

**Final Environmental Impact Statement
Questar Exploration & Production (QEP)
Greater Deadman Bench Oil and Gas Producing Region**

Lead Agency: U.S. Department of the Interior
Bureau of Land Management

Project Location: Uintah County, Utah

**Comments & Further Information
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Abstract

QEP proposes to develop oil and gas resources within the 98,785-acre Greater Deadman Bench Oil and Gas Producing Region (GDBR) area located about 20 miles south of Vernal, Utah. The GDBR is partially developed with 278 existing oil and water-injection wells, 300 gas wells, and approximately 57 miles of primary roads and 314 miles of secondary roads. The Proposed Action would include the following: 1,020 natural gas wells, 219 oil/water injection wells, 169 miles of access roads, 193 miles of pipelines, 42 miles of oil flowlines, 15 2,000-horsepower compressor stations, and 22 central tank facilities. Construction would begin after the issuance of the Environmental Impact Statement Record of Decision, approval of individual Applications for Permit to Drill, and approved Right-of-Way grants. Construction would continue for 10 years and production is expected to continue for 40 years.

Two alternatives were considered in detail for this project. They are Alternative 1- the Proposed Action and Alternative 2 - the No Action Alternative. Alternative 1 consists of QEP's proposal for developing the GDBR. In addition to QEP's commitment to voluntarily apply selected Best Management Practices of those identified in the BLM Washington Office Instruction Memorandum 2002-194 listed in Chapter 2 of this document, mitigation has been disclosed, that once directed by the Decision of Record could lessen the environmental effects. Alternative 2 would consist of denying development of federal leases, but allowing development on federal leases that have been approved under the Application for Permit to Drill process. Under both alternatives, development would continue of State and private leases as well as roads and pipelines that would cross federal lands to access the State and private leases.

The Draft EIS was published on February 10, 2006 with a 45-day public comment period. Written comments were accepted from February 10 to March 27, 2006 on the DEIS. Seven comment letters were received on the Draft EIS. These comment letters are posted in Appendix 6-1 of this FEIS. A summary of the comments and the responses to the comments are shown in Chapter 6 of the FEIS.

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SUMMARY

The Bureau of Land Management (BLM), Vernal Field Office, prepared an Environmental Impact Statement (EIS) in response to a proposal filed by QUESTAR E&P (QEP) to extract and transport natural gas and oil in the Greater Deadman Bench oil and gas-producing region (GDBR). The Uintah County Government and the Bureau of Indian Affairs, Uintah and Ouray Agency, Fort Duchesne, Utah are Cooperating Agencies for this EIS. The location and boundary of the proposed project is shown on Map S-1. The lands QEP proposes to develop are either wholly or partially contained within townships T6S to T8S, R21E to R25E, Uintah County, Utah.

QEP holds valid federal, state, and private oil and gas leases in the GDBR. QEP holds approximately 79 percent of the leases within the GDBR. These leases grant contractual and property rights from the United States, the State of Utah, and the private mineral landowners to QEP for the purpose of developing oil and gas natural resources at a profit from those portions of the GDBR leased by them.

This EIS addresses the effects of implementing natural gas and oil development within the GDBR that is conceptual in nature. The location of wells and associated ancillary facilities depicted and described in the EIS represent a maximum level of development with tentative locations regardless of ownership. The final location of well pads, roads, and pipelines would be determined through future site-specific analyses that would be required for each facility. These analyses would occur when applications, such as Applications for Permit to Drill (APD) or BLM Right-of-Way Grants, are filed by QEP. Therefore, this EIS serves multiple purposes. It provides the basis for analyzing and disclosing the impacts of a full-field development, and it identifies mitigation to address issues and conditions of approval for the subsequent site-specific applications at individual locations.

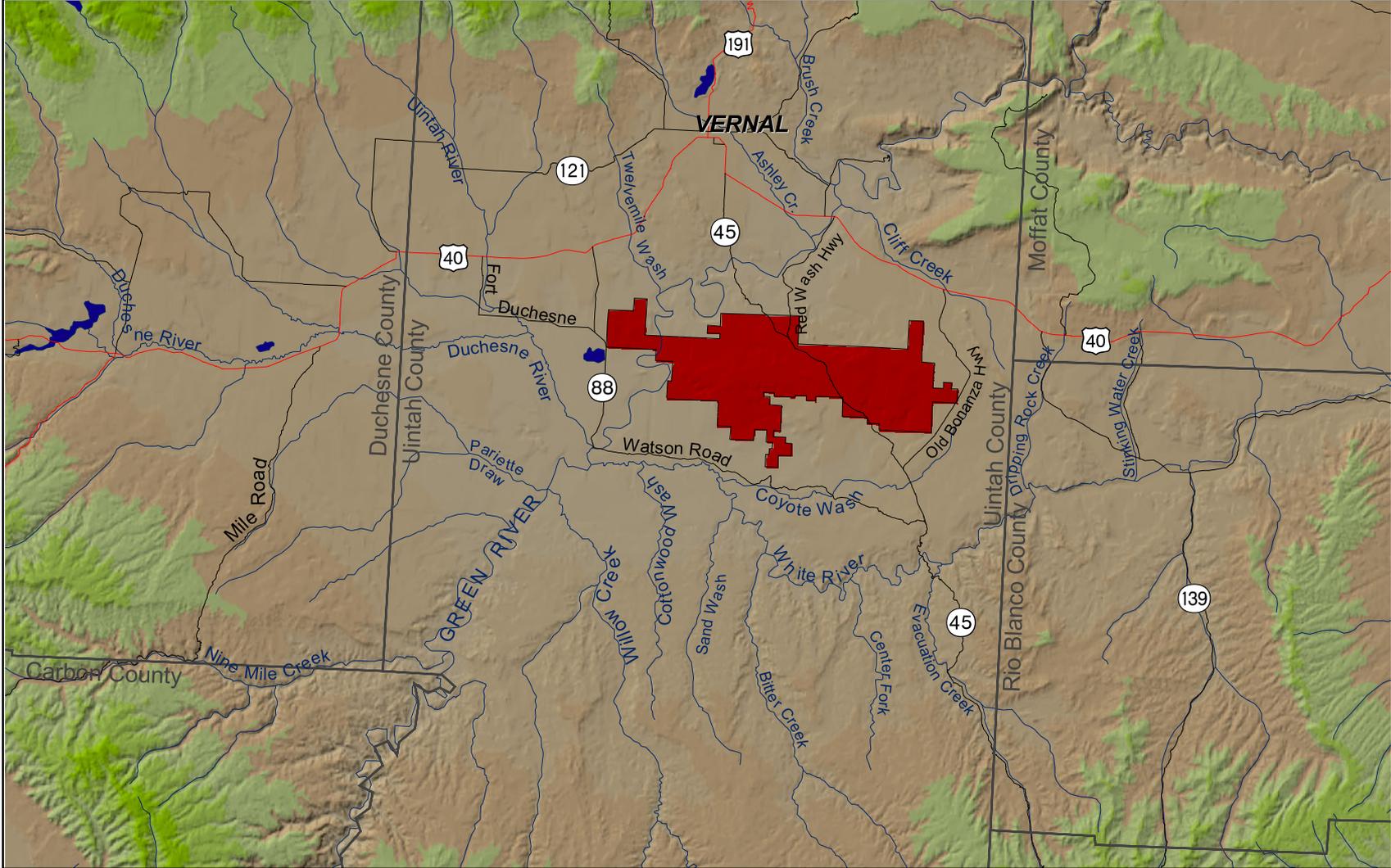
The EIS is not a decision document. Rather, it documents and discloses BLM's analysis of the potential environmental consequences of implementing the Proposed Action or the No Action alternative. The decisions regarding the GDBR project will be documented in the Record of Decision (ROD) that will be signed by the Vernal Field Office Manager, the authorized BLM official. The ROD will apply only to federal lands and leases, but decisions by other jurisdictions to issue or not issue approvals related to this project may be aided by the disclosure of impacts described in this EIS.

