

Record of Decision

EOG Resources, Inc. Chapita Wells – Stagecoach Area Natural Gas Development

Prepared by the BLM, Vernal Field Office

EOG Resources, Inc (EOG) has proposed to develop natural gas resources within an area encompassing approximately 31,872 acres within the Book Cliffs Resource Area on lands wholly or partially contained within T8S:R22E, T9S:R22E, T9S:R23E and T10S:R23E, Uintah County, Utah. This Record of Decision (ROD) documents the decision made by the Bureau of Land Management (BLM) regarding EOG's proposal, and has been published separate from the FEIS. The FEIS was made available to the public for a 30-day review period through a Notice of Availability published in the Federal Register on January 4, 2008.

1.0 DECISION

The BLM has decided to approve the Agency-preferred Alternative (Alternative A – Proposed Action) subject to the Conditions of Approval listed in Attachment 1 of this ROD. This decision is hereafter referred to as the selected alternative. The selected alternative recognizes that oil and gas development has been ongoing within the project area for over 50 years. It also minimizes or eliminates impacts to resources within the project area through the Conditions of Approval. The selected alternative balances EOG's right to develop natural gas within their leaseholds, while protecting resources or mitigating impacts over the long term.

This programmatic decision approves up to 1,735 acres of surface disturbance for the project. The decision includes the following project components, which would be subject to site-specific onsites and approval:

- Up to 627 natural gas wells (473 wells from new well pad locations and 154 from existing well pad locations), with the majority of the wells being drilled on 40-acre surface density, but up to 66 of the new well pads being drilled on 20-acre surface density;
- Up to four (4) water disposal wells and associated gas or electric pumps;
- Secondary overhead electric lines originating from the Fidler Station to provide power to the water disposal well pumps – resulting in less than 0.1 acre of disturbance associated with the placement of the poles;
- Approximately 99.5 miles of new roads;
- Approximately 104.5 miles of new surface natural gas pipelines;
- 5,000 horsepower of new compression;
- Total surface disturbance of approximately 1,735 acres.

This decision applies only to BLM-administered lands and leases within the project area.

2.0 MANAGEMENT CONSIDERATIONS

The selected alternative represents a reasonable management approach that allows gas development on existing leases while eliminating or minimizing impacts to the area's resources. The decision to approve the selected alternative was made after consideration of the following:

Purpose and need: The purpose of the proposed project is to respond to EOG's proposal and to facilitate action on future plans and applications related to the proposal. The Federal action is needed because it will:

- o Allow EOG to develop natural gas pursuant to EOG's valid lease rights;
- o Allow EOG to further define drilling and completion techniques necessary to produce hydrocarbons from reservoirs in the Green River, Wasatch, Mesaverde, Mancos "B", and other formations;
- o Provide data with which to evaluate future well spacing;
- o Provide data for use in evaluating the level of activity of future drilling in the project area;
- o Generate federal, state, Ute Tribe, or private land owner taxes and royalty revenues; and
- o Support local economies by providing and maintaining employment opportunities and expanding the tax base.

National policy: Private exploration and development of Federal oil and gas leases is an integral part of the BLM oil and gas leasing program under the authority of the Mineral Leasing Act of 1920 and the Federal Land Policy and Management Act of 1976.

Consistency with the Book Cliffs Resource Management Plan: The selected alternative is consistent with in the Record of Decision and Rangeland Program Summary for the Book Cliffs Resource Management Plan (Book Cliffs RMP) (BLM 1985). Some of the leases in the project area predate the Book Cliffs RMP. Those leases are in conformance with the RMP because the Book Cliffs RMP recognizes valid existing rights, and does not impose additional restrictions on them (ROD p.4). Development of leases issued after the completion of the Book Cliffs RMP/ROD (1985) is also in conformance with the Book Cliffs RMP because the RMP allows for the leasing of oil and gas in the project area as category 1 (subject to standard stipulations) or category 2 (subject to special stipulations). The Book Cliffs RMP/FEIS analysis assumptions (p. 145) account for impacts associated with oil and gas development. The proposed project is in compliance with the following Book Cliffs RMP stipulations that apply to portions of some leases in the project area:

Stipulation 7 (p.17): No surface disturbance or occupancy will be allowed within riparian habitat. This stipulation may be waived by the authorized officer if either the resource values change or the lessee/operator demonstrates that adverse impacts can be mitigated.

Stipulation 8 (p.17): No surface disturbance or occupancy will be allowed within the 100-year floodplain of the following creeks: Bitter, Evacuation, Hill, Sweetwater, and Willow, and the Green and White Rivers. This stipulation may be waived by the authorized officer if either the resource values change or the lessee/operator demonstrates that adverse impacts can be mitigated.

Stipulation 15 (p.21): All of the land in this area (see figure 2-7 of the Book Cliffs RMP/ROD) is included in the White River Recreation and Wildlife Corridor. Therefore, no occupancy or disturbance of the surface of the land described in this lease is authorized.

The lessee, however, may extract the oil and gas resources in this lease by directional drilling from sites outside of this lease. If a proposed drilling site lies on land administered by the BLM, a permit for the use of the site must be obtained from the BLM before drilling or other development begins.

Relationships to statutes, regulations, or other plans: A formal management plan does not exist for the Uintah and Ouray Indian Reservation. The elected Ute Tribal Business Committee and the BIA approve land use activities on Tribal lands. Production from Tribal leases provides royalties, tax revenues, and surface access and use fees to the Tribe, which contributes to the Tribe's economic independence. The selected alternative is consistent with the BIA's regulatory responsibilities, which include promoting the economic development objectives of the Northern Ute Tribe under its government-to-government relationship with, and trust responsibility to, the Tribe.

There are no comprehensive State of Utah plans for the project area. The School and Institution Trust Lands Administration (SITLA) has leased all of the lands under its administration within the project area for oil and gas production. Because the objectives of SITLA are to produce funding for the State school system, and because production on Federal leases could lead to further interest in drilling State leases in the area, the selected alternative is assumed to be consistent with the objectives of the State.

The selected alternative is consistent with the 2005 *Uintah County General Plan* (County Plan), which encompasses the project area. The County Plan emphasizes multiple-use public land management practices, responsible use, and optimum utilization of public land resources.

Range of alternatives: Two alternatives were fully evaluated in the EIS: Alternative A – Proposed Action and Alternative B – No Action. Seven additional alternatives were considered as a result of public or other agency involvement, but were eliminated from detailed analysis for the reasons documented below.

Alternative A – Proposed Action

Alternative A included a proposal to drill up to 627 new gas wells. Of the planned wells, 473 would be drilled from new well pad locations with up to 66 wells being drilled from well pads placed on 20-acre surface density. Up to 154 wells would be twin wells drilled from existing well pad locations. Based on public comments on the DEIS, Alternative A in the FEIS was modified by the proponent such that the proponent will not construct new well pads, build new roads, or drill from existing well pads within the 100-year floodplain of the White River (see Attachment 2).

