

**U.S. Department of the Interior
Bureau of Land Management
Colorado River Valley Field Office
2300 River Frontage Road
Silt, Colorado 81652**

Section 390 Categorical Exclusion for Oil and Gas Development

NUMBER: DOI-BLM-CO-N040-2011-0041-CX (390)

CASEFILE/PROJECT NUMBER: COC62161 and COC62162 (Federal Oil and Gas Leases)

PROJECT NAME: Proposal to Drill 21 Federal Wells and Pad Expansion of the Existing DOE 1-W-20 Well Pad in the Cottonwood Area, West of Rulison, Colorado.

LEGAL DESCRIPTION: Township 6 South (T6S), Range 95 West (R95W), Section 20, Sixth Principal Meridian.

APPLICANT: Williams Production RMT Company

DESCRIPTION OF PROPOSED ACTION: Williams Production RMT Company (“Williams”) proposes to directionally drill 21 additional Federal oil and gas wells (Table 1) from an existing Federal surface pad located on BLM land (Figure 1). The pad currently supports four wells and is split into an upper and lower tier; the revisit to drill 21 additional wells results from Williams’s need to access difficult bottomhole locations within the two leases.

The existing DOE 1-W-20 pad is in a state of interim reclamation, having been seeded in 2002. The pad would be reconstructed with new disturbance along all sides of the pad. The most significant new disturbance would be a culvert to be placed in the drainage east of the current disturbance. Fill would be placed around and over the culvert during pad expansion. The additional space is needed to accommodate equipment used during drilling and completion activities. Adding 4.5 acres (pad and road) acres of new disturbance to accommodate the new wells (Figure 3) would increase the total disturbance to 5.9 acres. At the time of interim reclamation of the expanded pad, the culvert would be removed and the drainage would be restored to its original shape and depth. The slopes would be terraced to allow for erosion control and seeding. Figures 4 and 5 provide information on the interim and final reclamation plans, respectively.

The existing road would continue to service the well pad with slight modifications during the pad expansion phase to match the grade of the road with the well pad. The pipelines are currently being upgraded to service the pad under right-of-way grants. A buried 4-inch poly (flex pipe) produced water pipeline is in the process of being installed from the DOE 1-W-20 pad to the Cottonwood Tank Facility under right-of-way grant COC07473. An 8-inch-diameter buried steel natural gas pipeline is being installed from the DOE 1-W-20 pad to the PA 11-28 pad. Both pipelines are being buried in an existing 35-foot-wide right-of-way corridor adjacent to an existing access road. Both lines would be completed before the pad expansion occurs.

Table 1. Surface and Bottomhole Locations of Proposed Federal Wells			
<i>Proposed Wells</i>	<i>Federal Lease</i>	<i>Surface Locations T6S, R95W, Section 20</i>	<i>Bottomhole Locations T6S, R95W, Section 20</i>
PA 44-20	COC62161	528 feet FSL, 1686 feet FEL	617 feet FSL, 703 feet FEL
PA 24-20	COC62161	539 feet FSL, 1693 feet FEL	902 feet FSL, 1636 feet FWL
PA 43-20	COC62161	571 feet FSL, 1671 feet FEL	2644 feet FSL, 639 feet FEL
PA 344-20	COC62161	535 feet FSL, 1684 feet FEL	951 feet FSL, 734 feet FEL
PA 324-20	COC62161	518 feet FSL, 1701 feet FEL	176 feet FSL, 1977 feet FWL
PA 33-20	COC62161	567 feet FSL, 1683 feet FEL	2311 feet FSL, 2071 feet FEL
PA 343-20	COC62161	556 feet FSL, 1676 feet FEL	1998 feet FSL, 753 feet FEL
PA 433-20	COC62161	574feet FSL, 1680 feet FEL	2665 feet FSL, 2086 feet FEL
PA 533-20	COC62161	560 feet FSL, 1685 feet FEL	1965 feet FSL, 2160 feet FEL
PA 434-20	COC62161	546 feet FSL, 1690 feet FEL	1303 feet FSL, 2429 feet FEL
PA 534-20	COC62161	532 feet FSL, 1696 feet FEL	583 feet FSL, 2088 feet FEL
PA 443-20	COC62161	564 feet FSL, 1673 feet FEL	2340 feet FSL, 614 feet FEL
Pa 543-20	COC62161	549 feet FSL, 1678 feet FEL	1624 feet FSL, 784 feet FEL
PA 444-20	COC62161	542 feet FSL, 1681 feet FEL	1293 feet FSL, 1004 feet FEL
PA 524-20	COC62161	525 feet FSL, 1699 feet FEL	555 feet FSL, 1813 feet FWL
PA 333-20	COC62161	553 feet FSL, 1688 feet FEL	1645 feet FSL, 2323 feet FEL
PA 544-20	COC62161	521 feet FSL, 1689 feet FEL	255 feet FSL, 453 feet FEL
<i>Proposed Wells</i>	<i>Federal Lease</i>	<i>Surface Locations T6S, R95W, Section 20</i>	<i>Bottomhole Locations T6S, R95W, Section 29</i>
PA 521-29	COC62162	507 feet FSL, 1695 feet FEL	170 feet FNL, 2576 feet FWL
PA 431-29	COC62162	500 feet FSL, 1697 feet FEL	586 feet FNL, 2086 feet FEL
PA 621-29	COC62162	504 feet FSL, 1706 feet FEL	360 feet FNL, 2023 feet FWL
PA 421-29	COC62162	493 feet FSL, 1700 feet FEL	681 feet FNL, 2009 feet FWL

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

Name of Plan: *Glenwood Springs Resource Management Plan (RMP)*, approved in 1984 and revised in 1988 (BLM 1984). Relevant amendments include the *Oil and Gas Plan Amendment to the Glenwood Springs Resource Management Plan* (BLM 1991) and the *Oil & Gas Leasing & Development Record of Decision and Resource Management Plan Amendment* (BLM 1999).

