb well pads because wells can be drilled with one rig visit.
- Allows an area to be “drilled out” in less time with no need to drill the same number of wells over a several-year period in the same area.
- Allows centralized production facilities for collection of produced water and condensate.

Table 2 presents the overall plan for well development in the SCMDP, identifying the specific temporal and spatial employment of the exploration phase and the development phase. This table presents the proposed drilling schedule for each well pad, as projected for the years 2008 and 2009. Williams proposes the following activities:

- Four well pads – exploration phase and development phase

Table 2. Projected Drilling Schedule for the Phased Development Process

Well Pad	Section	2008	2009	2010	2011	2012
Federal 7-94-S	4	2	7	5		
SR 12-9	9	2	7	6		
SR 24-9	9	2			7	3
SR 33-9	9	2			8	7
Number of Wells Drilled per Year		8	14	11	15	10

Table 3 presents a summary of the estimated surface disturbances that would result from implementation of the proposed action. For each project component the table presents:

- The total size of the working area, which is comprehensive in that it includes new long-term disturbance, new short-term disturbance, and further disturbance to areas of existing disturbance. Figure 1 depicts the working areas of the project components.

- The long-term disturbance associated with the footprint, which could extend up to 35 years.

- The short-term disturbance that would be reclaimed after completion activities, within 1 to 2 years.

Discussions of the project components are presented in the sections that follow Table 3.

Table 3. Summary of Estimated Surface Disturbances

Project Component	Phase	Design and Construction Features	Drilling Features	Completion Features	Production Features	Working Area (acres)*	Long-Term Footprint (acres)**	Short-Term/Interim Reclamation (acres)***
Roads								
New roads and turnouts	Exploration and Development	25-foot average running surface	N/A	N/A	N/A	4.77	2.38	2.39
Pads								
Existing well pad expansions (Federal 7-94-S)	Exploration and Development	Current size: ~2 acre wellheads, separators, cuttings trench	10,000 gallons water/well	5-7 fracture stimulation stages/well, 170,000 gallons water/fracture stimulation stage; Exploration: mobile service rig, pump trucks, sand trucks, frac tanks, mobile wireline trucks; Development: SIMOPS, Flowback Units, mobile service rig, pump trucks, sand trucks, frac tanks, mobile wireline trucks	Exploration: 1 separator per well, 1+ condensate tank/mineral interest, 2+ water tanks per pad; Development: 1 separator per well. Condensate and water to be piped to central production facility	3	2	1
New well pads (SR 12-9, SR 24-9, SR 33-9)	Exploration and Development	Wellheads, separators, reserve pit for exploration, cuttings trench for development	10,000 gallons water/well	5-7 fracture stimulation stages/well, 170,000 gallons water/fracture stimulation stage; Exploration: mobile service rig, pump trucks, sand trucks, frac tanks, mobile wireline trucks; Development: SIMOPS, Flowback Units, mobile service rig, pump trucks, sand trucks, frac tanks, mobile wireline trucks	Exploration: 1 separator per well, 1+ condensate tank/mineral interest, 2+ water tanks per pad; Development: 1 separator per well. Condensate and water to be piped to central production facility. One condensate tank will remain on the SR 33-9 pad.	13.53	6	7.53
New remote tank pad	Exploration and Development	Tankage for condensate and water	N/A	N/A	Condensate tanks and water tanks sufficient to handle volume produced (estimated 8 condensate tanks and 8 water tanks)	5.5	5.5	0
Remote frac pad at the existing RWF 24-4 Pad	Development	Fracture stimulation equipment, frac tanks	N/A	Remote frac site servicing multiple well pads, temporary surface high pressure frac pipelines, multiple frac tanks, pump trucks, sand trucks	N/A	2.1	0	2.1

Pipelines								
New gas pipelines not collocated with new roads	Exploration and Development	Locating adjacent to new access roads is not practical	N/A	N/A	Gas lines installed to each well pad	2	0	2
New gas pipelines collocated with new roads	Exploration and Development	Located adjacent to new access roads	N/A	N/A	Gas lines installed to each well pad	N/A	N/A	N/A
Condensate pipelines	Development	Located adjacent to existing access roads; collocated with gas line	N/A	N/A	Condensate lines that terminate at centralized collection facility	N/A	N/A	N/A
Produced water pipelines	Development	Located adjacent to existing access roads; collocated with gas line	N/A	N/A	Produced water lines that terminate at centralized collection facility	N/A	N/A	N/A
Temporary frac water transfer lines	Exploration and Development	Located adjacent to existing access roads; temporary surface lines	N/A	N/A	Produced water and condensate lines that terminate at centralized collection facility	N/A	N/A	N/A
Total Disturbance						**31.61**	**15.88**	**15.02**

* Working area is comprehensive in that it includes new long-term disturbance, new short-term disturbance, and further disturbance of areas of existing disturbance.