Alternative B – No Action

The No Action Alternative is the environmentally preferable alternative due to the lower level of development that would occur on BLM-administered lands. The No Action alternative assumed a maximum level of development of approximately 148 wells, including 24 wells on State of Utah lands, 114 wells on Ute Tribal/allotted lands and 10 wells on private lands. This alternative was not selected because EOG has valid existing leases on BLM-administered lands in the project area. Those leases include contractual obligations, as well as contractual rights, to develop the mineral resources contained within the leaseholds. In addition, the selected alternative has incorporated all practicable means to avoid or minimize environmental harm.

Alternatives Considered but Eliminated from Detailed Analysis

One Well per Pad: This alternative would have resulted in the construction of an additional 154 well pads, and the disturbance of an additional 537 acres. EOG determined that it could co-locate 154 wells on existing well pads, so that overall surface disturbance and other environmental impacts would be reduced. Therefore, the one well per pad alternative was eliminated from detailed analysis.

No New Development on BLM-administered lands: This alternative was eliminated from detailed analysis because it was not feasible for the following reasons:

- As of March 1, 2004, 100 wells remained to be constructed and drilled within the project area that were authorized through the Decision Record for the 1999 Chapita Wells Environmental Assessment;
- The BLM cannot deny reasonable access through Federal lands to private holdings (*Utah v. Andrus*, 486 F. Supp. 995 (1979));
- Denial of development on Federal lands could lead to the drainage of federal reserves by wells on adjacent lands, resulting in a loss of federal resources; and
- Not allowing development on Federal lands would not be consistent with the lease rights granted to EOG.

Directional Drilling: This alternative was eliminated from detailed analysis because universal application is constrained by the technical reasons documented in section 2.4.3 of the FEIS. However, directional drilling would be considered on a site-specific basis in areas where vertical drilling is not feasible, or in areas where vertical drilling would lead to unacceptable environmental impact.

Decreased Density Development: Lower well density/spacing patterns (80-acre, 160-acre, etc) were considered, but the oil and gas reservoir characteristics, such as limited permeability, limit the effectiveness of drainage from lower spaced wells. Drilling wells on 80-acre spacing would result in 403 wells, as opposed to 627 wells (a 37% reduction). However, anticipated production from a single well located on 80-acre spacing would not be able to match the production from two wells spaced on 40-acres. This alternative therefore would not meet the purpose and need to provide data with which to evaluate future well spacing.

Best Management Practices: This eliminated alternative would have required EOG to implement all of the BMPs listed in the BLM National policy guidance. Some of these BMPs were examined in detail in section 2.4.5 of the FEIS and were found to not be feasible in the project area for technical or economic reasons. However, those BMPs that are feasible in the project area were included in the proposed action, and have been carried forward into the selected alternative.

Phased Development: This alternative would restrict exploration and development in some areas until all development within a specified area was completed. This alternative was eliminated because:

- It would concentrate impacts into one discrete area until that area was completely developed, at which time development would move into the next discrete area. This may conflict with temporal, spatial, and seasonal

restrictions designed to minimize impacts to wildlife or other resource values, and.

- The project includes exploratory areas that have yet to demonstrate production that warrants the complete development inherent to this phased alternative.

Minimum Setback Distances: This alternative would require minimum setback distances from sensitive resources such as riparian, floodplains, springs, sensitive wildlife, geologic constraints, and cultural resources. It was eliminated from detailed analysis for the following reasons:

- EGO voluntarily revised the proposed action to preclude development in the 100-year floodplain of the White River so that the primary need for this alternative (avoidance of the 100-year floodplain of the White River), as described in the USFWS comment letter, was resolved through the proposed action; and
- Well sites shown in Figure 2-1 of the FEIS depict conceptual locations, so that the resources of concern can be avoided at a site-specific level through the application of the lease terms, this ROD's COAs, and 43 CFR 3101.1-2 (which allows the well to be moved 200 meters to avoid resource conflicts).

Measures to avoid or minimize environmental harm: Applicant-committed measures and BMPs were integrated into the alternatives analyzed in the FEIS. Mitigation measures were developed based on impact analysis. These measures were developed based on preliminary data and experience from over 50 years of oil and gas operations in the Uinta Basin, as well as the input of BLM's technical specialists, other agencies, and the public. These applicant-committed measures, BMPs, and mitigation measures were all carried forward as Conditions of Approval in this ROD (see Attachment 1).

Public and agency involvement: The public and agency involvement process for this project included the following:

Cooperating Agencies:

- Uintah County;
- Bureau of Indian Affairs;

Public scoping:

- Federal Register Notice of Intent published October 1, 2004 announcing the public scoping period held from October 1 through November 1, 2004;
- A public scoping open house held November 20, 2004 in Vernal, Utah;

Public Comment:

- Federal Register Notice of Availability of the Draft EIS published January 20, 2006 beginning the public comment period held from January 12 through March 13, 2006;
- A public comment open house held February 8, 2006 in Vernal, Utah; and
- Responses to written comments contained in Chapter 6 of the FEIS.

FEIS Availability Period:

- Federal Register Notice of Availability of the FEIS published January 4, 2008 announcing a public availability period held from January 4, 2008 through February 4, 2008;
- Consideration of written comments received on the FEIS.

Clarifications based on comments on the FEIS:

Three comment letters on the FEIS were received during the public availability period from January 4, 2008 through February 4, 2008. Letters were submitted by the Environmental

Protection Agency (EPA), Southern Utah Wilderness Alliance (SUWA), and EOG. The EOG letter suggested minor changes to some of the mitigation measure wording. Those comments were incorporated into Attachment 1. Two substantive comments were extracted from the remaining two letters and were determined to need clarification. Those comments and the clarifying responses to those comments are included below:

Comment (EPA): The FEIS failed to compare the proposed action to any alternative that meets the purpose and need. Only by providing a range of alternatives to consider in the EIS process can the decision maker have latitude in managing the development of the resource and their resulting environmental impacts. The FEIS lacks this basic requirement of an EIS.

Response: NEPA Section 102(E) requires all agencies of the Federal Government study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources. EPA has not identified any conflicts not resolved by the proposed action and has not identified any specific alternatives that should have been addressed. By incorporating all practical mitigation into the proposed action, the proposed action resolved conflicts and streamlined the NEPA process in a way that reduces paperwork and delay as called for in the Council on Environmental Quality (CEQ) Guidelines for Implementation of NEPA (40 CFR 1500.4 and 1500.5). The CEQ has stated that "range of alternatives" as referred to in Sec. 1505.1(e) includes all reasonable alternatives, which must be rigorously explored and objectively evaluated, as well as those other alternatives, which are eliminated from detailed study with a brief discussion of the reasons for eliminating them (CEQ 40 Most Asked Questions 1a.). As discussed above in this ROD and in the FEIS, the range of alternatives considered for the EOG proposal includes two alternatives that were fully evaluated in detail in the EIS, Alternative A – Proposed Action and Alternative B – No Action, and eight additional alternatives that were considered as a result of public or other agency involvement, but were eliminated from detailed analysis with a brief discussion of the reasons for eliminating them. Therefore, BLM has met the NEPA requirement for consideration of alternatives during the EIS process.