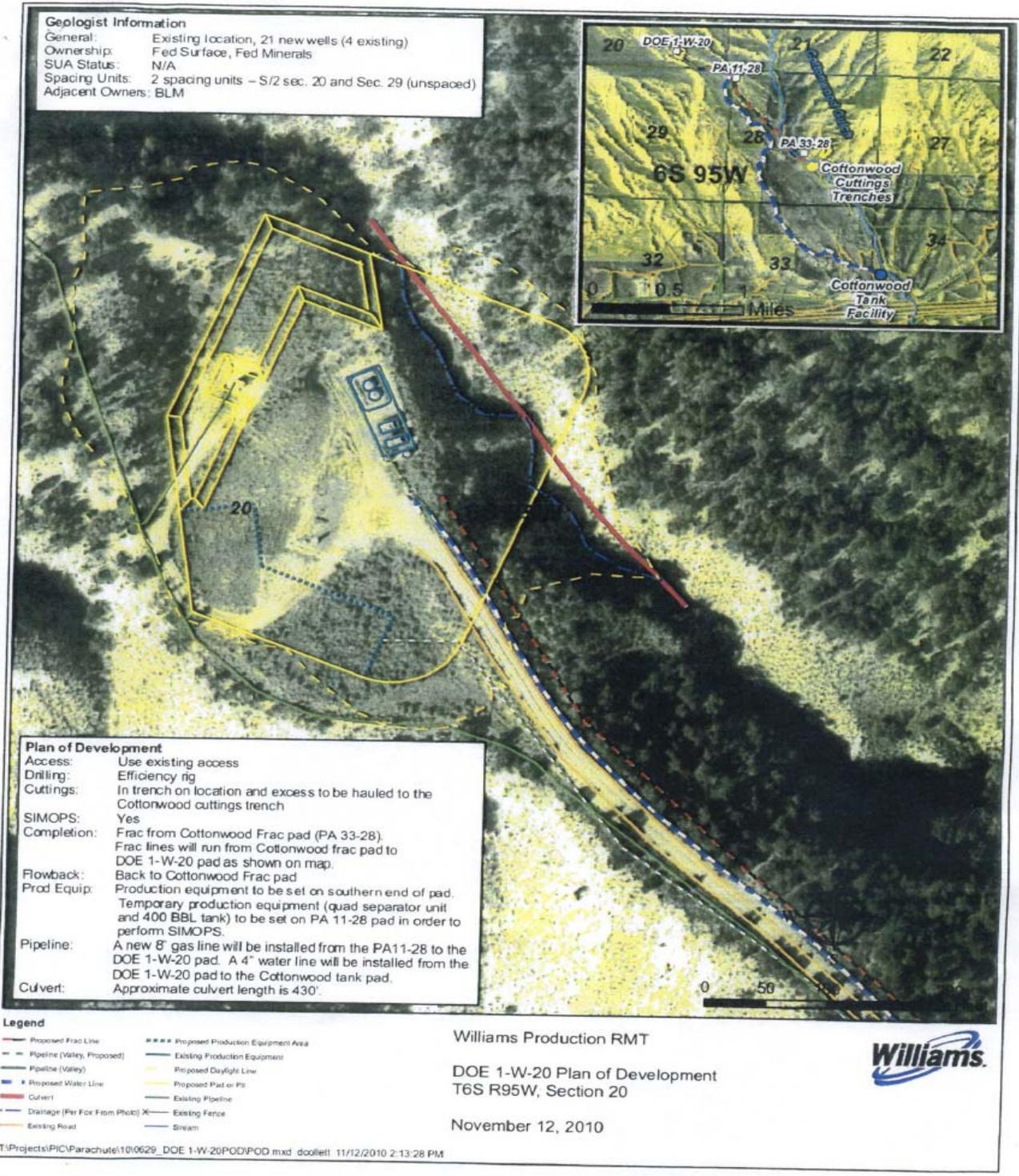


Figure 2. Aerial Map of Existing DOE 1-W-20 and Proposed Pad Expansion

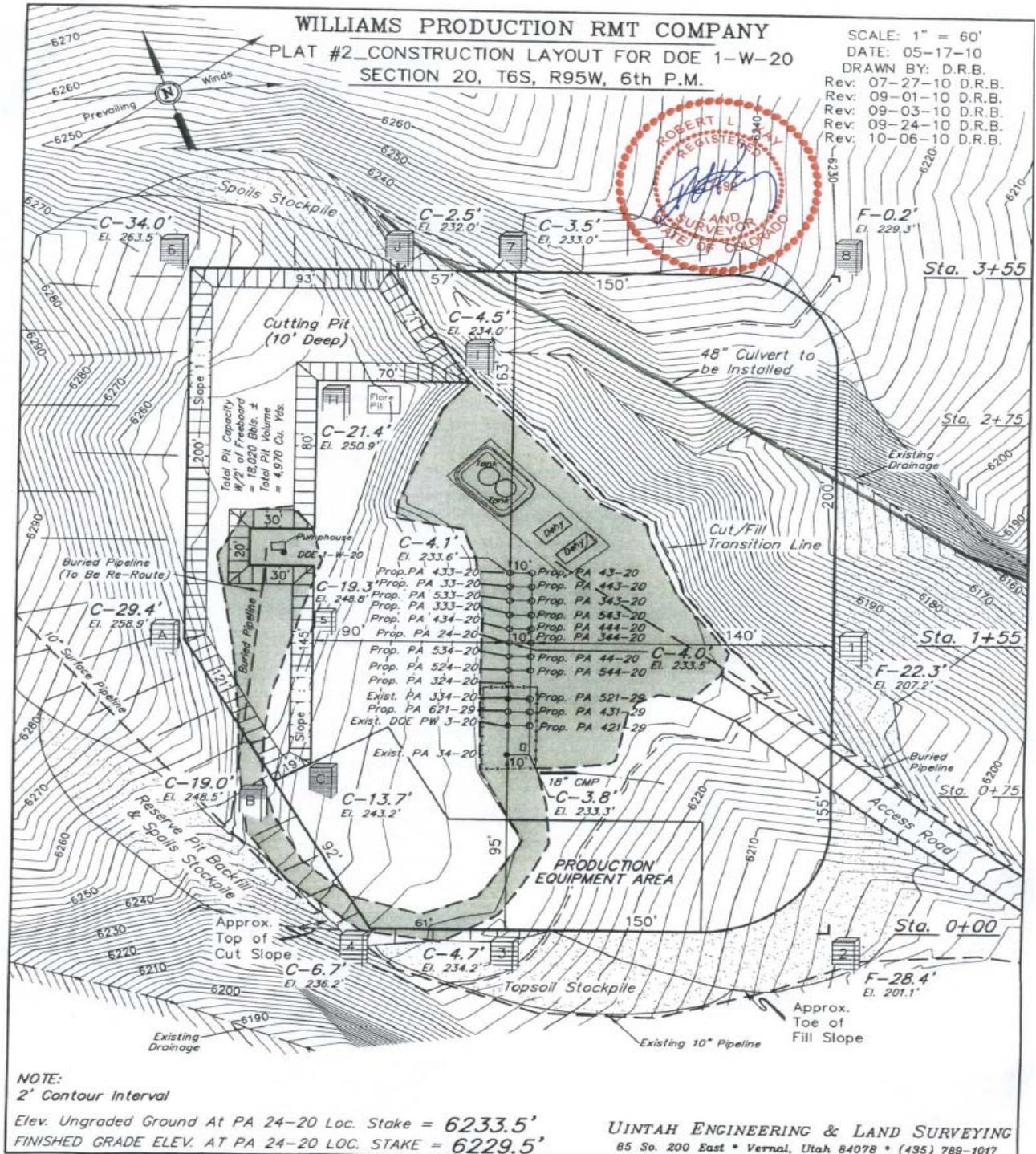


Figure 3. Construction Layout for DOE 1-W-20 Pad Expansion

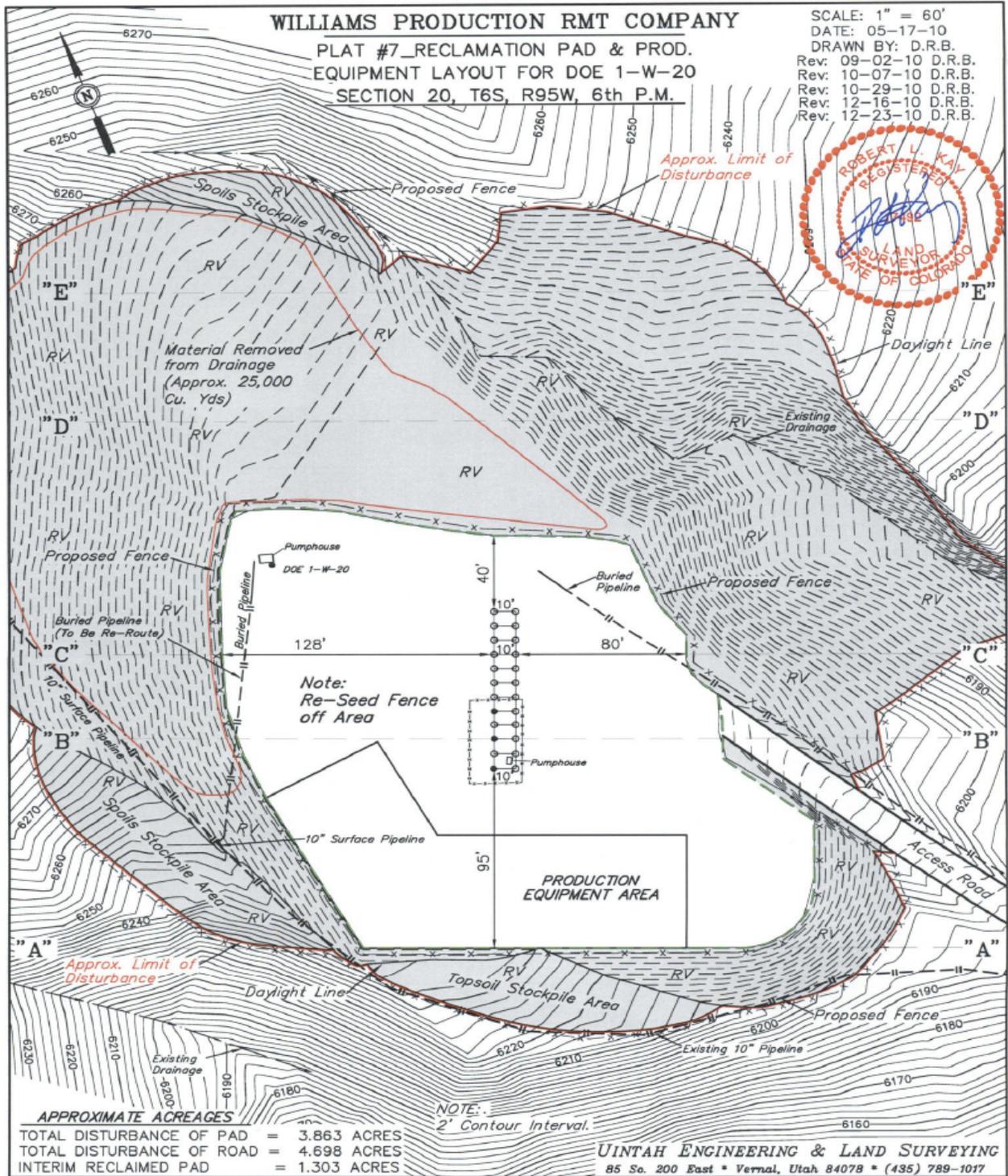


Figure 4. Reclamation Plan for Interim Reclamation Stage.