** Long-term disturbance could extend up to 35 years.

*** Short-term disturbance would be reclaimed within 1 to 2 years.

Construction, Maintenance, and use of Access Roads

The SCMDP area is accessible from Rulison, Colorado by traveling approximately 3-4 miles east on Garfield County Roads 309 and 320, then approximately 1-2 miles south on Spruce Creek Road (Figure 1).

Figure 1 and Table 3 present the road system in the SCMDP area under the proposed action. To the extent feasible, existing roads would be used to access the proposed well pad facilities. Williams proposes to construct approximately 4,159 feet of new road to access the proposed well pad facilities. Existing roads proposed in the SCMDP area currently accommodate drilling traffic so would not require upgrading or expansion.

Road construction would occur in a 50-foot wide easement. The access roads would have a 25-foot running width, including cuts and fills. Switchbacks and turnouts would be wider. All roads would be surfaced with gravel for the duration of production operations. Long-term land conversion would amount to 2.4 acres from the construction of new roads. Short-term disturbance (1 to 2 years) during road construction would be a maximum of 4.8 acres (Table 3).

The timing of road work would be dependent upon the drilling schedule (Table 2); roads would be constructed as needed to access well pads for drilling. For the SCMDP as a whole, all road construction would occur during the first year of exploration.

For well pads where both exploration and development are proposed, the road system used during the exploration phase would also be adequate for the development phase; no additional road work would be required when moving from the exploration phase to the development phase to access a given well pad.

Maintenance of the roads used to access well locations would continue until final abandonment and reclamation of the well locations, at which point the roads would also be reclaimed. A regular road maintenance program would include, but is not limited to blading, ditching, culvert installation and cleanout, weed control, and gravel surfacing where excessive rutting or erosion may occur. Roads would be maintained in a safe and usable condition. Access roads would be reclaimed in accordance with the BLM reclamation COA.

Estimates of Traffic and Work Force

Estimated traffic requirements for drilling and completion operations are shown in Table 4 for the exploration phase (8 wells) and in Table 5 for the development phase (54 wells). The “Trip Type” column lists the various service and supply vehicles that would travel to and from the well sites and production facilities. The “Round-Trip Frequency” column lists the number of trips. The figures provided in these tables are estimates. The level of drilling and production activity may vary over time in response to weather and other factors.

Pad Design, Construction, Restoration, and Abandonment

Figure 1 and Table 3 present the proposed system of pads in the SCMDP area. The three main pad functions associated with the proposed project include:

- Well pads: consist of wellheads, separators, and temporary completion equipment (flowback units and tanks)

Table 4. Traffic Estimates for Exploration Phase Drilling and Well Completion for Eight Wells

Trip Type	Roundtrip Frequency
Drilling (1 conventional drilling rig, 4 well pads, 8 wells, 17 days per well, 136 days total)	
Drilling rig crews (1 rig, 2 crews/rig)	2/day
Conventional drilling rig move [a]	10/pad
Drill bit/tool delivery	6 biweekly
Mechanics/Welders	4/week
Supply delivery	4/week
Fresh water truck [b]	3/day
Fuel trucks	5/week
Wireline unit	2/well
Cement trucks and crew	12/well
Subtotal	**1,171 trips within 136-day period**
Completion (1 rig, 4 well pads, 8 wells, 4 days per well, 32 days total)	
Service rig (or coiled tubing unit or snubbing unit) [c]	4/well
Service rig crew	1/day
Wireline unit	6/well
Consultant	2/day
Frac/produced water trucks [d]	160/well
Pump trucks	6/well
Sand trucks	6/well
Equipment trucks (frac tanks)	50/pad
Equipment trucks (other equipment)	2/well
Testing and operations	8/well
Subtotal	**2,116 trips within 136-day period**
TOTAL	**3,287 trips**

[a] Four trucks and a crane would be required to move each rig to and from each well pad within the SCMDP. Unlike efficiency rigs, conventional rigs require some equipment to "skid" to the adjacent location on a pad. When drilling is complete on a pad, the rig would move to the next pad or outside the SCMDP.