During the public scoping process for the Draft EIS, Uintah County and the Bureau of Indian Affairs, Uintah and Ouray Agency (BIA) were contacted and invited to be a cooperating agency on this EIS. Uintah County has participated as a Cooperating Agencies throughout the EIS process. In addition, copies of the Draft EIS and this Final EIS were submitted to the BIA and Ute Indian Tribe for their review and comment. However, no Tribal lands are included within the Proposed Action boundary. Any facilities on Tribal lands would be outside the boundary and would have a separate purpose and need so these facilities would not be reasonably connected to the Proposed Action.

LAND STATUS, LEGAL, AND POLICY CONSIDERATIONS

Land Status

The GDBR encompasses approximately 98,785 acres of land. Land ownership within this area is divided among the BLM, the Utah State Institutional Trust Lands Administration (SITLA), and various private entities. No Tribal lands are within the GDBR. BLM-administered lands account for approximately 83,864 acres (85%) of surface and mineral estate lands within the GDBR. Utah SITLA lands account for approximately 11,448 acres (12%) of surface and mineral estate lands within the GDBR. The remaining 3,473 acres (3%) consist of various privately owned surface and mineral estate lands within the GDBR. QEP currently holds leases on 79% of the federal, state, and private lands within the GDBR.



 Greater Deadman Bench Project Area Boundary



Map S-1. Location Map of the Greater Deadman Bench Project Area, Uintah County, Utah.

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Conformance with Federal Management Plans

The Proposed and No Action Alternatives described in this EIS would take place within the historic Book Cliffs Resource Area and a small portion west of the Green River in the historic Diamond Mountain Resource Area. The Book Cliffs Resource Area is currently managed under a Resource Management Plan (RMP) approved in 1985. The Diamond Mountain Resource Area is managed under an RMP approved in 1994. The Proposed Action and Alternatives presented in this EIS are consistent with the current management decisions set out in these documents.

A draft of the revision of both RMPs was issued on January 4, 2005 that will consolidate all management activities of the entire Vernal Resource Area. Until decisions are finalized, the plan has no official status; however, impacts on the values and resources identified during the planning effort are addressed in this EIS. The decision on this field development would not preclude any alternatives being considered in the Vernal RMP effort.

The Coyote Basin ACEC would not be precluded from selection under any alternative, as all Draft RMP alternatives consider the same mineral management prescriptions that are in place under the Book Cliffs RMP. The value for which the ACEC was nominated is the white tailed prairie dogs and their habitat. The impacts to white tailed prairie dogs and their habitat are disclosed in section 4.6 of the Final EIS.

The portion of the Green River that is within the boundaries of the GDBR has been determined to be eligible as a Wild and Scenic River with a tentative classification of recreational. The BLM Manual 8351 Wild and Scenic Rivers specifies in section .32 (A) (3) that Recreational river areas are those rivers or sections of rivers that are readily accessible by road or railroad, that may have some development along their shorelines, and that may have undergone some impoundment or diversion in the past. Parallel roads or railroads, existence of small dams or diversions can be allowed in this classification. A recreational river area classification does not imply that the river will be managed or prioritized for recreational use or development. However, proposed mineral management is less restrictive under all alternatives in the Draft RMP than currently exist under the Book Cliffs RMP. In addition, no new development is proposed within the eligible WSR segment of the river. Development is proposed on private land adjacent to the river, but the WSR designation would not include those lands.

Consistency with Local Plans

The Proposed Action is also consistent with the Uintah County General Plan (Plan 1996) and the Public Lands County Policy adopted August 23, 2003. The Plan generally indicates support for development proposals in its emphasis of multiple-use public land management practices and its emphasis of responsible use and optimum utilization of public land resources. As used in the Plan, multiple-use is defined as including, but not limited to, the following historically and traditionally practiced resource uses: grazing, recreation, timber, mining, oil and gas development, agriculture, wildlife habitat, and water resources as they become available or as new technology allows.