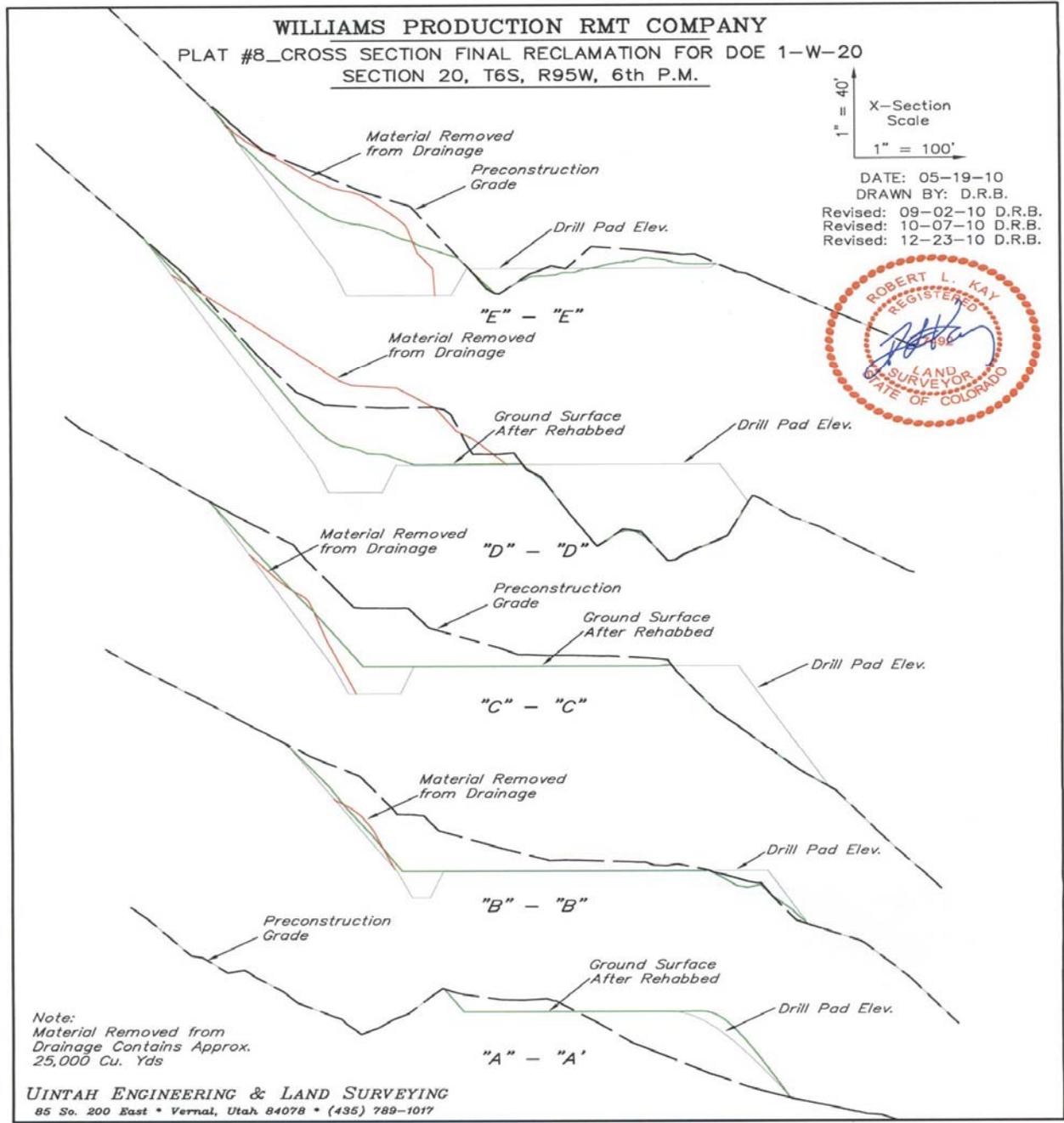


Figure 5. Cross Section for Final Reclamation Plan.

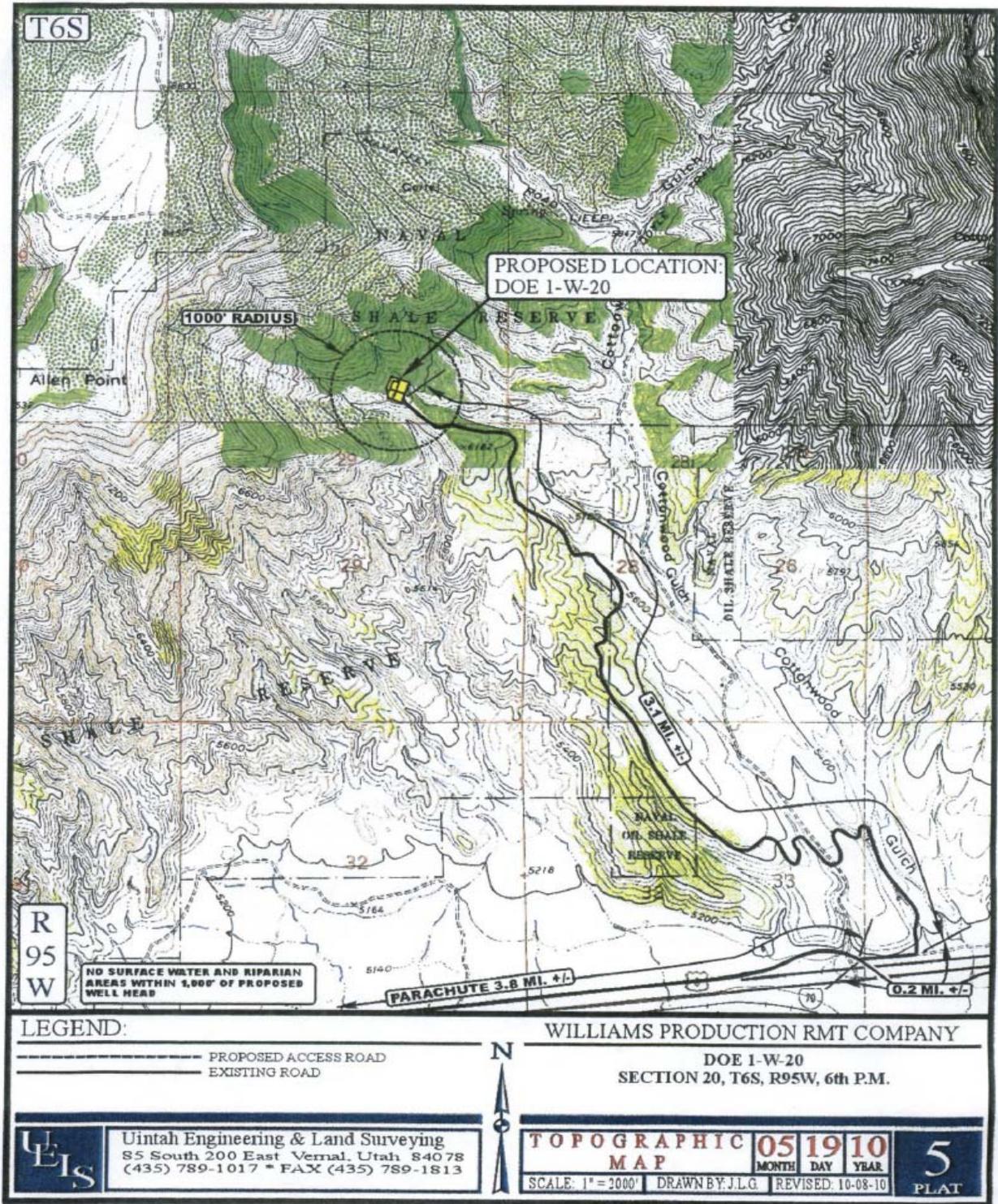


Figure 1. Pad Location Map for DOE 1-W-20

Date Approved: *Oil and Gas Plan Amendment to the Glenwood Springs Resource Management Plan* (BLM 1991) – approved 11/27/91 and *Oil & Gas Leasing & Development Record of Decision and Resource Management Plan Amendment* (BLM 1999) – approved March 24, 1999.

Decision Number/Page: BLM 1991, page 3; BLM1999, page 15

Decision Language: The 1991 Oil and Gas Plan Amendment (BLM 1991) included the following at page 3: “697,720 acres of BLM-administered mineral estate within the Glenwood Springs Resource Area are open to oil and gas leasing and development, subject to lease terms and (as applicable) lease stipulations” (BLM 1991, page 3). This decision was carried forward unchanged in the 1999 ROD and RMP amendment at page 15 (BLM 1999): “In areas being actively developed, the operator must submit a Geographic Area Proposal (GAP) [currently referred to as a Master Development Plan, MDP] that describes a minimum of 2 to 3 years of activity for operator controlled leases within a reasonable geographic area.” Furthermore, Appendices A and B (BLM 1999) list Lease Stipulations (Appendix A) and Management of Lease Development (Appendix B) features which further support the initial decision language from 1991 Resource Management Plan Amendment.

REVIEW OF EXISTING NEPA DOCUMENTS: The following NEPA document satisfies the criterion of being an activity-level or project-level EIS or EA that is applicable to the Proposed Action, as described below. The DOE 1-W-20 pad was identified in the Wheeler to Webster GAP (EA #CO140-2001-048), approved on July 24, 2002, as an existing pad with expected future well drilling to occur.