Comment (EPA and SUWA): The BLM must update its modeling for PM_{2.5}, PM₁₀, NO₂, and ozone to reflect the present ambient conditions of the project area and the Uinta Basin. We suggest that the Record of Decision consider the new air quality information from the Vernal Monitoring station and implement additional mitigation that would reduce air emissions or phase the development over a longer time period to maintain air quality within PM_{2.5} standards.

Response: The ambient conditions of the project area used for air quality background concentrations are based on current Utah Department of Environmental Quality – Division of Air Quality (UDEQ-DAQ) estimates. Estimates are included in the FEIS for PM_{2.5}, PM₁₀, and NO_x emissions. As ozone prediction is often based upon a regional analysis, it is highly doubtful that the impacts from this individual project would be detected. Although the UDEQ-DAQ installed a PM_{2.5} monitor in December 2006 in Vernal UT to obtain background concentration data, the required three-year average concentration data is not available for the Uinta Basin. The closest monitoring station with the three-year average is located in Grand Junction, and is not representative of the Uinta Basin. All identified air quality mitigation has been carried forward as conditions of approval for this decision.

Please note that emission inventories were developed for PM₁₀ and PM_{2.5} emissions associated with the Chapita Wells/Stagecoach Area (CWSA) EIS. The air quality analysis for the EIS was started in January 2005 and completed in September 2005 with the

submission of the Air Quality Technical Support Document to BLM. The analysis did not include modeling of PM_{2.5} because the PM_{2.5} National Ambient Air Quality Standard was in litigation at the time. However, the PM_{2.5} ambient air concentrations (impacts) can now be easily estimated from the PM₁₀ results for two reasons. First, the sources of PM_{2.5} (earth moving, road dust, combustion engines) are identical to the sources of PM₁₀. Also, ambient air impacts are directly proportional to emissions. Therefore, the ratio of PM₁₀ to PM_{2.5} emissions can be applied to the modeled PM₁₀ concentration to determine the PM_{2.5} concentration.

Originally, the PM₁₀ modeling was performed using the most conservative assumptions by reporting the highest 24-hour value from the four years of modeling. New modeling was performed and the average of the fourth highest value for each year is now reported according to the modeling guidelines set forth in the Industrial Source Complex User's Guide (EPA-454/B-95-003a, September 1995).

The following tables show the ratio of PM_{2.5} to PM₁₀ emissions. Then the modeled concentrations of PM_{2.5} are scaled to the PM₁₀ values. PM_{2.5} is the highest during the construction of an individual well pad and road but all the PM_{2.5} ambient concentrations are below the NAAQS for all levels of development and operations.

CWSA Proposed Action PM₁₀ and PM_{2.5} Construction Emissions (tons/year)

Pollutant	Pad/Road Construction	Drilling	Completion
PM ₁₀	53.5	387.3	166.1
PM _{2.5}	9.0	61.4	25.5
Ratio PM _{2.5} /PM ₁₀	0.168	0.158	0.153

PM₁₀ and PM_{2.5} Impacts from CWSA Construction and Development

Activity	24-Hour Maximum Ambient Air Concentration (µg/m ³)			Annual Maximum Ambient Air Concentration (µg/m ³)		
	Modeled	With Background ²	Percent of 24-Hour Standard 3 (Project + Background)	Modeled	With Background ⁴	Percent of Annual Standard 5 (Project + Background)
Modeled PM₁₀						
Pad and Road Construction	41.1	69.1	46.06	14.23	NA	NA
Drilling	21.8	49.8	33.20	6.33	NA	NA
Completion	45.3	73.3	48.7	12.83	NA	NA
Scaled PM_{2.5}						
Pad and Road Construction	(41.1 * .168 =) 6.91	31.91	91.17	2.39	11.39	75.9
Drilling	(21.8 x .158 =) 3.44	28.44	81.25	1.00	10.00	67.7

Completion	(45.3 x .153 =) 6.93	31.93	91.22	1.96	10.96	73.1
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¹ $\mu\text{g}/\text{m}^3$ is micrograms of pollutant per cubic meter of air

² 24-hour PM_{10} background is $28 \mu\text{g}/\text{m}^3$

³ 24-hour PM_{10} standard is $150 \mu\text{g}/\text{m}^3$

⁴ Annual background is $10 \mu\text{g}/\text{m}^3$

⁵ Annual standard is $50 \mu\text{g}/\text{m}^3$

⁶ 24-hour $\text{PM}_{2.5}$ background is $25 \mu\text{g}/\text{m}^3$

⁷ Annual $\text{PM}_{2.5}$ background is $9 \mu\text{g}/\text{m}^3$

CWSA Proposed Action Annual Operations Emissions (tons/year)

Pollutant	15 Compressor Stations	15 Dehydrator Reboilers	969 Gas Well Pad Heater Separators	Vehicles	52 Oil Well Pad Pumping Units	22 CTF Heater Separator	Project Total
PM10	0	0.0		83.2	0	0.6	83.8
PM2.5	3.4	0.0	7.5	12.8	0	0.6	24.3
Ratio PM2.5/PM10	1.00		1.00				0.289

Note: emissions based on full-field operation after all development complete

CWSA Proposed Action Impacts

Pollutant	Averaging Period	GDBR Max ($\mu\text{g}/\text{m}^3$)	Project + Background ($\mu\text{g}/\text{m}^3$)	% of NAAQS (Project + Background)
Modeled PM10	24-hour	9.4	37.4	24.9
Modeled PM10	Annual	2.2	12.2	24.4
Scaled PM2.5	24-hour	(20.9 x .181 =) 3.78	28.78	82.2
Scaled PM2.5	Annual	(5.3 x .181 =) 0.98	9.98	66.5

Note:

1. impacts based on full-field operation after all development complete
2. $\mu\text{g}/\text{m}^3$ is micrograms of pollutant per cubic meter of air
3. 24-hour PM_{10} background is $28 \mu\text{g}/\text{m}^3$

4. 24-hour PM_{10} standard is $150 \mu\text{g}/\text{m}^3$
5. Annual background is $10 \mu\text{g}/\text{m}^3$
6. Annual standard is $50 \mu\text{g}/\text{m}^3$
7. 24-hour $\text{PM}_{2.5}$ background is $25 \mu\text{g}/\text{m}^3$
8. Annual $\text{PM}_{2.5}$ background is $9 \mu\text{g}/\text{m}^3$

Cumulative Impacts

As shown in the Proposed Action modeling, PM_{10} impacts are highest very near construction activities. Since construction activities do not tend to overlap in time or space, the incremental effects would not be additive. Therefore, the cumulative effects of both PM_{10} and $\text{PM}_{2.5}$ would be minimal.