The State of Utah does not have planning documents for the vicinity of the Proposed Action.

PUBLIC INVOLVEMENT/SCOPING OF ISSUES

From November 14, 2003 through February 4, 2004, BLM conducted public and internal scoping to solicit input and identification of environmental issues and concerns associated with the proposed QEP Project. On December 9, 2003, a briefing of the Proposed Action was made to the State of Utah Resource Development Coordinating Committee (RDCC). A Notice of Intent (NOI) was published in the Federal

Register on December 19, 2003. BLM then prepared a scoping information packet and provided copies of it to federal, state, and local agencies, the Ute Tribe, as well as members of the general public. BLM sought public involvement from the following North American Tribes: Southern Ute Tribe, the Navajo Nation, the Paiute Indian Tribe of Utah, the Zuni Pueblo, the Ute Indian Tribe, the Shoshone-Bannock Tribes, the Northern Ute Tribe, the Hopi Tribe and the Ute Mountain Tribe. These North American Tribes have stated an interest in and/or declared cultural ties to the project area. Announcements of the scoping opportunities were sent to various newspapers (Vernal Express, Uintah Basin Standard, Deseret News, Denver Post and Salt Lake Tribune), the local Vernal radio stations, and Channel 6, the local Vernal television station. BLM conducted a public scoping and information open house at the Uintah County Building in Vernal, Utah on January 14, 2004. The environmental issues identified through the scoping process are listed below:

- GDBR level of development should be consistent with the existing and relevant land management plans;
- Effects of the proposed development on soils and soil erosion potential in the project area;
- Effects of the proposed development on air quality and visibility within the project area and cumulatively in the region;
- Effects of the proposed development on surface water and groundwater in the project area;
- Effects of the proposed development on the introduction and spread of noxious weeds;
- Effects of the proposed development on vegetation communities and fragmentation of communities;
- Effects of the proposed development on grazing allotments and rangeland resources in the Project Area;
- Effects of the proposed development of gas resources on wildlife and wildlife habitat;
- Effects of the proposed development on fisheries and aquatic habitats;
- Effects of the proposed development on special-concern species, including threatened, endangered, candidate, or sensitive species of plants and animals;
- Economic effects of the proposed development;
- Analysis of the proposed development on traffic and the transportation plan in the project area;
- EIS should adequately address the cumulative impacts of the proposed project plus other oil and gas development projects in the region;
- Effect of the proposed project on cultural resources;
- Reasonable range of alternatives should be considered;
- Effect of noise from projected-related activities;
- Implementation and monitoring of mitigation should be considered; and
- Effect of the project on recreation opportunities.

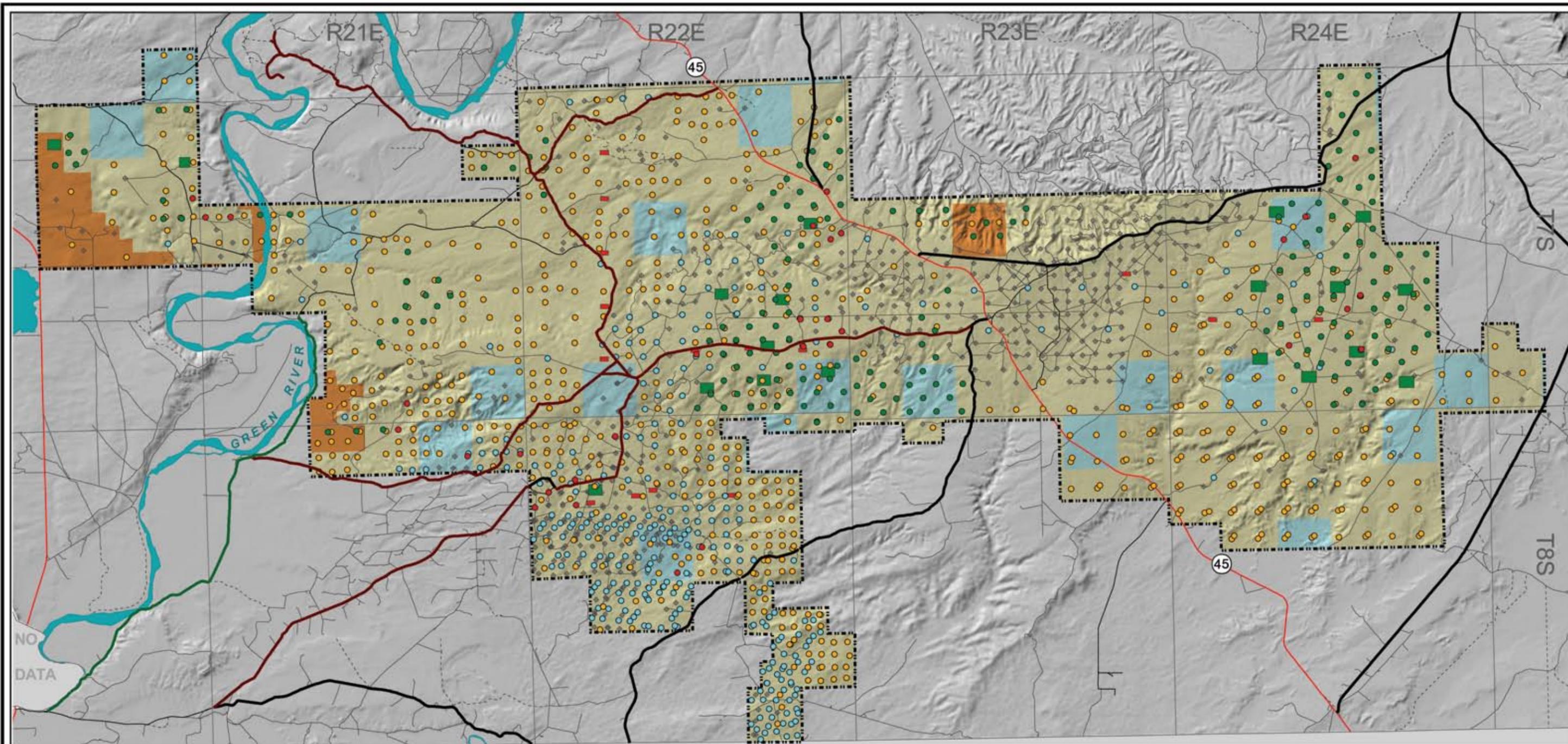
The draft EIS was issued on February 10, 2006 with a Notice of Availability published in the Federal Register, Volume 71, Number 18. The public was invited to provide comments on the DEIS during the formal 45-day public comment period from February 10, 2006 to April 25, 2006. A complete description of the comment letters received, the response to comments, and changes made between the DEIS and the