CATEGORICAL EXCLUSION REVIEW: The proposed action is categorically excluded from further documentation in accordance with statutory categorical exclusions (CXs) from the National Environmental Policy Act (NEPA) pursuant to Section 390 of the Energy Policy Act of 2005, for oil and gas exploration and development. The proposed action qualifies as a categorical exclusion under Section 390 based on the qualifying criterion Number 2, as shown in Table 2.

Table 2. Qualifying Criteria		YES	NO
2.	Individual surface disturbances of less than 5 acres, so long as the total surface disturbance on the lease is not greater than 150 acres and site-specific analysis in a document prepared pursuant to NEPA has been previously completed.	X	
a.	Will disturb less than 5 acres; if more than one action is proposed for a lease, each activity is counted separately, and each may disturb up to 5 acres.	X	
b.	The current un-reclaimed surface disturbance readily visible on the entire leasehold is not greater than 150 acres, including the proposed action.	X	
c.	This categorical exclusion includes the requirement of a site-specific NEPA document. A site-specific NEPA analysis may be an EA/EIS for exploration and/or development, for a specific MDP, for a multi-well or a single well permit approval.	X	

Additionally, none of the extraordinary circumstances listed in 516 DM 2, Appendix 2, applies to this project, as shown in Table 3.

Table 3. Extraordinary Circumstances	YES	NO
Would the project:		
1. Have significant adverse effects on public health and safety		X
2. Have significant impacts on such natural resources and unique geographic characteristics as historic or cultural resources; park, recreation or refuge lands; wilderness areas; wild or scenic rivers; national natural landmarks; sole or principal drinking water aquifers; prime farmlands (Executive Order 11990); floodplains (Executive Order 11988); national monuments; migratory birds; and other ecologically significant or critical areas.		X
3. Have highly controversial environmental effects or involve unresolved conflicts concerning alternative uses of available resources [NEPA Section 102(2)(E)].		X
4. Have highly uncertain and potentially significant environmental effects or involve unique or unknown environmental risks.		X
5. Establish a precedent for future action or represent a decision in principle about future actions with potentially significant environmental effects.		X
6. Have a direct relationship to other actions with individually insignificant but cumulatively significant environmental effects.		X
7. Have significant impacts on properties listed, or eligible for listing, on the National Register of Historic Places as determined by either the bureau or office.		X
8. Have significant impacts on species listed, or proposed to be listed, on the List of Endangered or Threatened Species, or have significant impacts on designated Critical Habitat for these species.		X
9. Violate a Federal law, or a State, local, or tribal law or requirement imposed for the protection of the environment.		X
10. Have the potential for a disproportionately high and adverse effect on low income or minority populations (Executive Order 12898).		X
11. Limit access to and ceremonial use of Indian sacred sites on Federal lands by Indian religious practitioners or significantly adversely affect the physical integrity of such sacred sites (Executive Order 13007).		X
12. Contribute to the introduction, continued existence, or spread of noxious weeds or non-native invasive species known to occur in the area or actions that may promote the introduction, growth, or expansion of the range of such species (Federal Noxious Weed Control Act and Executive Order 13112).		X

INTERDISCIPLINARY REVIEW: The proposed action was presented to, and reviewed by, the Colorado River Valley Field Office interdisciplinary team of resource specialists on January 12, 2011. A list of resource specialists who participated in this review is available upon request from the Colorado River Valley Field Office.

NAME OF PREPARER: Rebecca Rutan, Natural Resource Specialist

NAME OF ENVIRONMENTAL COORDINATOR: Allen Crockett, Supervisory NRS/Phys. Sci.

DECISION AND RATIONALE: I have reviewed this CX and have decided to approve the proposed action. This action is listed in the Instruction Memorandum Number 2005-247 and Instruction Memorandum Number 2010-118 as an action that may be categorically excluded under Section 390 of the Energy Policy Act of 2005. I have evaluated the action relative to the five qualifying criteria listed above

and have determined that, as it does not represent an exception, it is therefore categorically excluded from further environmental analysis.

SIGNATURE OF AUTHORIZED OFFICIAL:



Supervisory NRS/Phys. Sci.

DATE SIGNED:

Feb. 2, 2011

Administrative Review or Appeal Opportunities

This decision is effective upon the date the decision or approval by the authorized officer. Under regulations addressed in 43 CFR Subpart 3165, any party adversely affected has the right to appeal this decision. An informal review of the technical or procedural aspects of the decision may be requested of this office before initiating a formal review request. You have the right to request a State Director review of this decision. You must request a State Director review prior to filing an appeal to the Interior Board of Land Appeals (IBLA) (43CFR 3165.4).

If you elect to request a State Director Review, the request must be received by the BLM Colorado State Office, 2850 Youngfield Street, Lakewood, Colorado 80215, no later than 20 business days after the date the decision was received or considered to have been received. The request must include all supporting documentation unless a request is made for an extension of the filing of supporting documentation. For good cause, such extensions may be granted. You also have the right to appeal the decision issued by the State Director to the IBLA.

For additional information concerning this decision, contact Rebecca Rutan, Natural Resource Specialist, Colorado River Valley Field Office, 2300 River Frontage Road, Silt, Colorado, 81652, Phone 970-876-9059.

SURFACE-USE CONDITIONS OF APPROVAL DOI-BLM-CO-N040-2011-0041-CX(390)

STANDARD COAS APPLICABLE TO ALL ACTIVITIES ASSOCIATED WITH THE DOE 1-W-20 PAD

The following standard surface use COAs are in addition to all stipulations attached to the respective Federal leases and to any site-specific COAs for individual well pads. Wording and numbering of these COAs may differ from those included in the Wheeler to Webster GAP (EA #CO140-2001-048). In cases of discrepancies, the following COAs supersede earlier versions.

1. Administrative Notification. The operator shall notify the BLM representative at least 48 hours prior to initiation of construction. If requested by the BLM representative, the operator shall schedule a pre-construction meeting, including key operator and contractor personnel, to ensure that any unresolved issues are fully addressed prior to initiation of surface-disturbing activities or placement of production facilities.
2. Road Construction and Maintenance. Roads shall be crowned, ditched, surfaced, drained with culverts and/or water dips, and constructed to BLM Gold Book standards. Initial gravel application shall be a minimum of 6 inches. The operator shall provide timely year-round road maintenance and cleanup on the access roads. A regular schedule for maintenance shall include, but not be limited to, blading, ditch and culvert cleaning, road surface replacement, and dust abatement. When rutting within the traveled way becomes greater than 6 inches, blading and/or gravelling shall be conducted as approved by the BLM.
3. Dust Abatement. The operator shall implement dust abatement measures as needed to prevent fugitive dust from vehicular traffic, equipment operations, or wind events. The BLM may direct the operator to change the level and type of treatment (watering or application of various dust agents, surfactants, and road surfacing material) if dust abatement measures are observed to be insufficient to prevent fugitive dust.
4. Drainage Crossings and Culverts. Construction activities at perennial, intermittent, and ephemeral drainage crossings (e.g. burying pipelines, installing culverts) shall be timed to avoid high flow conditions. Construction that disturbs any flowing stream shall utilize either a piped stream diversion or a cofferdam and pump to divert flow around the disturbed area.

Culverts at drainage crossings shall be designed and installed to pass a 25-year or greater storm event. On perennial and intermittent streams, culverts shall be designed to allow for passage of aquatic biota. The minimum culvert diameter in any installation for a drainage crossing or road drainage shall be 24 inches. Crossings of drainages deemed to be jurisdictional waters of the U.S. pursuant to Section 404 of the Clean Water Act may require additional culvert design capacity. Due to the flashy nature of area drainages and anticipated culvert maintenance, the U.S. Army Corps of Engineers (USACE) recommends designing drainage crossings for the 100-year event. Contact the USACE Colorado West Regulatory Branch at 970-243-1199 ext. 17 (Travis Morse).

Pipelines installed beneath stream crossings shall be buried at a minimum depth of 4 feet below the channel substrate to avoid exposure by channel scour and degradation. Following burial, the channel grade and substrate composition shall be returned to pre-construction conditions.