Consultation:

U.S. Fish and Wildlife Service: Preliminary comments from the USFWS were received on November 4, 2004. They were taken into account in the drafting of the EIS. A consultation initiation and request for a list of species letter was sent on December 29, 2004. An additional consultation letter was sent on January 17, 2006. A Biological Opinion was received from the USFWS on July 10, 2007. All conservation measures identified through the Biological Opinion were already included in the applicant-committed measures and mitigation sections of the FEIS, and have been carried forward in this Record of Decision as conditions of approval. Consultation is therefore considered to be closed. However,

consultation will be reinitiated as necessary upon site-specific review of individual applications.

Utah State Historic Preservation Office: Consultation was initiated on January 13, 2004 with a recommendation of "no historic properties affected" based on the applicant committed measures. SHPO did not respond to BLM, therefore BLM considers consultation closed in accordance with 36 CFR 800.3(c)(4). However, consultation will be reinitiated as necessary upon site-specific review of individual applications.

Native American Tribes: Consultation was initiated on January 11, 2006 with the following Native American Tribes: Hopi, White Mesa Ute, Zia Pueblo, Eastern Shoshone, Santa Clara Pueblo, Southern Ute, Ute Mountain Ute, Confederated Tribes of the Goshute Reservation, Laguna Pueblo, Navajo Nation, Ute Tribe, and Northwest Shoshone. A letter from the Pueblo of Laguna was received on January 27, 2006 stating that the project will not have an affect, but requesting reinitiation of consultation should cultural resources be found during the site-specific review of individual applications. A letter from the Confederated Tribes of the Goshute Reservation was received on February 27, 2006. No concerns were identified. Consultation is therefore considered to be closed. It will be reinitiated as necessary upon site-specific review of individual applications.

**Signature Page
For
Chapita Wells-Stagecoach Area Natural Gas Development
Record of Decision**

Signature and Title of Responsible Official:

William Hinger
Signature

Field Manager
Title

March 31, 2008
Date

APPEALS: This decision is effective upon the date it is signed by the authorized officer. The decision is subject to appeal. Under BLM regulation, this decision is subject to administrative review in accordance with 43 CFR 3165. Any request for administrative review of this decision must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, Utah State Office, P.O. Box 45155, Salt Lake City, Utah, 84145-0155, within 20 business days of the date this Decision is received or considered to have been received.

If you wish to file a petition for stay, the petition for stay should accompany your notice of appeal and shall show sufficient justification based on the following standards:

- (1) The relative harm to the parties if the stay is granted or denied;
- (2) The likelihood of the appellant's success on the merits;
- (3) The likelihood of irreparable harm to the appellant or resources if the stay is not granted;

and,

- (4) Whether the public interest favors granting the stay.

If a petition for stay is submitted with the request for administrative review, a copy of the request for administrative review and petition for stay must be served on each party named in the decision from which the appeal is taken, and with the State Director at the same time it is filed with the authorized officer.

ATTACHMENT 1
CONDITIONS OF APPROVAL

CONDITIONS OF APPROVAL FOR THE CHAPITA WELLS-STAGECOACH AREA NATURAL GAS DEVELOPMENT PROJECT

Applicant-
Committed
Measures

Mitigation
Measures

Description of COA by Resource, Resource Value, or Issue

GEOLOGY, SURFACE WATER, FLOODPLAINS, RIPARIAN HABITATS, AND WETLANDS

X	EOG will not drill from new or existing well pads located within the 100-year floodplain of the White River Corridor. The White River Corridor is defined as the line of sight from the centerline, up to ½ mile along both sides of the White River.
X	EOG would not drill wells in the White River corridor that would result in new well pads or new roads. EOG may drill new twin wells on existing well pads within the White River Corridor (but outside of the 100-year floodplain). These twins to existing well would require no new roads. The White River Corridor is defined as the line of sight from the centerline, up to ½ mile along both sides of the White River.
X	For surface-disturbing activities proposed within the 100-year floodplains of Coyote Wash and Red Wash, additional applicant-committed design features will be considered on a site-specific basis during the onsite inspection in order to maintain and protect wildlife habitat, water quality, quality of the recreation experience, and other land uses. Such site-specific design features could include the use of closed-loop drilling within the 100-year floodplain, directional drilling, placement of surface facilities (other than the associated wellhead and pipeline) outside of the floodplain, and/or other measures designed to eliminate potential impacts to the floodplains. The decision to implement additional, site-specific design features within the 100-year floodplains of Coyote Wash and Red Wash will be determined on a well-by-well basis during the APD approval process.
X	Erosion control at locations proposed for surface disturbance will consist of building sediment retention dams down slope from these facilities. Grading of individual locations shall direct drainage away from established watercourses. Each of the sediment retention dams shall be constructed so that they will function as a spillway if the dams become filled with sediment.
X	As feasible, EOG will utilize centralized tank locations for water and condensate tanks. The feasibility of centralizing tank facilities will be determined on a site-specific basis.
	Slope stability issues and multiple mineral development conflicts will be addressed on a case-by-case basis.
	Well pads and other project facilities will be constructed to prevent overland flow of water and sediment from leaving the facilities. This will be accomplished through the use of BMPs, including, but not limited to, berms, sediment control structures, grading, and interim reclamation. Interim (and final) reclamation will be implemented in accordance with the plan included in Appendix E of the FEIS.

CONDITIONS OF APPROVAL FOR THE CHAPITA WELLS-STAGECOACH AREA NATURAL GAS DEVELOPMENT PROJECT

Applicant-
Committed
Measures

Mitigation
Measures

Description of COA by Resource, Resource Value, or Issue

	X	<p>For long-term access road disturbances, BMPs will be employed and maintained in the disturbed areas during construction and during well production to reduce the amount of sediment that reaches the creek. Detailed construction plans for the proposed access roads will be prepared and submitted for review and approval prior to construction during the APD approval process. The road design will include specific drainage components and BMPs that will be utilized to address control of sedimentation of surface waters in the project area. Typical BMPs that will be implemented for road construction on a site-specific, case-by-case basis include:</p> <ul style="list-style-type: none"> • Erosion protection and silt retention techniques including construction of silt catchment dams, installation of culverts or drainage dips, placement of surface rock on approaches to stream crossings, and placement of surface rock could be used along proposed road reaches within 100 feet of stream channels and springs. • New access roads will be crowned and ditched to allow water to flow off the road surface to reduce volume and velocity. • Relief ditches could be installed at regular intervals to direct drainage off of the road grade and into vegetated areas, where it will infiltrate into the ground and/or sediment will settle out on the surface. • Ditches could be allowed to vegetate and/or could include large rocks or stones (if available) to slow the velocity of drainage and allow sediment to settle out. • Where drainage ditches are installed to direct runoff away from the road on steeper grades, water bars or hay bale dikes will be installed nearly perpendicular to the flow direction of the ditch to reduce runoff velocity and settle out. • Where well pads can not be moved out of the floodplain, the well pad could be constructed as far as possible to the edge of the floodplain. • Roads crossing floodplains will be constructed at the narrowest part of the floodplain, and perpendicular to the floodplain, where feasible. All attempts will be made to follow this guidance, however, site-specific conditions will dictate the road construction location. • Pipelines constructed in washes will be installed in accordance with the BLM's Hydraulic Considerations for Pipeline Crossings of Stream Channels and as directed by the AO. • Sediment traps or basins could be installed in problem locations where insufficient vegetative buffering is available. • Road design plans will identify specific locations of drainage features and BMPs for approval by the BLM prior to construction. • Maintenance and reclamation responsibilities for sediment retention features shall remain with the operator for the life of the permit.
	X	<p>EOG will implement an Spill Prevention Control and Countermeasure plan per the provisions of 40 CFR 112.</p>

CONDITIONS OF APPROVAL FOR THE CHAPITA WELLS-STAGECOACH AREA NATURAL GAS DEVELOPMENT PROJECT

Description of COA by Resource, Resource Value, or Issue

SOILS

EOG will follow the procedures specified in *Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development* (the Gold Book), 4th Edition, 2007.