[b] Williams contracts with trucking companies who have their own legal sources of water to provide fresh water for drilling purposes and dust control.

[c] During the completion process, any or all of these types of units may be used. The average use for all such units per well is noted.

[d] On average, a well will require 4,000 barrels of water for each fracture stimulation stage, and there may be as many as seven stages per well. This water is supplied by Williams' water recycling facilities located in the Grand Valley and Rulison Fields. The frac water is recycled and reused for subsequent wells. As much as 50 percent of the frac water is returned within 1 week; therefore, additional trucked water is needed to replenish. The number of water truck trips noted is an estimate for two wells on one pad with a 50 percent replenishment rate and subsequent trucking of water off the pad once the wells are fully completed.

Table 5. Traffic Estimates for Development Phase Drilling and Well Completion for 50 Wells

Trip Type	Roundtrip Frequency
Drilling (1 efficiency drilling rig, 4 well pads, 50 wells, 12 days per well, 600 days total)	
Rig crews (1 rig, 2 crews/rig)	2/day
Efficiency drilling rig move [a]	16/pad
Drill bit/tool delivery	3/week
Mechanics	4/week
Supply delivery	4/week
Fresh water truck [b]	3/day
Fuel trucks	3/week
Wireline unit	2/well
Cement trucks and crew	12/well
Subtotal	**4,964 trips within 600-day period**
Completion on remote frac site[d] (4 pads, 50 wells, 4 days per well, 200 days total)	
Frac/produced water trucks [e]	• 160 to remote frac site/well • 0 to well pad
Pump trucks	• 6 to remote frac site/well • 0 to well pad
Sand trucks	• 6 to remote frac site/well • 0 to well pad
Equipment trucks (frac tanks)	• 32 to remote frac site/well • 0 to well pad
Testing and operations	• 0 to remote frac site • 2 to well pad/day
Subtotal	**11,800 trips within 200-day period**
TOTAL	**16,764 trips**

[a] Eight trucks and a crane would be required to move an efficiency rig to and from each well pad within the SCMDP area. Unlike conventional rigs, efficiency rigs do not require outside equipment to "skid" to the adjacent location on a pad. When drilling is complete on a pad, the rig would move to the next pad or outside the SCMDP area.

[b] Williams contracts with trucking companies who have their own legal sources of water to provide fresh water for drilling purposes and dust control.

[c] During the completion process, any or all of these types of units may be used. The average use for all such units per well is noted.

[d] On average, a well will require 4,000 barrels of water for each fracture stimulation stage, and there may be as many as seven stages per well. This water is supplied by Williams' water recycling facilities located in the Grand Valley and Rulison Fields. The frac water is recycled and reused for subsequent wells. As much as 50 percent of the frac water is returned within 1 week; therefore, additional trucked water is needed to replenish. The number of water truck trips noted is an estimate for two wells on one pad with a 50 percent replenishment rate and subsequent trucking of water off the pad once the wells are fully completed.

[e] Assuming no water replenishment system in place.

- Frac pads: consist of sufficient space to temporarily hold equipment required to perform **fracture stimulation** services

- Production pads: consist of any tankage required to hold produced water or condensate

Williams proposes to construct three new well pads and expand one existing new well pads, all of which would be fraced remotely from a single centralized frac pad (Table 3, Figure 1). The working pad size includes the areas that would be used during construction, drilling, and completion activities. Efficiency rigs require a larger working pad size compared to conventional rigs to accommodate the equipment necessary to drill more wells in one location. Each of the four well pads would ultimately be designed and built to a size that would accommodate efficiency drilling rigs, while keeping surface disturbance to a minimum at each well pad location. For the exploration phase at these well pads, the well pads may be built large enough to accommodate efficiency rigs, or the well pads may initially be built only to accommodate conventional rigs and then enlarged at a later date to prepare the well pad for efficiency rig drilling. After completion operations, all of these pads would be reduced in size to a long-term footprint.

The proposed action also includes the use of one existing well pad (Table 3, Figure 1), Federal Rulison 7-94-S 0-4. This pad would be expanded to a working pad size that would accommodate an efficiency rig and, after completion operations, would be reduced in size to a long-term footprint that is approximately equal to the current pad size. Production equipment associated with wells on this pad would be located on a newly constructed pad adjacent to the access road.