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5. Jurisdictional Waters of the U.S. The operator shall obtain appropriate permits from the U.S. Army Corps of Engineers (USACE) prior to discharging fill material into waters of the U.S. in accordance with Section 404 of the Clean Water Act. Waters of the U.S. are defined in 33 CFR Section 328.3 and may include wetlands as well as perennial, intermittent, and ephemeral streams. Permanent impacts to waters of the U.S. may require mitigation. Contact the USACE Colorado West Regulatory Branch at 970-243-1199 ext. 17 (Travis Morse). Copies of any printed or emailed approved USACE permits or verification letters shall be forwarded to the BLM.
 6. Wetlands and Riparian Zones. The operator shall restore temporarily disturbed wetlands or riparian areas. The operator shall consult with the BLM Colorado River Valley Field Office to determine appropriate mitigation, including verification of native plant species to be used in restoration.
 7. Reclamation. The goals, objectives, timelines, measures, and monitoring methods for final reclamation of oil and gas disturbances are described in Appendix I (Surface Reclamation) of the 1998 Draft Supplemental EIS (DSEIS). Specific measures to follow during interim and temporary (pre-interim) reclamation are described below.
 - a. Reclamation Plans. In areas that have low reclamation potential or are especially challenging to restore, reclamation plans will be required prior to APD approval. The plan shall contain the following components: detailed reclamation plans, which include contours and indicate irregular rather than smooth contours as appropriate for visual and ecological benefit; timeline for drilling completion, interim reclamation earthwork, and seeding; soil test results and/or a soil profile description; amendments to be used; soil treatment techniques such as roughening, pocking, and terracing; erosion control techniques such as hydromulch, blankets/matting, and wattles; and visual mitigations if in a sensitive VRM area.
 - b. Deadline for Interim Reclamation Earthwork and Seeding. Interim reclamation to reduce a well pad to the maximum size needed for production, including earthwork and seeding of the interim reclaimed areas, shall be completed within 6 months following completion of the last well planned to be drilled on that pad as part of a continuous operation. If a period of greater than one year is expected to occur between drilling episodes, BLM may require implementation of all or part of the interim reclamation program.

Reclamation, including seeding, of temporarily disturbed areas along roads and pipelines, and of topsoil piles and berms, shall be completed within 30 days following completion of construction. Any such area on which construction is completed prior to December 1 shall be seeded during the remainder of the early winter season instead of during the following spring, unless BLM approves otherwise based on weather. If road or pipeline construction occurs discontinuously (e.g., new segments installed as new pads are built) or continuously but with a total duration greater than 30 days, reclamation, including seeding, shall be phased such that no portion of the temporarily disturbed area remains in an unreclaimed condition for longer than 30 days. BLM may authorize deviation from this requirement based on the season and the amount of work remaining on the entirety of the road or pipeline when the 30-day period has expired.

If requested by the project lead NRS for a specific pad or group of pads, the operator shall contact the NRS by telephone or email approximately 72 hours before reclamation and reseeding begin. This will allow the NRS to schedule a pre-reclamation field visit if needed to ensure that all parties are in agreement and provide time for adjustments to the plan before work is initiated.

The deadlines for seeding described above are subject to extension upon approval of the BLM based on season, timing limitations, or other constraints on a case-by-case basis. If the BLM approves an extension for seeding, the operator may be required to stabilize the reclaimed surfaces using hydromulch, erosion matting, or other method until seeding is implemented.

- c. Topsoil Stripping, Storage, and Replacement. All topsoil shall be stripped following removal of vegetation during construction of well pads, pipelines, roads, or other surface facilities. In areas of thin soil, a minimum of the upper 6 inches of surficial material shall be stripped. The BLM may specify a stripping depth during the onsite visit or based on subsequent information regarding soil thickness and suitability. The stripped topsoil shall be stored separately from subsoil or other excavated material and replaced prior to final seedbed preparation. The BLM best management practice (BMP) for the Windrowing of Topsoil (COA number 19) shall be implemented for well pad construction whenever topography allows.
- d. Seedbed Preparation. For cut-and-fill slopes, initial seedbed preparation shall consist of backfilling and recontouring to achieve the configuration specified in the reclamation plan. For compacted areas, initial seedbed preparation shall include ripping to a minimum depth of 18 inches, with a maximum furrow spacing of 2 feet. Where practicable, ripping shall be conducted in two passes at perpendicular directions. Following final contouring, the backfilled or ripped surfaces shall be covered evenly with topsoil.

Final seedbed preparation shall consist of scarifying (raking or harrowing) the spread topsoil prior to seeding. If more than one season has elapsed between final seedbed preparation and seeding, and if the area is to be broadcast-seeded or hydroseeded, this step shall be repeated no more than 1 day prior to seeding to break up any crust that has formed.

Seedbed preparation is not required for topsoil storage piles or other areas of temporary seeding.

Requests for use of soil amendments, including basic product information, shall be submitted to the BLM for approval.

- e. Seed Mixes. A seed mix consistent with BLM standards in terms of species and seeding rate for the specific habitat type shall be used on all BLM lands affected by the project (see Attachments 1 and 2 of the letter provided to operators dated May 1, 2008). Note that temporary seeding no longer allows the use of sterile hybrid non-native species.

For private surfaces, the menu-based seed mixes are recommended, but the surface landowner has ultimate authority over the seed mix to be used in reclamation. The seed shall contain no noxious, prohibited, or restricted weed seeds and shall contain no more than 0.5 percent by weight of other weed seeds. Seed may contain up to 2.0 percent of "other crop" seed by weight, including the seed of other agronomic crops and native plants; however, a lower percentage of other crop seed is recommended. Seed tags or other official documentation shall be submitted to BLM at least 14 days before the date of proposed seeding for acceptance. Seed that does not meet the above criteria shall not be applied to public lands.

- f. Seeding Procedures. Seeding shall be conducted no more than 24 hours following completion of final seedbed preparation.

Where practicable, seed shall be installed by drill-seeding to a depth of 0.25 to 0.5 inch. Where drill-seeding is impracticable, seed may be installed by broadcast-seeding at twice the drill-seeding rate, followed by raking or harrowing to provide 0.25 to 0.5 inch of soil cover or by hydroseeding and hydromulching. Hydroseeding and hydromulching shall be conducted in two separate applications to ensure adequate contact of seeds with the soil.

If interim revegetation is unsuccessful, the operator shall implement subsequent reseeding until interim reclamation standards are met.

- g. Mulch. Mulch shall be applied within 24 hours following completion of seeding. Mulch may consist of either hydromulch or of certified weed-free straw or certified weed-free native grass hay crimped into the soil.

NOTE: Mulch is not required in areas where erosion potential mandates use of a biodegradable erosion-control blanket (straw matting).

- h. Erosion Control. Cut-and-fill slopes shall be protected against erosion with the use of water bars, lateral furrows, or other measures approved by the BLM. Cut-and-fill slopes along drainages or in areas with high erosion potential shall also be protected from erosion using hydromulch designed specifically for erosion control or biodegradable blankets/matting, bales, or wattles of weed-free straw or weed-free native grass hay. A well-anchored fabric silt fence shall also be placed at the toe of cut-and-fill slopes along drainages or to protect other sensitive areas from deposition of soils eroded off the slopes. Additional BMPs shall be employed as necessary to reduce soil erosion and offsite transport of sediments.
- i. Site Protection. The pad shall be fenced to BLM standards to exclude livestock grazing for the first two growing seasons or until seeded species are firmly established, whichever comes later. The seeded species will be considered firmly established when at least 50 percent of the new plants are producing seed. The BLM will approve the type of fencing.
- j. Monitoring. The operator shall conduct annual monitoring surveys of all sites categorized as “operator reclamation in progress” and shall submit an annual monitoring report of these sites to the BLM by **December 31** of each year. The monitoring program shall use the four Reclamation Categories defined in Appendix I of the 1998 DSEIS to assess progress toward reclamation objectives. The annual report shall document whether attainment of reclamation objectives appears likely. If one or more objectives appear unlikely to be achieved, the report shall identify appropriate corrective actions. Upon review and approval of the report by the BLM, the operator shall be responsible for implementing the corrective actions or other measures specified by the BLM.
8. Weed Control. The operator shall regularly monitor and promptly control noxious weeds or other undesirable plant species as set forth in the Glenwood Springs Field Office *Noxious and Invasive Weed Management Plan for Oil and Gas Operators*, dated March 2007. A Pesticide Use Proposal (PUP) must be approved by the BLM prior to the use of herbicides. Annual weed monitoring reports shall be submitted to BLM by **December 1**.
9. Big Game Winter Range Timing Limitation. To minimize impacts to wintering big game, no construction, drilling or completion activities shall occur during a Timing Limitation (TL) period from **December 1 to April 30 annually**.