EOG will assume maintenance responsibilities for sediment retention features for the life of the permit. Sediment dams and basins will be evaluated over time and cleaned out as necessary. In addition, based on a site-specific review by the AO, sediment retention features associated with plugged and abandoned wells will be cleaned out or eliminated. Elimination will include removing the dam, grading to restore the original contour, and reseeded as directed by the AO.

Except in native badland soils that are unvegetated, all disturbed areas of access roads, other than the driving surface, shall be revegetated as directed by the AO when the associated wells are put into production. This requirement includes but is not limited to the shoulders, drainage ditches, and cut and fill slopes of the access roads.

GROUNDWATER

Groundwater zones encountered during drilling will be protected as directed by the BLM for Federal or Indian minerals, or UDOGM for fee or state minerals. If encountered, groundwater zones will be reported to the applicable agency. The approved casing and cementing program will be designed to isolate and protect groundwater resources.

EOG will implement an SPCC plan per the provisions of 40 CFR 112.

If it is determined by the AO during the on-site inspection that a pit liner will be necessary, the reserve pit will be lined with a synthetic reinforced liner, a minimum of 12 millimeters thick, and sufficient bedding will be used to cover rocks. The liner will overlap the pit walls and be covered with dirt and/or rocks to hold it in place. Generally, a pit liner will not be required in clay or bentonite soils while a liner will usually be required in sandy soil and fractured shale.

AIR QUALITY

Mitigation of air quality impacts on Federal, State and fee lands within the project area will be accomplished through the permitting of all regulated air pollution sources through the appropriate agency. Mitigation of air quality impacts on Tribal/allotted lands or within the Tribal airshed, will be accomplished through the permitting of all regulated air pollution sources through the Ute Indian Tribe and EPA as appropriate.

Applicant-Committed Measures

Mitigation Measures

X

X

X

X

X

X

X

CONDITIONS OF APPROVAL FOR THE CHAPITA WELLS-STAGECOACH AREA NATURAL GAS DEVELOPMENT PROJECT

Applicant-Committed Measures

Mitigation Measures

Description of COA by Resource, Resource Value, or Issue

		<p>The construction and operating permitting processes will typically require the use of clean burning technologies and other emission controls for larger sources of emissions (such as compressor engines) in order to reduce impacts to ambient air quality. For minor sources of air pollution, such as small dehydrators and well pad condensate tanks, impacts are generally insignificant and mitigation may not be warranted.</p>
X		<p>To reduce the emission of fugitive dust from major roads, routine road watering and/or application of magnesium chloride will be implemented on Federal lands at the direction of the BLM.</p>
X		<p>VEGETATION</p> <p>Power washing of all construction and drilling equipment will occur prior to the equipment entering the project area from outside the Vernal Field Office area.</p>
X		<p>EOG will control noxious weeds along its well access roads and pipelines, at well pads, and other facilities installed or operated by EOG, and provide Pesticide/Herbicide Use proposals as specified by the BLM. EOG will reseed in all portions of well pads and ROWs not utilized for the operational phase of the project, as well as any sites within the project area determined necessary by the appropriate BLM. Reseeding will be accomplished using seed mixes selected by the AO of the BLM. Post-construction seeding applications will continue at the direction of the BLM. On BLM-administered land, pesticide or herbicide use will be conducted in accordance with an Approved Pesticide Use and Weed Control Plan. Weed monitoring and reclamation measures will occur on a regular basis (or as frequently as the BLM determines) throughout the life of the project. Interim and final reclamation will be implemented in accordance with the plan included in Appendix E of the FEIS.</p>
		<p>RECREATION AND VISUAL RESOURCES</p> <p>Proposed pipelines will be buried where determined to be appropriate by the AO, based on site-specific conditions. In areas where compacted sandstone or bedrock occurs, chain trenchers and/or rock saws (also known as wheel or disc trenchers) will be used to excavate pipeline trenches. Following pipeline installation, the buried pipeline ROW will be reclaimed in accordance with the measures outlined in Appendix E of the FEIS.</p>
X		<p>To preserve the integrity of the viewshed, during APD processing, and as feasible, EOG and the AO will:</p> <ul style="list-style-type: none"> • Jointly determine the use of topographic features to serve as visual screens; • Place facilities away from highly visible points such as ridgelines; • Use low-profile tanks to reduce visibility where taller tanks will be more visible; and, • Avoid excessive side-casting of earth materials from ridgelines and steep slopes.

CONDITIONS OF APPROVAL FOR THE CHAPITA WELLS-STAGECOACH AREA NATURAL GAS DEVELOPMENT PROJECT

Description of COA by Resource, Resource Value, or Issue

Applicant-Committed Measures	Mitigation Measures	Description of COA by Resource, Resource Value, or Issue
X		Any twin wells in the White River corridor (but outside of the 100-year floodplain) will be located, designed, or screened to be out of view of recreational boaters on the White River from the upstream boundary of the Chapita Wells Unit to the Mountain Fuel Bridge. The White River Seen Area Analysis (Chapter 4.0, Map 4-1, EOG Resources, Inc., Environmental Assessment Chapita Wells Unit Infill Development, Uintah County Utah, EA No. UT-080 1999-32) is the conceptual guideline used to define areas that are out of view of White River recreational boaters.
X		If drilled, twin wells within the White River corridor (but outside the 100-year floodplain) will be drilled during the months of August through April, outside of the typical boating season, to the extent possible in consideration other applicable constraints, such as seasonal restrictions associated with wildlife protection.
X		EOG shall improve sight distances along routes accessing Fantasy Canyon and the White River by implementing construction measures developed in conjunction with the AO. Such measures will include taking out high points on rises and by laying back cut slopes near blind turns.
X		EOG will post signs along routes accessing Fantasy Canyon and the White River warning motorists of heavy truck traffic.
X		Operating equipment on all lands contained within the boundaries of the project area will be painted in a flat non-reflective color that is compatible with the surrounding landscape as specified by the BLM. Unpainted steel pipe will be used for surface gathering pipelines, which after rusting will blend with the existing landscape.
	X	All blasting that may be required under the Proposed Action will be at least 800 feet from the geologic formations in Fantasy Canyon.
	X	Where feasible, existing vegetation on and around proposed well pads will be retained to screen well pad facilities.
NOISE		
	X	As determined necessary during the onsite process, EOG will position exhaust stacks to point away from Fantasy Canyon.
	X	At the discretion of the BLM, additional mitigation measures to reduce impacts from noise will be determined on a site-specific basis.
X		EOG will utilize plunger equipment when practical in order to minimize the need for venting low-volume wells.