Additional proposed pads include one remote frac pad in the southwest ¼ of Section 4 that would be reclaimed once completion of the last well drilled is finished. This pad would not be used as a drilling location (Table 3, Figure 1).

Each pad would be leveled using cut and fill construction techniques, where needed. The top 6 to 8 inches of soil (more if available) and associated vegetative material would be removed and stockpiled prior to constructing each pad. Stormwater controls would be installed on all pads, as needed.

For the exploration phase, one reserve pit for drilling muds would be used at each drilling location. The reserve pits would be designed and constructed according to BLM requirements. Williams uses water-based drilling muds that do not contain hazardous substances. Material safety data sheets (MSDSs) would be available at each well pad location. The reserve pits would be open to allow for evaporation of pit fluids, as allowed under Federal and state regulations. Reserve pit fluids would be evaporated, removed, or solidified, and the pits would be closed as soon as practical but no longer than current regulations allow (typically within 1 year from the date drilling operations reached total depth).

A reserve pit is not required for efficiency rigs because they operate using a closed system. However, there is a need to dispose of drill cuttings. Therefore, instead of a reserve pit, a cuttings trench would be constructed. This trench is typically at the same location as the drilling rig and constructed large enough to handle all of the cuttings generated. All produced well cuttings would be disposed of in trenches specifically sized for their volume (approximately 500 cubic yards per well) with all stormwater controls specified by state and Federal regulations. In cases where the necessary volume is unavailable on site (i.e., due to unforeseen events such as bedrock that prohibits deep trenches), a backup site may be needed. This site would be constructed to meet all the applicable regulations.

With all pads combined, the proposed action would result in up to 15.88 acres of long-term (up to 35 years) disturbance from pads. With all pads combined, the proposed action would also result in up to 15.73 acres of short-term (1-2 years) disturbance from pads. Because the proposed action is phased development, for the SCMDP as a whole, pad construction and drilling would occur periodically

throughout the 4-year drilling period. The timing of pad work would be dependent upon the drilling schedule (Table 2); pads would be constructed or expanded periodically as needed for drilling.

In addition to the pads discussed above, there are expected to be 2 staging areas strategically placed throughout the SCMDP area to aid in construction of pipelines and associated facilities (Table 3, Figure 1). Staging areas would be approximately 1 acre and would be located within disturbances associated with pipeline, road, or pad construction, so would not contribute additional surface disturbance to the total disturbance within the EA area.

Williams would completely reclaim all disturbed areas that are not needed for production operations through the BLM's reclamation COA (Appendix to be completed with EA) and the interim and final reclamation procedures presented in Section 2.8 Best Management Practices, Design Features, and Mitigation Measures.

Drilling Operations

All wells would be directionally drilled to locations within the Federal leases held by Williams (lease numbers COC 046030, COC 006935, COC 063721, and COC 056040,) or fee leases held by Williams. Figure 1 illustrates the boundaries of these leases.

Within this portion of the Piceance Basin, drilling wells from the surface to their total depth takes up to 25 days using conventional rig technology or efficiency rig technology.

Fresh water for use in drilling operations and dust control would be obtained from authorized sources, typically through contractors who have their own legal sources of water. Water would be trucked to the site. The actual volume of water used in drilling operations would depend on the depth of the well and any losses that might occur during drilling. Approximately 260 barrels of water (10,000 gallons) would be needed to drill each well, for a total of up to 620,000 gallons (1.902 acre-foot) of water for the proposed drilling operations. This estimate also includes any water that would be needed for dust control on access roads.

No oil or other oil-based drilling additives, chromium/metals-based mud, or saline mud would be used during drilling of the proposed wells. Only fresh water, biodegradable polymer soap, bentonite clay, and non-toxic additives would be used in the mud system. Any produced crude oil or condensate would be contained in on-site test tanks.

Depending on the location, each producing well would be drilled to an approximate depth of 6,000 feet to 8,000 feet (measured depth [MD]). Natural gas would be produced through perforations in the casing (see completion operations). The well control system would be designed to meet the conditions likely to be encountered in the hole and would conform to BLM requirements.

During the development phase, drill cuttings would be managed by burying them in the cuttings trench, as described above. Each well would generate approximately 500 cubic yards of cuttings. The cuttings are generally managed as they are generated so that once all the wells are drilled, all that remains is to cap the trench with native soils and recontour the area. If the size of the well pad is not sufficient to support a cuttings trench large enough to hold all of the cuttings, an off-site cuttings disposal site may be required.