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10. Bald and Golden Eagles. It shall be the responsibility of the operator to comply with the Bald and Golden Eagle Protection Act (Eagle Act) with respect to “take” of either eagle species. Under the Eagle Act, “take” includes to pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest and disturb. “Disturb” means to agitate or bother a bald or golden eagle to a degree that causes, or is likely to cause, based on the best scientific information available, (1) injury to an eagle; (2) a decrease in its productivity by substantially interfering with normal breeding, feeding, or sheltering behavior; or (3) nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior. Avoidance of eagle nest sites, particularly during the nesting season, is the primary and preferred method to avoid a take. Any oil or gas construction, drilling, or completion activities planned within 0.5 mile of a bald or golden eagle nest, or other associated activities greater than 0.5 miles from a nest that may disturb eagles, should be coordinated with the BLM project lead and BLM wildlife biologist and the USFWS representative in the BLM Field Office (970-876-9051).
11. Raptor Nesting. To protect nesting raptors, a survey shall be conducted prior to construction, drilling, or completion activities that are to begin during the raptor nesting season (**February 1 to August 15**). The survey shall include all potential nesting habitat within 0.25 mile of a well pad or 0.125 mile of an access road, pipeline, or other surface facility. Results of the survey shall be submitted to the BLM. If a raptor nest is located within the buffer widths specified above, a 60-day Timing Limitation (TL) shall be applied to postpone initiation of construction, drilling, and completion activities. The dates of this TL will be based on the particular species of raptor.
12. Migratory Birds. It shall be the responsibility of the operator to comply with the Migratory Bird Treaty Act (MBTA) with respect to “take” of migratory bird species. Under the MBTA, “take” means to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct. The operator shall prevent use by migratory birds of any pit containing fluids associated with oil or gas operations, including but not limited to reserve pits, produced water pits, frac-water pits, cuttings trenches (if covered by water/fluid), and evaporation pits. Fluids in these pits may pose a risk to migratory birds (e.g., waterfowl, shorebirds, wading birds, songbirds, and raptors) as a result of ingestion, absorption through the skin, or interference with buoyancy and temperature regulation. Regardless of the method used, it shall be in place within 24 hours following the placement of fluids into a pit. Because of high toxicity to birds, oil slicks and oil sheens should immediately be skimmed off the surface of any pit that is not netted. The most effective way to eliminate risk to migratory birds is prompt drainage, closure, and reclamation of pits, which is strongly encouraged. All mortality or injury to species protected by the MBTA shall be reported immediately to the BLM project lead and to the USFWS representative in the BLM Field Office at 970-876-9051 (Creed Clayton) and visit <http://www.fws.gov/mountain-prairie/contaminants/oilpits.htm>.
13. Birds of Conservation Concern. Pursuant to BLM Instruction Memorandum 2008-050, all surface-disturbing activities are prohibited from **May 1 to July 1** to reduce impacts to Birds of Conservation Concern (BCC). An exception to this COA will be granted if nesting surveys conducted no more than one week prior to surface-disturbing activities indicate that no BCC species are nesting within 30 meters (100 feet) of the area to be disturbed. Nesting shall be deemed to be occurring if a territorial (singing) male is present within the distance specified above. Nesting surveys shall include an aural survey for diagnostic vocalizations in conjunction with a visual survey for adults and nests. Surveys shall be conducted by a qualified breeding bird surveyor between sunrise and 10:00 AM under conditions favorable for detecting and identifying a BCC species. This provision does not apply to ongoing construction, drilling, or completion activities that are initiated prior to May 1 and continue into the 60-day period at the same location.

14. Range Management. Range improvements (fences, gates, reservoirs, pipelines, etc) shall be avoided during development of natural gas resources to the maximum extent possible. If range improvements are damaged during exploration and development, the operator will be responsible for repairing or replacing the damaged range improvements. If a new or improved access road bisects an existing livestock fence, steel frame gate(s) or a cattleguard with associated bypass gate shall be installed across the roadway to control grazing livestock.
15. Ips Beetle. To avoid mortality of pinyon pines due to infestations of the *Ips* beetle, any pinyon trees damaged during road, pad, or pipeline construction shall be chipped after being severed from the stump or grubbed from the ground, buried in the toe of fill slopes (if feasible), or cut and removed from the site within 24 hours to a location approved by the Colorado State Forest Service.
16. Paleontological Resources. All persons associated with operations under this authorization shall be informed that any objects or sites of paleontological or scientific value, such as vertebrate or scientifically important invertebrate fossils, shall not be damaged, destroyed, removed, moved, or disturbed. If in connection with operations under this authorization any of the above resources are encountered the operator shall immediately suspend all activities in the immediate vicinity of the discovery that might further disturb such materials and notify the BLM of the findings. The discovery must be protected until notified to proceed by the BLM.

Where feasible, the operator shall suspend ground-disturbing activities at the discovery site and immediately notify the BLM of any finds. The BLM will, as soon as feasible, have a BLM-permitted paleontologist check out the find and record and collect it if warranted. If ground-disturbing activities cannot be immediately suspended, the operator shall work around or set the discovery aside in a safe place to be accessed by the BLM-permitted paleontologist.

17. Cultural Education/Discovery. All persons in the area who are associated with this project shall be informed that if anyone is found disturbing historic, archaeological, or scientific resources, including collecting artifacts, the person or persons will be subject to prosecution.

Pursuant to 43 CFR 10.4(g), the BLM shall be notified by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4 (c) and (d), activities shall stop in the vicinity of the discovery, and the discovery shall be protected for 30 days or until notified by the BLM to proceed.

If in connection with operations under this contract, the operator, its contractors, their subcontractors, or the employees of any of them discovers, encounters, or becomes aware of any objects or sites of cultural value or scientific interest such as historic ruins or prehistoric ruins, graves or grave markers, fossils, or artifacts, the operator shall immediately suspend all operations in the vicinity of the cultural resource and shall notify the BLM of the findings (16 USC 470h-3, 36 CFR 800.112). Operations may resume at the discovery site upon receipt of written instructions and authorization by the BLM. Approval to proceed will be based upon evaluation of the resource. Evaluation shall be by a qualified professional selected by the BLM from a Federal agency insofar as practicable. When not practicable, the operator shall bear the cost of the services of a non-Federal professional.

Within five working days, the BLM will inform the operator as to:

- whether the materials appear eligible for the National Register of Historic Places

- what mitigation measures the holder will likely have to undertake before the site can be used (assuming that *in-situ* preservation is not necessary)
- the timeframe for the BLM to complete an expedited review under 36 CFR 800.11, or any agreements in lieu thereof, to confirm through the SHPO State Historic Preservation Officer that the findings of the BLM are correct and that mitigation is appropriate

The operator may relocate activities to avoid the expense of mitigation and delays associated with this process, as long as the new area has been appropriately cleared of resources and the exposed materials are recorded and stabilized. Otherwise, the operator shall be responsible for mitigation costs. The BLM will provide technical and procedural guidelines for relocation and/or to conduct mitigation. Upon verification from the BLM that the required mitigation has been completed, the operator will be allowed to resume construction.

Antiquities, historic ruins, prehistoric ruins, and other cultural or paleontological objects of scientific interest that are outside the authorization boundaries but potentially affected, either directly or indirectly, by the proposed action shall also be included in this evaluation or mitigation. Impacts that occur to such resources as a result of the authorized activities shall be mitigated at the operator's cost, including the cost of consultation with Native American groups.

Any person who, without a permit, injures, destroys, excavates, appropriates or removes any historic or prehistoric ruin, artifact, object of antiquity, Native American remains, Native American cultural item, or archaeological resources on public lands is subject to arrest and penalty of law (16 USC 433, 16 USC 470, 18 USC 641, 18 USC 1170, and 18 USC 1361).

18. Visual Resources. Production facilities shall be placed to avoid or minimize visibility from travel corridors, residential areas, and other sensitive observation points—unless directed otherwise by the BLM due to other resource concerns—and shall be placed to maximize reshaping of cut-and-fill slopes and interim reclamation of the pad.

To the extent practicable, existing vegetation shall be preserved when clearing and grading for pads, roads, and pipelines. The BLM may direct that cleared trees and rocks be salvaged and redistributed over reshaped cut-and-fill slopes or along linear features.

19. Windrowing of Topsoil. Topsoil shall be windrowed around the pad perimeter to create a berm that limits and redirects stormwater runoff and extends the viability of the topsoil per BLM Topsoil Best Management Practices (BLM 2009 PowerPoint presentation available upon request from Glenwood Springs Field Office). Topsoil shall also be windrowed, segregated, and stored along pipelines and roads for later spreading across the disturbed corridor during final reclamation. Topsoil berms shall be promptly seeded to maintain soil microbial activity, reduce erosion, and minimize weed establishment.
20. Reserve Pit. A minimum of 2 feet of freeboard shall be maintained in the reserve pit. Freeboard is measured from the highest level of drilling fluids and cuttings in the reserve pit to the lowest surface elevation of ground at the reserve pit perimeter.
21. Soils. Cuts and fills shall be minimized when working on erosive soils and slopes in excess of 30 percent. Cut-and-fill slopes shall be stabilized through revegetation practices with an approved seed mix shortly following construction activities to minimize the potential for slope failures and excessive

erosion. Fill slopes adjacent to drainages shall be protected with well-anchored silt fences, straw wattles, or other acceptable BMPs designed to minimize the potential for sediment transport. On slopes greater than 50 percent, BLM personnel may request a professional geotechnical analysis prior to construction.

SITE-SPECIFIC COAS APPLICABLE TO DOE 1-W-20 WELL PAD

The following site-specific surface use COAs are in addition to the standard COAs applicable to all wells within the DOE 1-W-20 well pad and all stipulations attached to the respective Federal leases.