Final EIS are presented in Chapter 6 of this Final EIS. A public meeting was conducted on March 1, 2006 to receive comments on the DEIS and answer questions. No one from the public attended this meeting.

ALTERNATIVES

The Proposed Action and the No Action alternatives were considered in detail. The programmatic location of facilities for the alternatives is shown on Maps S-2 and S-3. Table S-1 compares the alternatives in terms of physical characteristics.

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|--|-------------------------|--|---------------|--|-----------------------|--|--------------------------------|--|----------------|
| | Project Area Boundary | | BLM Lands | | Central Tank Facility | | New Oil Wells on Existing Pads | | Class B Native |
| | State Highway | | State Lands | | Compression Stations | | New Gas Wells on Existing Pads | | Class B Paved |
| | Class D Primary Road | | Private Lands | | Existing Wells | | New Oil Wells | | Class B Gravel |
| | Class D Secondary Road | | | | | | New Gas Wells | | |
| | Class D Unimproved Road | | | | | | | | |

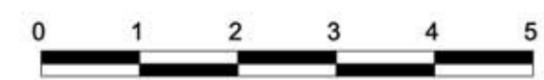
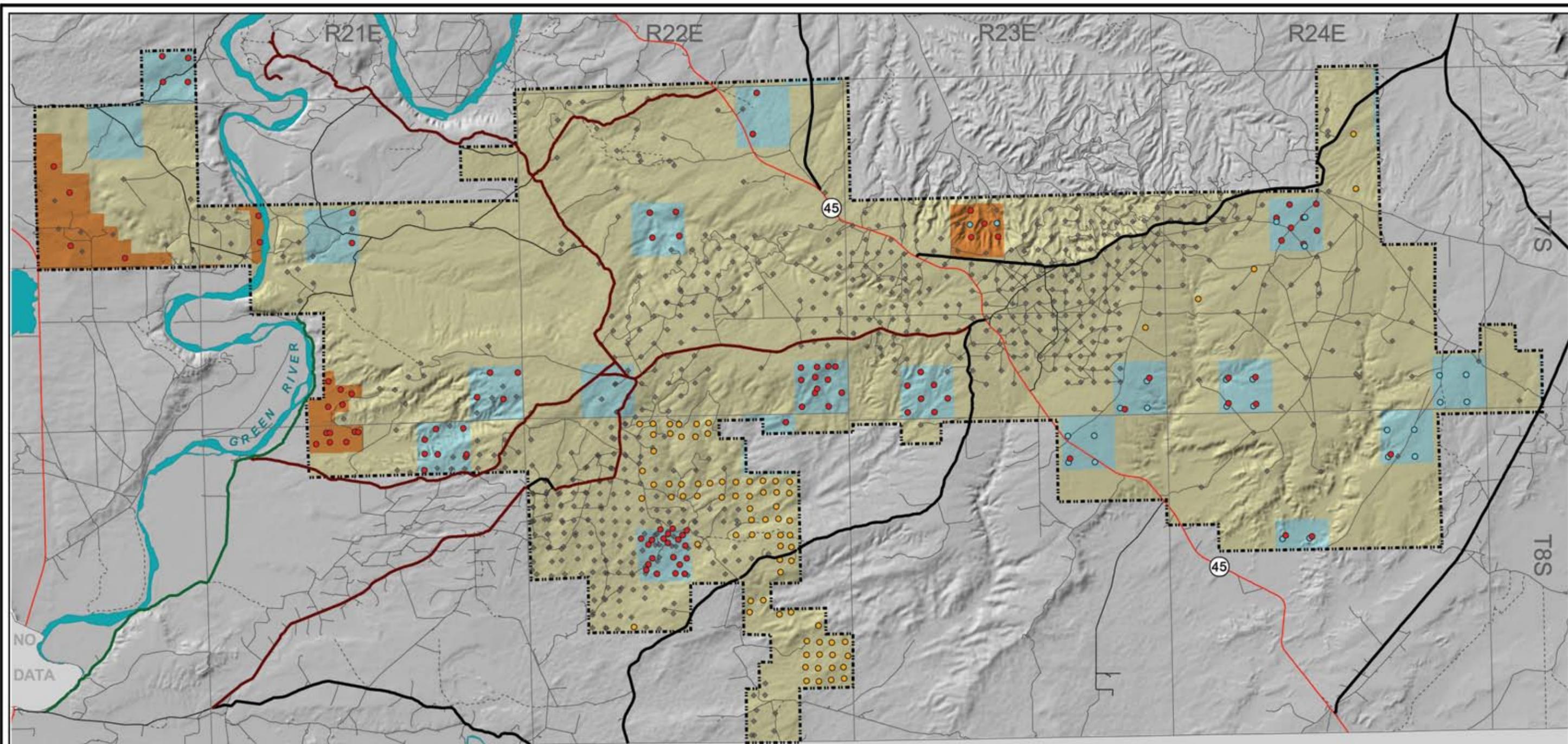


Figure S-2. Greater Deadman Bench Proposed Action.