Completion Operations

Completion operations are processes applied to the well bore after drilling has finished. These steps include running casing, perforating casing, and fracing, steps necessary to produce hydrocarbons from a well.

Fracture stimulation is a method for stimulating a rock formation next to a well bore to increase production of oil, gas, and other fluids from the rock formation. Fracture stimulation consists of pumping a water and proppant (sand) mixture at high rates and pressures into the rock intervals that contain natural gas. The water is produced back leaving the proppant behind to keep the small fracture open. A fracture stimulation stage is the particular subsurface zone being fracture stimulated at any given time. Each proposed well would use approximately 170,000 gallons of water per fracture stimulation stage, and there would be five to seven fracture stimulation stages per well. The water used for completion operations would be recycled produced water from wells operated by Williams throughout the valley. It is not anticipated that other sources of water would be necessary.

Exploration Phase: Conventional Drilling

Fracture stimulation and other completion operations during the exploration phase would be conducted on-site at each well pad. The fracture stimulations are typically conducted without a service rig and consist of pump trucks, sand trucks, and frac tanks. Mobile wireline trucks would be used to set plugs between zones and to set plugs in the wellbore to isolate the stimulations. Once the wells have completed all of the fracture stimulations, a mobile service rig (or coiled tubing unit or a snubbing unit) would be used to drill out all the plugs, clean out the wellbore, and land the production tubing.

Completion operations are expected to average 20 to 25 days per well, which includes all of the time to fracture stimulate each zone, drill out the plugs, and install the production tubing. During this time, natural gas is expected to be sold instead of vented or flared, as it is anticipated that gas gathering lines would be in place prior to the completion. If not, the well may be shut in or the gas may be vented for up to 30 days or until the gas gathering line is in place, whichever is less.

All water produced during this time would be recycled for use in subsequent fracture stimulations, and the condensate produced would be stored in tanks for sale.

Development Phase: Efficiency Drilling

Using SIMOPS, the time to complete a well drilled with an efficiency rig would be the same as with a conventional rig; however, drilling and completion operations would be done simultaneously. Figure 2 illustrates the process of SIMOPS drilling, completion, and production. As drilling for one well completes, the drilling rig moves either laterally or down the cellar[1] to the next new well surface location. Once four drilled wells are exposed, completion procedures can begin on the exposed, previously drilled well heads. Using SIMOPS, the completion operations do not need to wait until all wells have been drilled and the drilling rig moves off location.

Frac equipment would be located at a centralized location, as noted in Table 3, while completion equipment would be located on the pad containing the wells being completed. Fracture stimulation during the development phase would be conducted from the proposed remote frac pad for all four well pads (Figure 1).

Either temporary surface or buried pipelines would be used to transport completion fluids between the remote frac site and the well pad at which completion operations are being conducted.

Flowback fluids would be processed through flowback units on the well pad to separate the sand from the gas and liquids and subsequently processed in a three-phased separator to separate the gas from the produced water and condensate. The gas would be metered and delivered to the gas gathering system. The water and condensate would be separated and sent to tanks. Produced water would be recycled for subsequent fracture stimulations or transported by truck or pipeline to approved collection facilities. Condensate would be tank gauged and sold via truck.

The location of the completion facilities would be finalized once the development phase is initiated, and the information would be provided in the RDPs. Wherever feasible, completion operations would be conducted using existing disturbed areas. Pipelines would be located adjacent to existing access roads wherever practical. In the event that equipment or temporary surface lines would need to be located in previously undisturbed areas (as identified in the RDP), Williams would consult with BLM to ensure all facilities are placed in locations that would not adversely affect resource concerns.

Well Production Facilities

Production facilities would be designed and installed to accomplish the following objectives:

1. Separate well stream fluids into manageable products (gas, condensate, and water) from each well individually.

2. Deliver each product to its ultimate destination. Natural gas would be delivered to the gas gathering system via pipeline. Condensate would be pipelined or trucked to a point at which it can be sold, and water would be transported via pipeline or truck to its next destination (either the Rulison Evaporation Facility or the site of future fracture stimulation staging areas).

3. Accurately meter the volume of gas and condensate produced from each well/lease to assure mineral interest owners receive the correct value for these components. Each well can be controlled (choked) separately and production rates can be determined for each well every day. Natural gas would be metered prior to entering the gas gathering system. Condensate would be tank gauged or metered prior to sales.