1. **Generator Noise.** The generator(s) and pump(s) serving the injection well shall be installed and operated at the site in a manner that, at a minimum, meets the Colorado Oil and Gas Conservation Commission's Noise Abatement regulation (No. 802) for Residential/Agricultural/Rural Zone. In summary, this regulation requires that the noise level not exceed 50 dBA between 7:00 p.m. and 7:00 a.m. at a distance of 350 feet from the noise source.
2. **Interim Reclamation Related to Drilling Phases.** Within 1 year of completion of the initial 21 development wells in the first cellarhole configuration as shown on Figure 3 or within one year of completion of all development wells on a pad (whichever situation arises), the operator shall stabilize the disturbed area by recontouring, mulching, providing run-off and erosion control, replacing topsoil as directed, and seeding with BLM-prescribed native seed mixes (or landowner requested seed mix on Fee surface), and conducting weed control, as necessary. In cases where the development drilling, conducted in phases on a single pad, occurs more than 1 year apart, slopes shall be recontoured to the extent necessary to accommodate seeding, and seed mixes required by BLM or requested by the private landowner shall be applied to stabilize the soil between visits per direction of the BLM.
3. **Requirement for 5-year spud date timing.** Approval of the APD(s) through a Section 390 Categorical Exclusion is contingent on the well having been spudded by a certain date (**02/01/2016**). If the well is not spudded by that date, this APD is considered null and void *ab initio*, and a new APD must be resubmitted along with a payment of \$6,500. At that time, BLM will initiate an Environmental Assessment pursuant to NEPA."
4. A pre-construction on-site meeting shall be held **prior to pad construction**. Attendees will include the appropriate operators' representatives, construction contractors, and BLM specialists including the natural resource specialist, hydrologist, and ecologist.
5. An on-site meeting shall also be held **prior to interim reclamation of the pad**. Attendees will include the appropriate operators' representatives, construction contractors, and BLM specialists including the natural resource specialist, hydrologist, and ecologist.
6. **Filling of the Drainage Way.** Trees on the steep drainage way slopes shall be cut at ground level prior to pad construction to retain tree root structure and provide soil retention. Trees and large boulders shall be placed at the toe of the fill to hold the soil in place and prevent sedimentation of the soil into the drainage way.
7. **Culvert.** The culvert shall be designed by a licensed Professional Engineer. Adequate inlet and outlet protection shall be installed. Additionally, during installation of the culvert, an overflow pathway shall be constructed to the east of the culvert to protect the pad from inundation in the event of the culvert plugging or failing.

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8. Reclamation of the Drainage Way. The natural character of the drainage way shall be reproduced after the fill has been removed. The natural flow path will be replicated as close as possible. During reclamation, boulders shall be dispersed throughout the channel to reproduce the natural character of the flow path. The slopes on either side of the drainage way will be recontoured and terraced. The slopes will be left very rough and/or pocked to allow for establishment of vegetation on the steep slopes.
- a. Seeding and Hydromulch. The seed mix specified in the general reclamation COA below shall be used. Mulch and polyacrylamide soil stabilizer shall be hydraulically applied to the slopes of the drainage way to reduce sediment loss. The polyacrylamide shall be applied per manufacturer recommendations.
 - b. Erosion Control. Cut trees shall be placed along the recontoured slopes of the drainage way perpendicular to the slope to act as soil catchments and microsites for vegetation establishment.
9. Reclamation. The goals, objectives, timelines, measures, and monitoring methods for final reclamation of oil and gas disturbances are described in Appendix I (Surface Reclamation) of the 1998 Draft Supplemental EIS (DSEIS). Specific measures to follow during interim and temporary (pre-interim) reclamation are described below.
- a. Reclamation Plans. In areas that have low reclamation potential or are especially challenging to restore, reclamation plans will be required prior to APD approval. The plan shall contain the following components: detailed reclamation plats, which include contours and indicate irregular rather than smooth contours as appropriate for visual and ecological benefit; timeline for drilling completion, interim reclamation earthwork, and seeding; soil test results and/or a soil profile description; amendments to be used; soil treatment techniques such as roughening, pocking, and terracing; erosion control techniques such as hydromulch, blankets/matting, and wattles; and visual mitigations if in a sensitive VRM area.
 - b. Deadline for Interim Reclamation Earthwork and Seeding. Interim reclamation to reduce a well pad to the maximum size needed for production, including earthwork and seeding of the interim reclaimed areas, shall be completed within 6 months following completion of the last well planned to be drilled on that pad as part of a continuous operation. If a period of greater than one year is expected to occur between drilling episodes, BLM may require implementation of all or part of the interim reclamation program.

Reclamation, including seeding, of temporarily disturbed areas along roads and pipelines, and of topsoil piles and berms, shall be completed within 30 days following completion of construction. Any such area on which construction is completed prior to December 1 shall be seeded during the remainder of the early winter season instead of during the following spring, unless BLM approves otherwise based on weather. If road or pipeline construction occurs discontinuously (e.g., new segments installed as new pads are built) or continuously but with a total duration greater than 30 days, reclamation, including seeding, shall be phased such that no portion of the temporarily disturbed area remains in an unreclaimed condition for longer than 30 days. BLM may authorize deviation from this requirement based on the season and the amount of work remaining on the entirety of the road or pipeline when the 30-day period has expired.

If requested by the project lead NRS for a specific pad or group of pads, the operator shall contact the NRS by telephone or email approximately 72 hours before reclamation and reseeding begin.

This will allow the NRS to schedule a pre-reclamation field visit if needed to ensure that all parties are in agreement and provide time for adjustments to the plan before work is initiated.

The deadlines for seeding described above are subject to extension upon approval of the BLM based on season, timing limitations, or other constraints on a case-by-case basis. If the BLM approves an extension for seeding, the operator may be required to stabilize the reclaimed surfaces using hydromulch, erosion matting, or other method until seeding is implemented.

- c. Topsoil Stripping, Storage, and Replacement. All topsoil shall be stripped following removal of vegetation during construction of well pads, pipelines, roads, or other surface facilities. In areas of thin soil, a minimum of the upper 6 inches of surficial material shall be stripped. The BLM may specify a stripping depth during the onsite visit or based on subsequent information regarding soil thickness and suitability. The stripped topsoil shall be stored separately from subsoil or other excavated material and replaced prior to final seedbed preparation. The BLM best management practice (BMP) for the Windrowing of Topsoil (COA number 19) shall be implemented for well pad construction whenever topography allows.
- d. Seedbed Preparation. For cut-and-fill slopes, initial seedbed preparation shall consist of backfilling and recontouring to achieve the configuration specified in the reclamation plan. For compacted areas, initial seedbed preparation shall include ripping to a minimum depth of 18 inches, with a maximum furrow spacing of 2 feet. Where practicable, ripping shall be conducted in two passes at perpendicular directions. Following final contouring, the backfilled or ripped surfaces shall be covered evenly with topsoil.

Final seedbed preparation shall consist of scarifying (raking or harrowing) the spread topsoil prior to seeding. If more than one season has elapsed between final seedbed preparation and seeding, and if the area is to be broadcast-seeded or hydroseeded, this step shall be repeated no more than 1 day prior to seeding to break up any crust that has formed.

Seedbed preparation is not required for topsoil storage piles or other areas of temporary seeding.

Requests for use of soil amendments, including basic product information, shall be submitted to the BLM for approval.

- e. Seed Mixes. A native seed mixed based on the seed menu specified in Table 4, below, shall be used. The seed shall contain no noxious, prohibited, or restricted weed seeds and shall contain no more than 0.5 percent by weight of other weed seeds. Seed may contain up to 2.0 percent of "other crop" seed by weight, including the seed of other agronomic crops and native plants; however, a lower percentage of other crop seed is recommended. Seed tags or other official documentation shall be submitted to BLM at least 14 days before the date of proposed seeding for acceptance. Seed that does not meet the above criteria shall not be applied to public lands.
- f. Seeding Procedures. Seeding shall be conducted no more than 24 hours following completion of final seedbed preparation. Where practicable, seed shall be installed by drill-seeding to a depth of 0.25 to 0.5 inch. Where drill-seeding is impracticable, seed may be installed by broadcast-seeding at twice the drill-seeding rate, followed by raking or harrowing to provide 0.25 to 0.5 inch of soil cover or by hydroseeding and hydromulching. Hydroseeding and hydromulching shall be conducted in two separate applications to ensure adequate contact of seeds with the soil.

Table 4. Native Seed Mix for DOE 1-W-20 Well Pad				
<i>Common Name</i>	<i>Scientific Name</i>	<i>Variety</i>	<i>Form</i>	<i>PLS lbs/acre</i>
Plant All of the Following (5% Each, 15% Total)				
Four-wing saltbush	<i>Atriplex canescens</i>	VNS	Shrub	2.5
Shadscale saltbush	<i>Atriplex confertifolia</i>	VNS	Shrub	2.0
Rubber Rabbitbrush	<i>Ericameria nauseosa</i> [<i>Chrysothamnus nauseosus</i>]	VNS	Shrub	0.3
and Two of the Following (20% Each, 40% Total)				
Thickspike Wheatgrass	<i>Elymus lanceolatus ssp. lanceolatus</i> [<i>Agropyron dasystachyum</i>]	Critana, Bannock, Schwendimar	Sod- forming	3.4
Slender Wheatgrass	<i>Elymus trachycaulus</i> [<i>Agropyron trachycaulum</i>]	Revenue, Pryor	Bunch	3.3
Western Wheatgrass	<i>Pascopyrum</i> [<i>Agropyron</i>] <i>smithii</i>	Rosana, Arriba	Sod- forming	4.8
and Plant All of the Following (15% Each, 45% Total)				
Bottlebrush Squirreltail	<i>Elymus elymoides</i> [<i>Sitanion hystrix</i>]	VNS	Bunch	2.0
Bluebunch Wheatgrass	<i>Pseudoroegneria spicata</i> [<i>Agropyron spicatum</i>]	Secar, P-7, Anatone, Goldar	Bunch	2.8
Sandberg Bluegrass	<i>Poa sandbergii</i> , <i>Poa secunda</i>	VNS	Bunch	0.4
Total				21.5

If interim revegetation is unsuccessful, the operator shall implement subsequent reseeding until interim reclamation standards are met.