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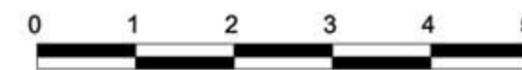


- Project Area Boundary
- State Highway
- Class D Primary Road
- Class D Secondary Road
- Class D Unimproved Road

- BLM Lands
- State Lands
- Private Lands

- New Oil Wells
- New Gas Wells
- Approved Federal Wells
- Existing Wells

- Class B Native
- Class B Paved
- Class B Gravel



Scale (Miles)



Figure S-3. Greater Deadman Bench No Action.

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Table S-1. Comparison of Alternatives

	Proposed Action	No Action
Number of New Wells	1,020 gas wells, 219 oil wells Total 1239 wells	177 gas wells, 32 oil wells Total 209 wells
Number of New Well Pads	891	187
New Access Roads	170 miles	40 miles
New Pipelines/flowlines	235 miles	40 miles
New Central Tank Facilities	22	3
New Compressor Stations	15	3
Long-term Surface Disturbance	4,561 acres (5% of GDBR)	888 (1% of GDBR)
Long-term Surface Disturbance if Interim Reclamation would be Successful	3,481 acres (3% of GDBR)	607 (1% of GDBR)
Estimated Natural Gas Extraction (life of project)	615.2 billion cubic feet	106.8 billion cubic feet
Estimated Oil Extraction (life of project)	9.52 million barrels	1.44 million barrels

Proposed Action

Currently, the GDBR consists of approximately 278 oil producing or water-injection wells in a 50/50 split, 300 gas wells, and approximately 57 miles of primary roads and 314 miles of secondary roads. Under the Proposed Action, an additional 1,020 natural gas and 219 oil wells would be developed and operated. Most of these wells would be developed on federal leases. The development would also consist of access roads, with an average length of 1,000 feet that would connect to the existing road system. The Proposed Action would also involve the construction of gas, oil, and water pipelines. Oil wells would be drilled to the Green River formation and gas wells would be drilled to multiple formations.

Well pads for natural gas, oil production and water injection all would be level 300 feet X 350 feet rectangular pads occupying approximately 2.41 acres. Drilling and completion operations would take from 4 to 90 days depending on the depth of drilling that is expected to be 2,000 to 16,000 feet. Following the drilling and initial completion operations, a portion of the pad plus the reserve pit would be reclaimed. Following interim reclamation, the average reclaimed well pad would be 1.65 acres and the average 1,000-foot road would be 0.69 acres for the total of 2.34 acres per well pad and associated access road. In some cases, a “twin” well would be drilled on a pad to a different formation or directional drilling methodology would be used to access 20-acre spacing formations. As a result, only 891 new pads and associated 1,000-foot access roads would be constructed.

Each gas well would be equipped with a heated separator powered by 0.75 mBtu boilers and water and condensate tanks. Approximately half of the oil wells would be equipped with pumping units powered either by gas or electricity.

Ancillary facilities would be needed. A total of 15 new compressor stations, each with 2,000 horsepower engines powered by natural gas, would be constructed to move the natural gas to processing areas. Each of the 22 Central Tank Facilities would consist of two 500-barrel oil tanks, two heated separators, a station pump powered by a 30-horsepower (hp) electric motor, and one 1.5 mBtu boiler to provide the heat for the separators. Oil and water from the CTFs would be trucked to a central location for transportation to markets.

It is predicted that natural gas production over the 40-year life of the project would be 615.2 billion cubic feet. The predicted oil production may be as high as 9.52 million barrels.

No Action

The No Action alternative is required by NEPA for a comparison to other alternatives. The No Action alternative analyzes a level of development that would occur if no new authorizations were allowed on federal leases in the project area. However, APDs for 79 federal wells have been approved under NEPA analyses and subsequent Decision Records, and these wells could be developed. In addition, 130 wells would be on State of Utah and private leases. Therefore, the No Action alternative would result in a maximum level of development of about 209 wells that would include 177 natural gas wells and 32 oil wells. The federal well pads and roads would be constructed as described in the Proposed Action. The State and private pads would be constructed according to the rules and regulations of the State of Utah. For sake of analysis in this EIS, it is assumed that the well pads and roads would be similar to the federal pads and roads.

Alternatives Considered but Not Evaluated in Detail

Several additional alternatives were considered as a result of issues raised during scoping. Each potential alternative was evaluated and eliminated from detailed analysis for a variety of reasons. These alternatives included no development, delaying access to leases for a certain period of time, exchange of leases, full-field directional drilling, phased development, and conventional development techniques (one pad for each well). These alternatives and the rationale for eliminating them from further analysis are described in more detail in Section 2.5 of the Final EIS.

AFFECTED ENVIRONMENT

The GDBR is in eastern Uintah County approximately 20 miles south of Vernal. The GDBR is located in a semi-arid region, and elevations range from 4,700 to 5,800 feet. The GDBR lies completely in the Uinta structural basin of northeastern Utah. The Uinta Basin is drained by the Green River and its tributaries. Major tributaries include the Duchesne River and the White River. Numerous dry washes within the GDBR only flow during snow melt and precipitation events. These ephemeral drainages flow into the Green River to the west and the White River to the south.

Groundwater aquifers beneath the GDBR are present in formations dating in age from Cambrian to recent. Water-bearing zones are found in nearly all formations in the area, but the principal aquifers include alluvial deposits along the White and Green Rivers, the Uinta Formation, the Green River Formation (including the Birds Nest Aquifer), sandstone beds within the Mesa Verde Formation, and the Frontier Sandstone. The alluvial aquifers are usually unconfined whereas the consolidated aquifers are generally unconfined near outcrops and confined down dip. The primary permeability of these aquifers is generally low. However, fractures, bedding planes, and faults produce relatively high secondary permeability.