To the extent feasible, Williams would consolidate the use of production facilities. The proposed system of gathering lines in the SCMDP is presented in **Figure 1** and **Table 3**, which consists of installation of new pipelines and upgrading of existing pipelines.

Exploration Phase: Conventional Drilling

During the exploration phase, the production equipment located on-site at each well pad would consist of one separator per well and one blow-down condensate tank. Produced water and condensate would be transported from each well pad to the centralized collection site via buried pipelines (Table 3).

A gas gathering pipeline would be installed from each well pad site to transport gas to its final destination. The gas gathering pipelines would be constructed with steel pipe rated to handle the expected pressures and temperatures. This pipe would be buried where appropriate. Where possible, the gathering system would be located adjacent to access roads. Because the proposed action is phased development, for the SCMDP as a whole, installation of the gas gathering pipeline system would occur periodically throughout the 4-year period as pads are drilled and wells are brought onto production.

Pipeline construction would occur within a 50-foot wide easement, which is the maximum anticipated surface disturbance from this activity. The proposed action includes approximately 10,903 feet of gas

pipeline construction and upgrades, of which 1,740 feet would not be located in existing ROW or collocated with proposed roads. This would result in up to 2 acres of surface disturbance (Table 3). These impacts would be short-term, as pipeline corridors would be reclaimed to BLM specifications (Appendix to be completed with EA) as soon as practical after trenching and backfilling are complete (within 6 to 9 months). After construction, cut and fill slopes would be water-barred or regraded to conform to the surrounding topography and reclaimed to pre-disturbance appearance.

Development Phase: Efficiency Drilling

The equipment required for production during the development phase includes one separator per well (usually bundled into units that can handle four wells each), as well as multiple water and condensate tanks (Table 3). Prior to the drilling of wells by the efficiency rig, production facilities would be installed for all four of the pads planned for efficiency drilling. Installation of these facilities prior to the drilling of the wells is necessary in order to perform SIMOPS.

During the development phase, gas would be metered at each separator and delivered down steel gas pipelines, as described for the exploration phase.

Once separated, the condensate would be conveyed down a dedicated condensate pipeline (installed in the same trench as the gas lines) to a central water and condensate tank facility (as noted in Table 3). There would be a separate condensate pipeline for each mineral interest for royalty purposes. As the ownership of the condensate is the same for all of the wells sharing a condensate tank, individual production rates are not necessary for allocation of revenue; however, condensate production would be metered on each condensate pipeline. There would be one condensate tank on the SR 33-9 to hold the condensate from a well drilled in lease COC 63721. This well's condensate cannot be commingled with the other wells on this pad.

The produced water would also be conveyed by a pipeline that terminates at a centralized collection facility (as noted in Table 3).

Condensate and water lines that are installed as part of this project would be collocated with the gas gathering system; therefore, these pipelines would not contribute to the total acres of surface disturbance. By transporting the condensate and water down pipelines to central locations, trucking to recover fluids (condensate and water) is substantially reduced.

No new compressor stations[1] are anticipated within the SCMDP.

Production Operations and Maintenance

Williams would operate all wells, pipelines, and ancillary production facilities in a safe manner, as set forth by standard industry operating guidelines and procedures. Routine maintenance of producing wells would be necessary to maximize performance and to recover all of the economic reserves possible. Critical data for each well would be accessible via telemetry with the host computer system in Williams' Parachute, Colorado office. Using this system, daily travel to each location is not necessary, as the parameters can be viewed and controlled remotely. Each well location would be visited several times per week to ensure that operations are proceeding in an efficient and safe manner. The visits would include checking separators, meters, valves, fittings, and on-site storage of produced water and condensates. The on-site equipment also would be routinely maintained, as necessary. Additionally, all roads and well locations would be regularly inspected and maintained to minimize erosion and assure safe operating conditions.

The exploration phase of the proposed action would be used to assess the productivity of the downhole resources accessed by each well pad and to select well pads for further development. All four well pads are proposed for both exploration and potential full development under this proposed action (**Table 2**). Wells may be plugged and abandoned and well pads reclaimed if the wells are dry or non-producing.

Best Management Practices, Design Features, and Mitigation Measures

This section presents Best Management Practices (BMPs), design features, and mitigation measures that would be incorporated during implementation of the proposed action to minimize impacts to environmental or natural resources. Measures to be incorporated are also presented in the Master APD (Williams 2006a – Appendix C).