- g. **Mulch.** Mulch shall be applied within 24 hours following completion of seeding. Mulch shall consist of hydromulch on the drainage way slopes and either hydromulch or certified weed-free straw or certified weed-free native grass hay crimped into the soil on other portions of the pad.
- h. **Erosion Control.** Cut-and-fill slopes shall be protected against erosion with the use of water bars, lateral furrows, or other measures approved by the BLM. Additional BMPs shall be employed as necessary to reduce soil erosion and offsite transport of sediments.
- i. **Site Protection.** The pad shall be fenced to BLM standards to exclude livestock grazing for the first two growing seasons or until seeded species are firmly established, whichever comes later. The seeded species will be considered firmly established when at least 50 percent of the new plants are producing seed. The BLM will approve the type of fencing.
- j. **Monitoring.** The operator shall conduct annual monitoring surveys of all sites categorized as “operator reclamation in progress” and shall submit an annual monitoring report of these sites to the BLM by **December 31** of each year. The monitoring program shall use the four Reclamation Categories defined in Appendix I of the 1998 DSEIS to assess progress toward reclamation objectives. The annual report shall document whether attainment of reclamation objectives appears likely. If one or more objectives appear unlikely to be achieved, the report shall identify appropriate corrective actions. Upon review and approval of the report by the BLM, the operator

shall be responsible for implementing the corrective actions or other measures specified by the BLM.

10. Visual Resources. All woody vegetation (live and dead) shall remain standing at the toe of the southeastern fill slope to provide visual screening. During interim reclamation, the vegetation shall be protected and remain standing and undamaged when fill material is pulled back to recontour the pad.

Woody vegetation and debris removed from the southeastern corner shall be set aside during pad construction and re-placed onto the fill slope in a pattern that mimics the surrounding natural vegetation to reduce visual contrast from the I-70 corridor and Battlement Mesa. Material shall be staged along the southeastern edge of disturbance during topsoil stripping to make it readily accessible for re-placement by equipment.

Upright woody vegetation removed from the northwestern cut slope shall be set aside during pad construction and re-placed onto the cut slope in a pattern that mimics the surrounding natural vegetation to reduce visual contrast from the I-70 corridor and Battlement Mesa. Care shall be taken to preserve the canopy while storing and transporting. Material shall be staged along the northwestern edge of disturbance during topsoil stripping to make it readily accessible for re-placement by equipment.

The upper edge of the cut slope shall undulate and take advantage of opportunities where topography and vegetation allow for more gradual contours and the appearance of a natural opening in the woody vegetation.

The disturbed and constructed slopes shall have a roughened and undulating finish to encourage vegetation growth and reflect light in an irregular pattern to break up the texture and color of the exposed slopes.

Excess rock and woody debris not used for the drainage way reclamation shall be re-placed onto the cut and fill slopes to supplement the cleared and replaced vegetation from these locations and to result in color and texture closer to that of the native landscape.

Facilities shall be painted Shadow Gray, a color found in the surrounding natural vertical elements.

DOWNHOLE CONDITIONS OF APPROVAL

Applications for Permit to Drill

Company/Operator: Williams Production RMT Company

Surface Location: SWSE, Section 20, Township 6 South, Range 95 West, 6th P.M.

Well Name and No.	Bottomhole Location	Lease
PA 543-20	NESE Sec. 20, T6S, R95W	COC62161
PA 343-20	NESE Sec. 20, T6S, R95W	COC62161
PA 544-20	SESE Sec. 20, T6S, R95W	COC62161
PA 344-20	SESE Sec. 20, T6S, R95W	COC62161
PA 444-20	SESE Sec. 20, T6S, R95W	COC62161
PA 443-20	NESE Sec. 20, T6S, R95W	COC62161
PA 333-20	NWSE Sec. 20, T6S, R95W	COC62161
PA 533-20	NWSE Sec. 20, T6S, R95W	COC62161
PA 33-20	NWSE Sec. 20, T6S, R95W	COC62161
PA 43-20	NESE Sec. 20, T6S, R95W	COC62161
PA 433-20	NWSE Sec. 20, T6S, R95W	COC62161
PA 434-20	SWSE Sec. 20, T6S, R95W	COC62161
PA 534-20	SWSE Sec. 20, T6S, R95W	COC62161
PA 524-20	SESW Sec. 20, T6S, R95W	COC62161
PA 24-20	SESW Sec. 20, T6S, R95W	COC62161
PA 324-20	SESW Sec. 20, T6S, R95W	COC62161
PA 44-20	SESE Sec. 20, T6S, R95W	COC62161
PA 621-29	NENW Sec. 29, T6S, R95W	COC62162
PA 431-29	NWNE Sec. 29, T6S, R95W	COC62162
PA 421-29	NENW Sec. 29, T6S, R95W	COC62162
PA 521-29	NWNE Sec. 29, T6S, R95W	COC62162

1. Twenty-four hours prior to (a) spudding, (b) conducting BOPE tests, (c) running casing strings, and (d) within 24 hours after spudding, the CRVFO shall be notified. The BLM CRVFO inspectors are Julie King, Lead PET; David Giboo, PET; and Alan White, PET.
2. A CRVFO petroleum engineer shall be contacted for a verbal approval prior to commencing remedial work, plugging operations on newly drilled boreholes, changes within the drilling plan, changes or variances to the BOPE, deviating from conditions of approval, and conducting other operations not

specified within the APD. Contact William Howell may be contacted at 970-876-9049 (office) or 970-319-5837 (cell).

3. If a well control issue arises (e.g. kick, blowout, or water flow), casing failure occurs, or an increase in bradenhead pressure occurs during fracturing operations, William Howell shall be notified within 24 hours from the time of the event.
4. The BOPE shall be tested and conform to Onshore Order #2 for a 3M system.
5. A casinghead rated to 3,000 psi or greater shall be utilized.
6. An electrical/mechanical mud monitoring equipment shall be functional prior to drilling out the next shoe. As a minimum, this shall include a pit volume totalizer, stroke counter, and flow sensor.
7. Gas detecting equipment shall be installed in the mud return system, prior to drilling out the next shoe, and hydrocarbon gas shall be monitored for pore pressure changes.
8. A gas buster shall be functional and all flare lines effectively anchored in place, prior to drilling out the next shoe. The discharge of the flare lines shall be a minimum of 100 feet from the well head and targeted at bends. The panic line shall be a separate line (not open inside the buffer tank) and effectively anchored. All lines shall be downwind of the prevailing wind direction and directed into a flare pit, which cannot be the reserve pit. The flare system shall use an automatic ignition. Where noncombustible gas is likely or expected to be vented, the system shall be provided supplemental fuel for ignition and maintain a continuous flare.
9. Prior to commencing fracturing operations, the production casing shall be tested to the maximum anticipated surface treating pressure and held for 15 minutes. If leak-off greater than 2 percent is found, Dane Geyer shall be notified within 24 hours of the failed test, but prior to proceeding with fracturing operations. The test shall be charted and set to a time increment as to take up no less than a quarter of the chart per test. The chart shall be submitted with the well completion report.
10. On the first well drilled on this pad, a triple combo (open hole logs) shall be run from the base of the surface borehole to surface, and another run from TD to the surface casing shoe. Each open-hole log shall be submitted to the CRVFO within 24 hours after running. These logs shall be submitted digitally in LAS and PDF formats. Contact Todd Sieber at 970-876-9053 or asieber@blm.gov for clarification.
11. An approved tail cement blend, utilizing silica flour (SSA-1), shall be used to cement the production string.
12. As a minimum, cement shall be brought to 200 feet above the Mesaverde. Prior to commencing fracturing operations, a CBL shall be run (from TD to 200 feet above the TOC) and an electronic copy submitted to the CRVFO. If the TOC is lower than required or the cement sheath of poor quality, then within 4 days prior to commencing fracturing operations, a CRVFO petroleum engineer shall be notified for further instruction.
13. Submit the (a) mud/drilling log (e.g. Pason disc), (b) driller's event log/operations summary report, (c) production test volumes, (d) directional survey, and (e) Formation Integrity Test results with the well completion report. Contact William Howell for clarification.