CONDITIONS OF APPROVAL FOR THE CHAPITA WELLS-STAGECOACH AREA NATURAL GAS DEVELOPMENT PROJECT

Description of COA by Resource, Resource Value, or Issue

Applicant-Committed Measures

Mitigation Measures

CULTURAL RESOURCES

Prior to any project-related surface disturbance, all locations proposed for surface disturbance will be examined by an archaeologist approved by the applicable surface management agency to determine the presence of cultural resources. If any cultural resources are found, recommendations will be made to avoid or recover such resources. The possible need for onsite monitoring will be addressed during onsite reviews. If any historic or archaeological resources are found during operations, all surface disturbing activities that could further disturb such materials will be suspended until the appropriate authorities are contacted, and a review of the situation is completed.

X

PALEONTOLOGIC RESOURCES

In sensitive fossil areas (Condition 1¹) where bedrock is exposed at or near surface (generally less than three feet below the soil surface), a qualified and approved paleontologist will examine locations proposed for surface disturbance for paleontological resources and make recommendations regarding the disposition of such resources. The possible need for onsite monitoring will be addressed during onsite reviews. If any paleontological resources are found during operations, all operations that could further disturb such materials will be suspended until the AO of the BLM is contacted, and a review of the situation is completed.

X

Because of the rich fossil resources that have been demonstrated to occur in the Uinta and Duchesne River formations of the project area, paleontological surveys will be conducted by qualified permitted paleontologists prior to any proposed surface disturbance in Condition 1 and Condition 2² areas. If significant fossils are encountered during the survey, the paleontologist will assess and document the discovery, and either collect the fossils or recommend the area be avoided so as not to destroy the resource. On BLM-administered land, the BLM AO will determine the need for further monitoring or mitigation of the area during ground disturbing activities. If fossils are encountered by EOG during excavation, the Authorized Officer will be notified and construction be suspended until the fossils are assessed by a qualified paleontologist.

X

¹ A new Potential Fossil Yield Classification System replaced the Condition Classification System in October of 2007. Condition 1 areas under the Condition Classification System equates to Class 4 or Class 5 of the Potential Fossil Yield Classification System.

² Condition 2 areas under the Condition Classification System equate to Class 3 of the Potential Fossil Yield Classification System.

CONDITIONS OF APPROVAL FOR THE CHAPITA WELLS-STAGECOACH AREA NATURAL GAS DEVELOPMENT PROJECT

Applicant-
Committed
Measures

Mitigation
Measures

Description of COA by Resource, Resource Value, or Issue

THREATENED, ENDANGERED AND OTHERWISE SPECIAL STATUS SPECIES

Prior to any project-related surface disturbance, all locations proposed for surface disturbance will be examined by a wildlife biologist and botanist approved by the BLM to determine if any Federally Threatened or Endangered (T&E) plant or wildlife species are present. If present, EOG will consult with the BLM prior to initiating any surface disturbance activities, and shall implement appropriate avoidance or mitigation measures. Site-specific T&E species clearances will be performed at the time of the onsite review.

EOG will implement the USFWS Conservation measures for the Uinta Basin hookless cactus and Ute ladies'-tresses (see Attachment 3).

WILDLIFE

In conjunction with the APD, EOG will coordinate with the BLM to have a survey conducted (by an approved biologist) prior to surface-disturbing activities to determine whether raptor nests are present within 0.5 mile of locations proposed for surface disturbance. If nests are determined to be present, the AO from the BLM shall determine appropriate measures to avoid disturbing active nest sites and to protect the viability of all nest sites or potential future nesting. Such measures may include: timing limitations on new construction and surface-disturbing activities within 0.5 mile of known nests (1.0 mile for nesting peregrine falcons); the use of terrain features to shield the nest site from human activities; and, the construction of artificial nest sites in appropriate locations.

Where feasible, new well pads, access roads, pipelines, and other facilities or infrastructure will be located in a manner that conceals them from raptor nests (active or inactive) through use of topographic and vegetative screening.

Netting or flagging of reserve pits will be considered on a site-specific basis in order to avoid or reduce wildlife contact with pit fluids.

CONDITIONS OF APPROVAL FOR THE CHAPITA WELLS-STAGECOACH AREA NATURAL GAS DEVELOPMENT PROJECT

Applicant-Committed Measures

Mitigation Measures

Description of COA by Resource, Resource Value, or Issue

		<p>In order to protect bald eagles and their habitat, the following measures will be implemented:</p> <ol style="list-style-type: none"> 1. Temporary activities within 1.0 mile of nest sites will not occur during the breeding season of January 1 to August 31, unless the area has been surveyed and determined to be unoccupied. 2. Temporary activities within 0.5 mile of winter roost areas, e.g., cottonwood galleries, will not occur during the winter roost season of November 1 to March 31, unless the area has been surveyed and determined to be unoccupied. 3. No permanent infrastructure will be placed within 1.0 mile of nest sites. 4. No permanent infrastructure will be placed within 0.5 mile of winter roost areas. 5. EOG will encourage their field personnel to notify UDWR for removal of carrion from roadways within bald eagle foraging range. 6. Loss or disturbance to large cottonwood gallery riparian habitats will be avoided. 7. Directional drilling will be utilized to avoid direct impacts to large cottonwood gallery riparian habitats: <ol style="list-style-type: none"> a. When employing directional drilling techniques, the operator will ensure that drilling does not intercept or degrade alluvial aquifers 8. In all areas of surface disturbance within riparian areas and/or adjacent uplands the operator will reseed with native species indigenous to the area and non-native species that are not likely to invade other areas.
	X	
	X	<p>Surface-disturbing activities will be avoided within habitats supporting riparian vegetation in order to minimize loss or degradation of habitats for the special status fishes, the Western yellow-billed cuckoo, and the common yellowthroat.</p>
	X	<p>If surface disturbance within sagebrush habitats is proposed between March 1 and June 15, surveys will be conducted by a qualified biologist to document the presence of active sage grouse leks. All active lek locations will be reported to the AO of the BLM.</p>
	X	<p>No permanent facilities will be allowed within 1,000 feet of any identified greater sage-grouse leks.</p>
	X	<p>If overhead electric lines are installed, precautionary measures to protect raptors will be taken. Suggested Practices for Raptor Protection on Power Lines: The State of the Art, Avian Power Line Interaction Committee will be used as a guideline.</p>