General

- Williams would implement BMPs consistent with its environmental programs and in accordance with recommended state and Federal guidance and regulations. Existing disturbed areas would be used to the maximum extent practical.

- Any spills or releases of regulated wastes or materials would be investigated, responded to, and remediated in accordance with BLM, Colorado Oil and Gas Conservation Commission (COGCC), and Colorado Department of Health and Environment (CDPHE) regulations and guidance.

Construction

- Well pad locations, access roads, and ancillary facilities have been located and will be constructed and maintained to avoid or minimize disturbance to natural and cultural resources, including perennial and intermittent streams, wetlands, and wildlife.

- New roads would be constructed and existing roads maintained in accordance with the minimum standards for a BLM Resource Road, as outlined in BLM Manual 9113, and construction details outlined in the COAs.

- For all construction activities, stormwater controls would be placed to control erosion and sediment and materials runoff, in accordance with BLM requirements and state (CDPHE) stormwater regulations, permits, and plans.

- All construction activities that may affect “waters of the United States” as defined by Federal regulation would be evaluated to determine applicability of the U.S. Army Corps of Engineers (USACE) 404 permitting process, including Nationwide Permits.

- Water free of unacceptable contaminants, substances, or materials would be used for dust abatement, where deemed necessary. This water would be obtained from authorized sources, typically through contractors who have their own legal source of water.

- Signs would be posted as required by BLM to control traffic hazards and speed.

Drilling and Completion Operations

- All materials used for drilling and completion operations would be managed to avoid or minimize the potential for an-offsite release. This may include berms, tarps, diversion ditches, and other

acceptable methods. During the time that reserve pits are open, the pits would be closed off from wildlife and livestock by two strands of barbed wire above a woven wire fence.

- Water-based drilling muds would be used during the drilling process. MSDS sheets would be maintained on-site for both drilling and completion materials.

- All non-hazardous waste materials would be disposed of as required by state and county regulations.

- Closed loop drilling mud systems would be used with efficiency rigs. If reserve pits are used to contain fluids, they would be evaluated under Williams' Migratory Bird Management Plan to determine the need for netting or other exclusionary methods to protect wildlife.

- Completion fluids would be recycled as much as possible on the same location as the frac pumps to minimize trucking.

Production Equipment and Pipelines

- Topsoil and overburden material would be stockpiled and segregated.

- To minimize surface disturbance, wheel trenchers (ditchers) or ditch witches would be used where possible to construct pipeline trenches.

- If trenches greater than 0.25 mile in length are open for the installation of pipelines, Williams would consult with BLM to determine the need for plugs and access bridges to allow livestock and wildlife to cross the trench.

- Pipelines would be reclaimed within 6 to 9 months with BLM prescribed seed mixes on Federal lands, and landowner prescribed seed mixes on private lands.

Production Operations and Maintenance

- Production equipment would be equipped with solar panel-powered remote communications to monitor gas, water, and condensate levels so as to minimize traffic to and from well pads. Wherever possible, equipment would be clustered in a single location.

- Following development of all wells within a prescribed area, gates and fences would be installed to allow for only required traffic to maintain production equipment and allow a workover rig every few years as dictated by maintenance needs. Public access would not be allowed on any newly constructed roads.

- All tanks would be managed in accordance with Federal Spill Prevention Countermeasures and Controls (SPCC) and BLM regulations, including Onshore Order No. 7, as applicable.

Interim Reclamation

After completion activities, Williams would reclaim all disturbed areas not needed for production. The areas that would undergo interim reclamation are presented in **Table 3** as short-term surface disturbance.

- Within 1 year of well completion, Williams would stabilize the disturbed area by recontouring, mulching, providing run-off and erosion control, seeding with BLM-prescribed native seed mixes

(or sterile non-native grasses for seeding of topsoil piles), and conducting weed control, as necessary.

Abandonment

Upon abandonment, each borehole would be plugged and abandoned and the associated surface equipment would be removed. Subsurface pipelines would be purged and plugged at specific intervals. A Sundry Notice would be submitted by the operator to the BLM that describes the engineering, technical, or environmental aspects of final plugging and abandonment. This notice would describe final reclamation procedures and any mitigation measures associated with the final reclamation performed by the operator. The BLM and COGCC standards for plugging would be followed. A configuration diagram, a summary of plugging procedures, and a job summary with techniques used to plug the well bore (e.g., cementation) would be included in the Sundry Notice.

