



United States
Department of
Agriculture

Forest Service



Yates Petroleum Federal #1 Well

Draft Environmental Impact Statement

**Douglas Ranger District, Medicine Bow-Routt National Forests
and Thunder Basin National Grassland
Campbell County, Wyoming**

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**YATES PETROLEUM FEDERAL #1 WELL
DRAFT ENVIRONMENTAL IMPACT STATEMENT
Campbell County, Wyoming**

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Abstract: The Medicine Bow-Routt National Forests and Thunder Basin National Grassland is considering allowing Yates Petroleum Corporation access to oil and gas lease WYW141191, to drill for and produce oil from one proposed drill site located in the Duck Creek area of the National Grassland. Three Alternatives have been considered in this document including a ‘no action’ alternative for comparative purposes. The Authorized Officer’s preferred alternative is Alternative 3, the Northern Route Alternative. Choosing this alternative would meet the proponents purpose and need to access and produce from the lease-hold and would offer the best opportunity for resource protection.

Reviewers should provide the Forest Service with their comments during the review period of the draft environmental impact statement. This will enable the Forest Service to analyze and respond to the comments at one time and to use information acquired in the preparation of the final environmental impact statement, thus avoiding undue delay in the decision making process. Reviewers have an obligation to structure their participation in the National Environmental Policy Act process so that it is meaningful and alerts the agency to the reviewers’ position and contentions. Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 519, 553 (1978). Environmental objections that could have been raised at the draft stage may be waived if not raised until after completion of the final environmental impact statement. City of Angoon v. Hodel (9th Circuit, 1986) and Wisconsin Heritages, Inc. v. Harris, 490 F. Supp. 1334, 1338 (E.D. Wis. 1980). Comments on the draft environmental impact statement should be specific and should address the adequacy of the statement and the merits of the alternatives discussed (40 CFR 1503.3).

Send Comments to:

Liz Moncrief, ID Team Leader
Medicine Bow-Routt NFs
2468 Jackson Street
Laramie, Wyoming 82070

Comments must be received within 45 days of the date that the Federal Register Notice appears
Announcing the availability of this Draft EIS.

EXECUTIVE SUMMARY

Yates Petroleum Federal #1 Well Lease No. WYW141191

Introduction

The Medicine Bow-Routt National Forests and Thunder Basin National Grassland (USFS) proposes to authorize surface use to facilitate drilling and possible completion of an oil well in the Duck Creek area of the Spring Creek Division, on Thunder Basin National Grassland. The area affected by the proposal includes a western portion of the Duck Creek Inventoried Roadless Area located in the upper half of the Spring Creek Division.

The proposal includes the construction of a well pad, and all necessary facilities to accommodate drilling, completion, operations and eventual abandonment of an oil well, access to the well site and weekly transport of the product to market.

Purpose and Need for the Action

This action is needed because Yates Petroleum Corporation has proposed to develop its Federal oil and gas lease by filing an Application for Permit to Drill (APD) with the Bureau of Land Management (BLM). The Forest Service must approve surface use before BLM can approve the full APD.

In 1994, the Medicine Bow-Routt National Forest issued a Record of Decision (ROD) that identified lands available for oil and gas leasing on Thunder Basin National Grassland. The ROD also included a decision that amended the Land and Resource Management Plan with stipulations to be applied to leases for protection of certain resources. Based on the decision to make lands on Thunder Basin National Grassland available for lease, the Forest Service authorized BLM to issue oil and gas leases on the Grassland subject to stipulations described in the ROD and plan amendment.

In the **Offer to Lease and Lease for Oil and Gas**, 1997 Wyoming oil and gas lease sale, Yates Petroleum Corporation purchased a Federal oil and gas lease in T. 55N, R. 69W located on Thunder Basin National Grassland. Yates submitted an APD and Surface Use Plan of Operations (SUPO) to the Buffalo Field Office, BLM, in October 2001. This APD proposed use of an existing road and construction of a new road to the proposed well site. Accordingly, the Forest Service published a Notice of Intent to prepare an Environmental Impact Statement on February 25, 2002.

A Revised Notice of Intent to prepare an Environmental Impact Statement was published in the Federal Register on March 4, 2004, changing the Responsible Official from the Regional Forester of the Rocky Mountain Region to the Forest Supervisor of the Medicine Bow-Routt National Forests and Thunder Basin National Grassland.

Issues

A wide range of issues was identified during the scoping process for this proposed action. The following categories of issues were considered in developing and analyzing alternatives to the proposed action.

- Range of alternatives
- Decision-making authority and consistency with the Grassland Plan
- Cultural resource protection
- Cumulative impacts
- Energy development
- Level of analysis
- Enforcement of lease stipulations
- Impacts to plants
- Improvement of existing roads and construction of new roads in an Inventoried Roadless Area

Wilderness designation and protection
Impacts to wildlife, threatened and endangered species, and species with protected status

Alternatives

Alternative 1: No Action. The proposed action would not be approved or implemented. USFS management of the area would continue and selection of this alternative would have no bearing on other current or future actions that might take place in this area. Selection of this alternative would also not preclude the Proponent from submitting other APD's within the lease boundary.