CONDITIONS OF APPROVAL FOR THE CHAPITA WELLS-STAGECOACH AREA NATURAL GAS DEVELOPMENT PROJECT

Applicant-
Committed
Measures

Mitigation
Measures

Description of COA by Resource, Resource Value, or Issue

The following measures will be implemented to minimize impacts on the Colorado River endangered fish species and their designated habitats:

1. To avoid entrainment, water should be pumped from an off-channel location – one that does not connect to the river during high spring flows. An infiltration gallery constructed in a BLM and USFWS approved location is best.
2. If the pump head is located in the river channel where larval fish are known to occur, the following measures apply:
 - a. the pump will not be situated in a low-flow or no-flow area as these habitats tend to concentrate larval fishes;
 - b. the amount of pumping will be limited, to the greatest extent possible, during that period of the year when larval fish may be present (see above); and
 - c. the amount of pumping will be limited, to the greatest extent possible; during the pre-dawn hours as larval drift studies indicate that this is a period of greatest daily activity.
3. All pump intakes will be screened with ¼" mesh material.
4. Any fish impinged on the intake screen will be reported to the Service (801.975.3330) and the Utah Division of Wildlife Resources:

Northeastern Region
152 East 100 North, Vernal, UT 84078
Phone: (435) 781-9453

RANGELAND MANAGEMENT

		Roads, pipelines, well pads or other gas facilities will avoid livestock reservoirs, rain gauges, corrals, springs, guzzlers, and vegetation trend plots currently in place. If there is no means to avoid these existing range facilities, mitigation to replace existing range facilities will be needed. Parameters for avoidance will be determined on a site-specific basis during the on-site process.
	X	
	X	Catchment basins will be constructed as determined necessary and feasible by the BLM and EOG to partially mitigate impacts to livestock.

CONDITIONS OF APPROVAL FOR THE CHAPITA WELLS-STAGECOACH AREA NATURAL GAS DEVELOPMENT PROJECT

Applicant-
Committed
Measures

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Description of COA by Resource, Resource Value, or Issue

	X	<p>On BLM lands, each existing fence to be crossed by an access road will be braced and tied off before the wire is cut. The braces will be at a minimum of 2^{7/8} outside diameter OD steel pipe, in order to reduce the need for maintenance and to increase the life of the fence. The braces will consist of three posts and two top rail-braces. The brace posts will be cemented in the ground at a minimum of least 3-feet deep, and welded with a 2^{7/8} top rail, with any open ends capped. The height of the brace posts will be at 42 inches from the ground to the top of the brace. A 16-foot steel powder-river type gate will be welded to the fence brace post adjacent to the cattleguard. The steel gate increases the likelihood of the gate being closed after someone goes through it due to the ease of opening and closing the steel gate as opposed to the wire type gates. A cattleguard will be installed on concrete bases. The fencing, braces, gate, cattleguard, and bases will follow BLM standards. EOG will assume the maintenance of all such cattleguards and gates.</p>
X		<p align="center">ABANDONMENT MARKER</p> <p>At final abandonment, EOG shall cut off all casing at the base of the cellar or 3 feet below final restored ground level, whichever is deeper, and cap the casing with a metal plate a minimum of 0.25 inch thick. The cap will be welded in place and the well location and identity will be permanently inscribed on the cap. The cap also will be constructed with a weep hole. GPS coordinates of the caps will be recorded and provided to the BLM.</p>

Attachment 2

Letter from EOG Resources to USFWS (July 2007)



EOG Resources, Inc.
600 Seventeenth Street
Suite 1000N
Denver, CO 80202
Attn: 303-572-9000
Fax: 303-824-5400

July 2, 2007

US Fish & Wildlife Service
Utah Field Office
2369 West Orton Circle, Suite 50
West Valley City, UT 84119

Attn: Bekce Megown, Biologist, USFWS

Dear Ms. Megown:

Based on our conversation today regarding the USFWS review of the Final Chapita Wells-Stagecoach Area Natural Gas Development Environmental Impact Statement, EOG Resources, Inc. (EOG) will not drill from new or existing well pads located within the 100-year floodplain of the White River corridor. EOG's commitment will allow the USFWS to complete the Biological Opinion in a timely manner.

Should you have any questions, please contact Eric Dille, Government Affairs Specialist at Eric_Dille@eogresources.com or 303-824-5542.

Sincerely,
EOG Resources, Inc.

A handwritten signature in black ink, appearing to read "J. R. Schaefer".

James R. Schaefer
Division Operations Manager

cc: Bill Stringer, Vernal Field Office Manager
Stephanie Howard, NEPA Manager, Vernal Field Office

energy opportunity growth

Attachment 3

**USFWS Conservation Measures
Uinta Basin hookless cactus
Ute ladies'-tresses**

Uinta Basin hookless cactus (*Sclerocactus glaucus* (= *brevispinus* and *wetlandicus*))

In order to minimize effects to the federally threatened Uinta Basin hookless cactus, the Bureau of Land Management (BLM) in coordination with the U.S. Fish and Wildlife Service (Service), developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the Endangered Species Act (ESA). The following avoidance and minimization measures should be included in the Plan of Development:

1. Pre-project habitat assessments will be completed across 100% of the project disturbance area within potential habitat³ prior to any ground disturbing activities to determine if suitable Uinta Basin hookless cactus habitat is present.
2. Within suitable habitat⁴, site inventories will be conducted to determine occupancy. Inventories:
 - a. Must be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols,
 - b. Will be conducted in suitable and occupied⁵ habitat for all areas proposed for surface disturbance prior to initiation of project activities and within the same growing season, at a time when the plant can be detected, and during appropriate flowering periods:
 - i. *Sclerocactus brevispinus* surveys should be conducted March 15th to June 30th, unless extended by the BLM
 - ii. *Sclerocactus wetlandicus* surveys can be done any time of the year, provided there is no snow cover,
 - c. Will occur within 115' from the centerline of the proposed right-of-way for surface pipelines or roads; and within 100' from the perimeter of disturbance for the proposed well pad including the well pad,
 - d. Will include, but not be limited to, plant species lists and habitat characteristics, and
 - e. Will be valid until March 15th the following year for *Sclerocactus brevispinus* and one year from the survey date for *Sclerocactus wetlandicus*.
3. Design project infrastructure to minimize impacts within suitable habitat:
 - a. Reduce well pad size to the minimum needed, without compromising safety,
 - b. Limit new access routes created by the project,
 - c. Roads and utilities should share common right-of-ways where possible,
 - d. Reduce width of right-of-ways and minimize the depth of excavation needed for the road bed; where feasible, use the natural ground surface for the road within habitat,
 - e. Place signing to limit off-road travel in sensitive areas,

³ *Potential habitat* is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment.

⁴ *Suitable habitat* is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain Uinta Basin hookless cactus. Habitat descriptions can be found in the U.S. Fish and Wildlife Service's 1990 Recovery Plan and Federal Register Notices for the Uinta Basin hookless cactus (<http://www.fws.gov/endangered/wildlife.html>).