Overall, air quality in the Project Area is good. Based on measured data, the region's remoteness, and a lack of major urban communities, the region around Vernal is designated as an attainment area for all criteria pollutants. That means all criteria pollutants are below the designated levels of the National Ambient Air Quality Standards (NAAQS) established by the U.S. Environmental Protection Agency and the Utah Department of Environmental Quality. Concentrations of criteria pollutants greater than the NAAQS are considered potentially harmful.

Soil parent materials present within the GDBR include loam, silty clay loam, clay loams, sandy loams, and silty clay. Some of 43 soil units are composed of the same soil series components but occur on different slopes. Combining all of these soil characteristics, 48 percent of the GDBR has soils with a severe erosion potential, 38 percent has a moderate erosion potential, and only 14 percent has slight erosion potential.

Seven vegetative communities occur within the GDBR: pinyon-juniper woodlands, sagebrush shrub, desert shrub, grassland, riparian, badlands, and desert sands. Desert shrub and sagebrush shrub cover over 90 percent of the GDBR. Two special status plant species, the Uinta Basin hookless cactus and horseshoe milkvetch, occur or have the potential to occur within the GDBR.

The GDBR supports a variety of wildlife. Two species of big game occur regularly in the Project Area: pronghorn antelope and mule deer. Various species of raptors, upland game, furbearers, songbirds, waterfowl, and reptiles also frequent the area. Aquatic species are present in the Green River which flows through a portion of the western part of the GDBR and would be a source of water for the project. About 9 species that have a special-status designation (e.g., threatened, endangered, or sensitive) may occur in the GDBR.

Public lands in the GDBR provide limited opportunities for fishing, hiking, picnicking, hunting small game, and off-highway vehicles. Other recreational opportunities near the GDBR are considered more attractive. The primary users of recreational resources in the Project Area are local residents.

The principal land uses in the GDBR include livestock grazing, oil and gas development and utility corridors. Current land ownership in the GDBR includes BLM (85%), State (12%), and private lands (3%).

The GDBR contains portions of 13 rangeland allotments. The 13 rangeland allotments range from approximately 9-17 acres/animal unit month (AUM). Of the 13 allotments in the GDBR, 5 are grazed by sheep, 5 by cattle, and 3 by sheep and cattle. The total allotment acreage in the Project Area supports approximately 7,621 AUMs. While grazing has had a historic presence in the area, its economic success has been marginal due to the low carrying capacity of the land. This restrictive carrying capacity is due to the arid vegetation types within the area ranging from pinyon-juniper and sagebrush grassland to salt desert. Grazing patterns are typically managed to maximize what production does exist.

Historically, the economy of Uintah County was founded on agriculture and then energy resource extraction and has been subject to changes in the energy markets. Throughout the 1990s and to the present, the local population and employment has grown gradually as a result of the diversification of the regional economy and increased activity in the energy sector. Due to the prevalence of the oil and gas and trade industry in Uintah County, wages are generally higher than in other rural counties in Utah, although they are lower than in counties along the more prosperous Wasatch Front. Presently, the counties' economies differ somewhat in composition. Given their generally high assessed value, the oil and gas industry (ad valorem property, and royalties) contribute a significant portion of a county's property tax base.

Numerous cultural surveys have been conducted in the GDBR in the late 1970s for oil and gas development, which has mainly involved seismic line, well pad, access road, and pipeline corridor construction. Prehistoric open campsites, lithic scatters, and historic sites are dominant among the identified cultural resources. Of the 63 sites documented, 35 percent are prehistoric campsites, 22 percent are prehistoric lithic scatters, 6 percent are prehistoric lithic/ceramic scatters, and 25 percent are historic sites. Additionally, four sites having both prehistoric and historic components are recorded in the GDBR.

ENVIRONMENTAL CONSEQUENCES

The likely environmental consequences are summarized in Table S-2 for the Proposed Action and the No Action alternative. Although interim reclamation efforts would take place, the percent of success would be limited due to the low annual precipitation and the physical and chemical properties of the soils. Recent BLM monitoring has documented that interim reclamation efforts in oil and gas development areas have largely been unsuccessful at reestablishing soil stability and vegetation. Accordingly, BLM field inspections are indicating that initial disturbance should be more accurately portrayed as long-term impacts for the life of the project. Therefore, the acreage initially disturbed for construction, drilling and completion would remain void of desired vegetation for the long-term length of the GDBR project.

Table S-2. Comparison of Alternatives Impacts and Descriptions

Potential Impact	Proposed Action	No Action
Number of Wells	1,020 gas wells 219 oil wells	177 gas wells 32 oil wells
Number of Well Pads	891	187
Access Roads	170 miles	40 miles
Pipelines/flowlines	235 miles	40 miles
Powerlines	31 miles	0
Long-term Surface Disturbance during Development	4,561 acres (5% of GDBR)	888 acres (1% of GDBR)
Estimated Natural Gas Extraction (life of project)	615.2 billion cubic feet	106.8 billion cubic feet
Estimated Oil Extraction (life of project)	9.52 million barrels	1.44 million barrels
Effects on surface water	Sediment loading to White and Green Rivers were predicted to be a maximum of 2,375 tons/yr, less than a 0.03% increase of the existing sediment loading in both rivers.	Sediment loading to White and Green Rivers were predicted to be a maximum of 705 tons/yr, less than a 0.01% increase of the existing sediment loading in both rivers.
Effects on ground water	Slight chance of groundwater contamination from spills, but BMPs (well pad and road construction techniques and drill pit containment) and SPCC plans would reduce potential.	Same as Proposed Action but smaller likelihood because of only 210 wells.
Effects on air quality during construction	Dust generated during construction of pads and roads and drilling wells would result in localized PM ₁₀ effects near construction that would be 30 to 45% of the NAAQS.	Same as Proposed Action near each individual facility and road. However, effects would occur at 210 locations rather than the 1,239 locations of the Proposed Action.