Final Reclamation

All surface disturbances would be reclaimed in accordance with the GSEO reclamation policies, including the Conditions of Approval (Appendix A) and the Noxious and Invasive Weed Management Plan for Oil and Gas Operators (BLM 2007a). Reclamation would include the following objectives:

- Recontour all disturbances to approximately the topography that existed prior to construction, and re-spread topsoil.

- Restore primary productivity of each site and establish diverse native vegetation that provides for natural plant and community succession.

- Establish native vegetation that is a vigorous and self-sustaining stand of desirable native plant species resistant to the invasion of noxious or undesirable species.

- Noxious weeds and other undesirable plant species inadvertently introduced due to soil disturbance during construction activities would be monitored and treated over the life of the project by methods approved by the Authorized Officer. Any herbicides needed for the control of noxious weeds and other undesirable species would be identified in a Pesticide Use Permit (PUP). The PUP would be placed on record with the BLM.

- In the long-term, reclaimed landscapes should have characteristics that approximate the original visual qualities and plant species composition of the surrounding area.

NO ACTION ALTERNATIVE

The proposed action involves Federal subsurface minerals that are encumbered with Federal oil and gas leases, which grant the lessee a right to explore and develop the lease. Although BLM cannot deny the right to drill and develop the leasehold, individual APDs can be denied to prevent unnecessary and undue degradation. The no action alternative constitutes denial of the APDs associated with the proposed action. However, there are elements of the proposed action that do not require Federal approval prior to implementation. For example, of the 15 wells proposed on the SR 12-9 pad, only 4 are on a Federal lease. The SR 12-9 pad, therefore, would likely be developed even if the APDs associated with the Federal leases are denied.

Although the development of the fee wells would not result from the selection of the no action alternative necessarily, impacts to the affected environment would occur from the development of the private surface location. These effects provide the basis for comparison to the impacts of the proposed action.

For the purpose of the following comparative analysis, the no action alternative includes the drilling and completion of one well pad (SR 12-9) and 11 wells. The development of up to 47 wells and associated access roads and pipelines involving Federal surface and/or Federal mineral estate would not occur.

Summary of Lease and Grant Stipulations

Each of Williams' Federal oil and gas leases include stipulations intended to protect natural resource values. Table 6 provides a summary of lease and grant stipulations that would apply to the proposed action. Not all elements of the proposed action are subject to the same stipulations.

Table 6. Lease Stipulations (NSO = No Surface Occupancy, TL = Timing Limitation, CSU = Controlled Surface Use, LN = Lease Notice, AO = Authorized Officer)

Lease Number	Description of Lands	Stipulations
COC06935 (1955)	ALL LANDS within lease	No special stipulations
COC07506 (1955)	All LANDS within lease	No special stipulations
COC46030 (1987)	ALL LANDS within lease	**TL**: In order to protect important seasonal wildlife habitat, exploration, drilling and other development will be allowed only during the period from April 30 to January 15
COC56040 (1994)	T7S R94W SEC 11:SENE,SE (Sec 11 is **not** in GAP)	**CSU**: Protecting Fragile Soils. Prior to surface disturbance of fragile soils it must be demonstrated to the Authorized Officer through a plan of development that the specific performance objectives will be met.
	ALL LANDS within lease	**LN**: An inventory of fossil resources in Class I and II paleontological areas must be performed by an accredited paleontologist approved by the Authorized Officer
	ALL LANDS within lease	**LN**: Special biological and/or botanical inventory and special mitigative measures to reduce impacts of surface disturbance to the sensitive plant or animal species may be required.
COC63721 (2000)* *No surface locations	T7S, R94W, 6th PM Sec. 15: N2, N2S2 Sec. 13: S2NW	**CSU:** For the purpose of protecting fragile soils. Prior to surface disturbance of fragile soils, it must be demonstrated to the Authorized Office through a plan of development that the following performance objectives will be met: • Maintain soil productivity of the site • Protect of-site areas by preventing accelerated soil erosion • Protect water quality and quantity of adjacent surface and groundwater sources • Select the best possible site for development to prevent impacts to soil and water resources See lease COC63721 for further details on fragile soil classification.

COC63721 (No surface locations)	T7S, R94W, 6th PM Sec. 14: E2NW, W2SW	**CSU:** For the purpose of protecting perennial water impoundments and streams, and/or riparian/wetland vegetation activities.
	ALL LANDS within lease	**LN:** An inventory of fossil resources in Class I and II paleontological areas must be performed by an accredited paleontologist approved by the Authorized Officer.