⁵ *Occupied habitat* is defined as areas currently or historically known to support Uinta Basin hookless cactus; synonymous with "known habitat."

- f. Stay on designated routes and other cleared/approved areas, and
 - g. All disturbed areas will be re-vegetated with native species comprised of species indigenous to the area and non-native species that are not likely to invade other areas.
4. Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:
 - a. Follow the above (#3) recommendations for project design within suitable habitats,
 - b. Buffers of 100 feet minimum between the edge of the right of way (roads and surface pipelines) or surface disturbance (well pads) and plants and populations will be incorporated,
 - c. Surface pipelines will be laid such that a 100 foot buffer exists between the edge of the right of way and the plants, use stabilizing and anchoring techniques when the pipeline crosses the habitat to ensure the pipelines don't move towards the population,
 - d. Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc.,
 - e. Where technically and economically feasible, use directional drilling or multiple wells from the same pad,
 - f. Designs will avoid concentrating water flows or sediments into occupied habitat,
 - g. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, and
 - h. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible.
 5. Occupied Uinta Basin hookless cactus habitats within 100' of the edge of the surface pipelines' right-of-ways, 100' of the edge of the roads' right-of-ways, and 100' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.
 6. Reinitiation of section 7 consultation with the Service will be sought immediately if any loss of plants or occupied habitat for the Uinta Basin hookless cactus is anticipated as a result of project activities.

Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.

Ute ladies'-tresses (*Spiranthes diluvialis*)

In order to minimize effects to the federally threatened Ute ladies'-tresses, the Bureau of Land Management (BLM) in coordination with the U.S. Fish and Wildlife Service (Service), developed the following avoidance and minimization measures. Integration of and adherence to these measures will help ensure the activities carried out during oil and gas development (including but not limited to drilling, production, and maintenance) are in compliance with the Endangered Species Act (ESA). Ute ladies'-tresses habitat is provided some protection under Executive Orders 11990 (wetland protection) and 11988 (floodplain management), as well as section 404 of the Clean Water Act. Should plants, habitat, or populations not be protected under these regulatory mechanisms, the following conservation measures should be included in the Plan of Development:

1. Pre-project habitat assessments will be completed across 100% of the project disturbance area, including areas where hydrology might be affected by project activities, within potential habitat⁶ prior to any ground disturbing activities to determine if suitable Ute ladies'-tresses habitat is present.
2. Within suitable habitat⁷, site inventories will be conducted to determine occupancy. Inventories:
 - a. Must be conducted by qualified individual(s) and according to BLM and Service accepted survey protocols,
 - b. Will be conducted in suitable and occupied⁸ habitat for all areas proposed for surface disturbance or areas that could experience direct or indirect changes in hydrology from project activities,
 - c. Will be conducted prior to initiation of project activities and within the same growing season, at a time when the plant can be detected, and during appropriate flowering periods (usually August 1st and August 31st in the Uinta Basin; however, surveyors should verify that the plant is flowering by contacting a BLM or FWS botanist or demonstrating that the nearest known population is in flower),
 - d. Will occur within 300' from the centerline of the proposed right-of-way for surface pipelines or roads; and within 300' from the perimeter of disturbance for the proposed well pad including the well pad,
 - e. Will include, but not be limited to, plant species lists, habitat characteristics, source of hydrology, and estimated hydroperiod, and
 - f. Will be valid until August 1st the following year.
3. Design project infrastructure to minimize direct or indirect impacts to suitable habitat both within and downstream of the project area:

⁶ *Potential habitat* is defined as areas which satisfy the broad criteria of the species habitat description; usually determined by preliminary, in-house assessment.

⁷ *Suitable habitat* is defined as areas which contain or exhibit the specific components or constituents necessary for plant persistence; determined by field inspection and/or surveys; may or may not contain Ute ladies'-tresses. Habitat descriptions can be found in Recovery Plans and Federal Register Notices for the species at <http://www.fws.gov/endangered/wildlife.html>.

⁸ *Occupied habitat* is defined as areas currently or historically known to support Ute ladies'-tresses; synonymous with "known habitat."

- a. Alteration and disturbance of hydrology will not be permitted,
 - b. Reduce well pad size to the minimum needed, without compromising safety,
 - c. Limit new access routes created by the project,
 - d. Roads and utilities should share common right-of-ways where possible,
 - e. Reduce width of right-of-ways and minimize the depth of excavation needed for the road bed,
 - f. Construction and right-of-way management measures should avoid soil compaction that will impact Ute ladies' tresses habitat,
 - g. Off-site impacts or indirect impacts should be avoided or minimized (i.e. install berms or catchment ditches to prevent spilled materials from reaching occupied or suitable habitat through either surface or groundwater),
 - h. Place signing to limit off-road travel in sensitive areas,
 - i. Stay on designated routes and other cleared/approved areas, and
 - j. All disturbed areas will be re-vegetated with species approved by FWS and BLM botanists.
4. Within occupied habitat, project infrastructure will be designed to avoid direct disturbance and minimize indirect impacts to populations and to individual plants:
- a. Follow the above (#3) recommendations for project design within suitable habitats,
 - b. Buffers of 300 feet minimum between right of way (roads and surface pipelines) or surface disturbance (well pads) and plants and populations will be incorporated,
 - c. Surface pipelines will be laid such that a 300-foot buffer exists between the edge of the right of way and the plants, using stabilizing and anchoring techniques when the pipeline crosses habitat to ensure the pipelines don't move towards the population,
 - d. Before and during construction, areas for avoidance should be visually identifiable in the field, e.g., flagging, temporary fencing, rebar, etc.,
 - e. Where technically and economically feasible, use directional drilling or multiple wells from the same pad,
 - f. Designs will avoid altering site hydrology and concentrating water flows or sediments into occupied habitat,
 - g. Place produced oil, water, or condensate tanks in centralized locations, away from occupied habitat, with berms and catchment ditches to avoid or minimize the potential for materials to reach occupied or suitable habitat, and
 - h. Minimize the disturbed area of producing well locations through interim and final reclamation. Reclaim well pads following drilling to the smallest area possible.
5. Occupied Ute ladies' tresses habitats within 300' of the edge of the surface pipelines' right-of-ways, 300' of the edge of the roads' right-of-ways, and 300' from the edge of the well pad shall be monitored for a period of three years after ground disturbing activities. Monitoring will include annual plant surveys to determine plant and habitat impacts relative to project facilities. Annual reports shall be provided to the BLM and the Service. To ensure desired results are being achieved, minimization measures will be evaluated and may be changed after a thorough review of the monitoring results and annual reports during annual meetings between the BLM and the Service.

6. Reinitiation of section 7 consultation with the Service will be sought immediately if any loss of plants or occupied habitat for the Ute ladies'-tresses is anticipated as a result of project activities.

Additional site-specific measures may also be employed to avoid or minimize effects to the species. These additional measures will be developed and implemented in consultation with the U.S. Fish and Wildlife Service to ensure continued compliance with the ESA.