Potential Impact	Proposed Action	No Action
Effects on air quality during operations	For the life of the project, PM ₁₀ , NO ₂ , and CO ambient air concentrations predicted to be 23, 52, and 50%, respectively, of NAAQS. NO ₂ and PM ₁₀ predicted to be 82 and 70% of PSD Class II increment. HAP ambient concentrations predicted to be less than 1% of Chronic Inhalation Exposure and Reference Exposure Levels except formaldehyde, which is predicted to be 5-10% of standard.	PM ₁₀ , NO ₂ , and CO ambient air concentrations predicted to be 5, 10, and 8%, respectively, of NAAQS because project emissions would be about 20% of Proposed Action. NO ₂ and PM ₁₀ predicted to be 16 and 14% of PSD Class II increment.
Effects to air quality and air quality related values (AQRV) at Class I areas	Ambient pollutant concentrations predicted to be less than 0.1% of Class I increments for the life of the project at the following Class I areas: Arches NP, Canyonlands NP, Capitol Reef NP, Black Canyon of the Gunnison NP, Maroon Bells-Snowmass NP, Flat Tops WA, Eagles Nest WA, Mt. Zirkle WA, and Rawah WA. Maximum visibility effects predicted to be less than 20% of the “just noticeable change” threshold of 1.0 deciview. Nitrogen deposition value predicted to be less than 1% of threshold of 3.0 kg/ha/yr.	Insignificant effects that would be less than insignificant effects described for Proposed Action because project emissions would be 80% less than Proposed Action.
Effects to erodible soils	406 new well pads on soils rated with a severe erosion potential, 345 on moderate, 142 on slight.	76 new well pads on soils rated with a severe erosion potential, 95 on moderate, 39 on slight.
Soil Loss	Soil loss estimated to range from 602 to 2,375 tons/year during construction period. Estimated to stabilize at 1,966 tons/year after construction. Soil loss activities in distinct watersheds within GDBR would range from 0.2 to 2.5% increase over the naturally occurring rates. Subsequent sedimentation loading to both the Green and White Rivers is predicted to increase by only 0.03 percent.	Soil loss estimated to range from 308 to 705 tons/year during construction period. Estimated to stabilize at 308 tons/year after construction. Soil loss activities in distinct watersheds within GDBR would range from 0.0 to 1.9% increase over the naturally occurring rates. Subsequent sedimentation loading to both the Green and White Rivers is predicted to increase by only 0.01 percent.
Loss of Vegetation	4,561 acres removed during construction. Losses would range from 1.8 to 5.8% of the available vegetation type within GDBR. Although interim reclamation would be attempted after a well would be completed, reclamation may take from years to decades depending on the species. Overall, the action is not likely to lead to the need to list a species.	888 acres removed during construction. Losses would range from 0.6 to 0.8% of the available vegetation type within GDBR. Although interim reclamation would be attempted after a well would be completed, reclamation may take from years to decades depending on the species. Overall, the action is not likely to lead to the need to list a species.

Potential Impact	Proposed Action	No Action
Effects on Special Status Vegetation Species	<p>Development of 17 wells and roads could occur within areas of known occurrence of horseshoe milkvetch, a former candidate species but removed from the Candidate List in September 2006. Site specific preconstruction surveys would be conducted to avoid the destruction of plants. Weed control would occur to prevent invasion into potential or occupied habitats. Overall, the action is not likely to lead to the need to list the species.</p> <p>Potential habitat of the Uinta Basin hookless cactus is present in the southern and west portions of the GDBR in the Uinta Geological formation. Based on the anticipated effectiveness of the mitigating measures BLM finds that the Proposed Action “<i>may affect, is not likely to adversely affect</i>” the Uinta Basin hookless cactus.</p>	<p>1 well could occur within areas of known occurrence of horseshoe milkvetch. Site specific preconstruction surveys would be conducted to avoid the destruction of plants. Weed control would occur to prevent invasion into potential or occupied habitats. Overall, the action is not likely to lead to the need to list the species.</p>
Loss of Wildlife Habitat	<p>No BLM-identified antelope or mule deer critical winter habitat within the GDBR would be disturbed by new facilities. 125 acres (2% of total within the GDBR) of BLM-identified high-priority year-long antelope habitat would be disturbed. These effects would result in habitat fragmentation and potential for increased collisions with vehicles.</p> <p>43 new wells and associated access roads would be constructed within raptor guideline buffers. Construction too close to nests could cause raptors to avoid the area. Overall, the action is not likely to lead to the need to list a species.</p>	<p>No BLM-identified antelope or mule deer critical winter habitat within the GDBR would be disturbed by new facilities.</p> <p>4 new wells and associated access roads would be constructed within raptor guideline buffers. Construction too close to nests could cause raptors to avoid the area. Overall, the action is not likely to lead to the need to list a species.</p>
Effects on Special Status Wildlife Species	<p>New facilities would result in disturbance of up to 16 acres of about 16,000 acres of prairie dog colonies within GDBR. Proposed Action would be consistent with habitat management objectives of maintaining minimum 10,000 acres of prairie dog colonies for the Coyote Basin Primary Management Zone (PMZ). Overall, the action is not likely to lead to the need to list a species.</p> <p>134 ferruginous hawk and golden eagle nests have been documented in GDBR. High likelihood of impacting some nests,</p>	<p>New facilities would result in disturbance up to 10 acres of about 16,000 acres of prairie dog colonies within GDBR. This disturbance would be consistent with habitat management objectives of maintaining minimum 10,000 acres of prairie dog colonies for the Coyote Basin PMZ. Overall, the action is not likely to lead to the need to list a species.</p> <p>134 ferruginous hawk and golden eagle nests have been documented in GDBR. Lower likelihood than of the Proposed Action of impacting some nests, but overall abundance of nests</p>

Potential Impact	Proposed Action	No Action
	<p>but overall abundance of nests should result in small overall effect. Overall, the action is not likely to lead to the need to list a species.</p> <p>Development of facilities would result in 19 acres of disturbance in known sage grouse leks. Grouse could abandon these leks if construction would occur from March 1 to June 15 during the breeding season. However, construction activities would not be allowed during the breeding season so no effects would occur. Overall, the action is not likely to lead to the need to list a species.</p> <p>Based on the potential loss of prey species and loss of habitat, the Proposed Action “<i>may affect but not likely to adversely affect</i>” the bald eagle.</p> <p>Based on the removal of water from the Green River (i.e., water depletion) for construction and drilling operations, the Proposed Action “<i>may affect, is likely to adversely affect</i>” the endangered Colorado pikeminnow, humpback chub, bonytail, and razorback sucker.</p>	<p>should result in small overall effect. Overall, the action is not likely to lead to the need to list a species.</p> <p>Development of facilities would result in 10 acre disturbance of known sage grouse leks. Grouse could abandon these leks if construction would occur from March 1 to June 15 during the breeding season. Overall, the action is not likely to lead to the need to list a species.</p> <p>Based on the potential loss of prey species and loss of habitat, the Proposed Action “<i>may affect but not likely to adversely affect</i>” the bald eagle.</p> <p>Based on the removal of water from the Green River (i.e., water depletion) for construction and drilling operations, the Proposed Action “<i>may affect, is likely to adversely affect</i>” the endangered Colorado pikeminnow, humpback chub, bonytail, and razorback sucker.</p>
<p>Effects to cultural resources</p>	<p>Based on past data, 154 to 462 sites could occur in GDBR. Perhaps 40 percent may be eligible to the NRHP. Seven to 22 new sites could be uncovered during the earth-moving activities. Pre-construction cultural surveys would reduce potential impacts but likelihood exists that some sites could be inadvertently destroyed. Since road network already exists, potential for vandalism should not increase.</p>	<p>Surface disturbance would be approximately 12 percent of the Proposed Action total. Therefore, 1 to 3 new sites could be discovered during surveys or uncovered during earth-moving activities. With less wells, likelihood of inadvertently destroying sites would be less. Potential for vandalism would be similar to Proposed Action because of existing road network.</p>
<p>Effects to paleontological</p>	<p>Fossil-bearing geological formations extend into GDBR. Adverse effects (including destruction) would be minimized by paleontological surveys during APD process. Earth-moving activities would immediately stop if fossils would be discovered and the site is evaluated by BLM and State paleontologists and a decision is made whether to avoid the site.</p>	<p>Same as Proposed Action but likelihood of discovering sites during surveys or uncovering during construction would be much less because surface disturbance would only be 12 percent of Proposed Action.</p>

Potential Impact	Proposed Action	No Action																																																								
Effects to land use	Continued use of lands within GDBR for oil and gas development. Minor loss of AUMs described in Rangeland Management. No changes in permitted use is anticipated as being necessary.	Change of land use on State and private leases would be identical to Proposed Action. Overall disturbance and change of land use would be 12 percent of the Proposed Action. No changes in permitted use is anticipated as being necessary.																																																								
Effects to transportation	Average Annual Daily Traffic would increase by 3.5% during 10-year construction phase and 1.4% during operations. Accident potential would increase by approximately the same percentage especially at intersections within GDBR along HW 45.	Average Annual Daily Traffic would increase by 3.5% during 2- to 3-year construction phase and 1.0% during operations. Accident potential would increase by same percentage especially at intersections with HW 45.																																																								
Effects to rangeland management	Long-term loss of 347 AUMs, a 3% decrease in the total preference of the affected allotments. Changes in the grazing permits are not anticipated. AUM losses within each allotment would be as follows:	Long loss of 69 AUMs, a less than 1% decrease. Changes in the grazing permits are not anticipated. AUM Losses within each allotment would be as follows:																																																								
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Potential Impact	Proposed Action	No Action
Effects to recreational opportunities	Recreational users along Green River would casually notice construction activity.	Recreational users along Green River would casually notice construction activity.
Effects to visual resources	BLM VRM Class IV management objectives would be met. About 20 wells would be constructed in VRM Class III lands and would not meet management objectives without the prescribed mitigation described in Section 4.13.2.	3 wells would be constructed on State lands which are surrounded by BLM VRM Class III . Visual impacts would be noticeable but facilities would be beyond jurisdiction of BLM.
Socioeconomics effects	Project would employ 331 workers for 10 years to develop resources and about 60 people over the course of the project after construction activities would be completed.. Local services from commercial to government services could accommodate any new workers from out of local area. Annual payroll estimated to be \$10.7 million during construction phase and an estimated \$3 million after the construction phase. Royalties from federal wells to State of Utah estimated to be \$140.1 million over 40-year life of project and \$26.2 million to Uintah County. Severance tax to the Utah general fund would be \$127 million over the life of the project.	Project would employ 331 workers for 2 to 3 years to develop resources. Local services from commercial to government services could accommodate any new workers from out of local area. Annual payroll estimated to be \$10.7 million during construction phase. Royalties to State of Utah estimated to be \$25.8 million over 40-year life of project and \$4.1 million to Uintah County. Severance tax to the Utah general fund would be approximately \$21 million over the life of the project.
Noise effects	Noise would be elevated near drill rigs and compressor stations, and along access roads. No residences are near GDBR facilities or planned since most of the land is federal- or state-owned. GDBR facilities would be audible for recreational users on the Green River and Ouray NWR, but below 55 dBA, a level below which there is no reason to suspect that the public health and welfare of the general population would be at risk from any of the identified effects of noise.	Noise would be elevated near drill rigs and compressor stations, and along access roads. The noise effect would be similar to the Proposed Action for 3 rather than 10 years for the Proposed Action. No residences are near GDBR facilities or planned since most of the land is federal- or state-owned. GDBR facilities on private lands would be audible but below 55 dBA for recreational users on the Green River and Ouray NWR.