Alternative 2: The Proposed Action. The Forest Service would approve the Surface Use Plan of Operations, as submitted by the company in October 2001 and would grant an exception to Lease Stipulations, as requested by the Proponent prior to submitting their APD. Authorization would allow the company to improve existing roads and construct new road to access the proposed well site. The company would then flat blade and fill a well pad, drill one oil well, and put the well into production if it should produce in economic quantities. If the well produces, the company would then install a pump-jack, tank batteries and all other facilities required for production. The company proposes to transport the oil product over the access road approximately once per week. The company requested an exception to a *Controlled Surface Stipulation for Areas with Special Values*, attached to the lease at the time of sale. The stipulation requires that:

- *drilling fluids and cuttings will be confined in portable tanks and closed systems. Reserve pits or evaporation pits will not be allowed. Waste water, drill fluids, and cuttings will be removed from the area to an approved disposal site.*

The company requests an exception to this stipulation and proposes to construct an earthen sump pit for collection of drill fluids, and to bury drilled solids on location at the end of the drilling activity, rather than dispose of off site at an approved facility.

Alternative 3: Northern Route and Alternate Wellsite. The company's proposal is modified with a different well location and access road designed to minimize effects on an active raptor nest. All other facilities listed above would be authorized under this alternative, however, no exceptions would be granted for the Lease Stipulations requested by the Proponent.

Affected Environment

The proposed Yates Petroleum Federal Oil Well #1 would be located within the Spring Creek Geographic Area of the Thunder Basin National Grassland. This area is located about 30 miles north of Gillette, Wyoming and comprises approximately 50,000 acres.

The Duck Creek Inventoried Roadless Area (IRA), within the Spring Creek Geographic Area, comprises 12,330 acres of pine-covered slopes, ridges and mesas and lowland grassland. Lease WYW141191 lies entirely within the Duck Creek IRA along the western edge of the boundary. Access to the proposed well site is from Wyoming Highway 59 to County Road 49, also known as the Heald Road, and then north onto National Forest System Road (NFSR) 903. The proposed well would be located within Lot 6 of Section 30, Township 55 North, Range 69 West, 6th Principle Meridian, Campbell County, Wyoming. Section 30 contains hard-compacted, two-track access leading into Section 29 to the east and into Section 19 to the north.

The project is located within the Management Area Prescription Allocation of 3.65,; Rangelands with Diverse Natural-appearing Landscapes'.

Major Conclusions

This EIS presents the USFS's analysis of the environmental impacts under authority of the National Environmental Policy Act and associated rules and guidelines. The USFS will use this analysis in making a determination on whether to approve the SUPO as first submitted by the proponent or to authorize the surface use identified in Alternative 3. Selection of either Alternatives 2 or 3 would meet the purpose and need of the USFS to implement the land management plan and allow the proponent to exercise their lease rights.

Alternative 3 avoids disturbance to an existing raptor nest, better addresses the visual intrusion issues in the Duck Creek Inventoried Roadless Area, and would be in compliance with the 1994 ROD, as amended by the Grassland Plan, which authorized issuance of the lease only with Controlled Surface Use requirements to protect *the semi-primitive character* and *biological diversity* (ROD-10) identified for Duck Creek.

There are no known impacts with selection of Alternative 1, the No Action Alternative. Only identified non-mitigatable impacts to the resources for Alternatives 2 and 3 are listed below:

Wildlife

- **Alternative 2:** There would be an impact in the form of disturbance to the active raptor nest and possibly to the occupant with the authorization of Alternative 2. The nest is located very close to the proposed access road, and the well site would be within ¼ mile of the nest.
- **Alternative 3:** There would be no disturbance to the raptor nest or occupant with the location of this well site and access road. Both would be well outside of the protection buffer assigned to raptor nests.

Recreation, Visual Intrusion and 'Roadless' Character

- **Alternative 2:** The road access would be highly visible from the western edge of the Inventoried Roadless Area boundary. The well site would be somewhat visible within the Inventoried Roadless Area. The road and the well facilities, along with the traffic from construction and production operations would cause a visual intrusion that would alter the character of the Inventoried Roadless Area .
Granting an exception to the lease stipulations would also be inconsistent with the 1994 ROD which allowed the lease sale only with the required stipulations to protect the semi-primitive character and biological diversity of the Duck Creek area.
- **Alternative 3:** The road access would be highly visible from the western edge of the Inventoried Roadless Area boundary. The well site would be partially visible but would be sheltered for the most part by higher ground surrounding the site, however all facilities, along with the traffic from construction and production operations would cause a visual intrusion that would alter the character of the Inventoried Roadless Area.
Selection of this alternative would be consistent with the 1994 ROD and would help to maintain semi-primitive character and biological diversity.

Authorities

The Medicine Bow-Routt National Forest administers Federally owned surface estate on the Thunder Basin National Grassland. Title III of the Bankhead Jones Farm Tenant Act (BHJFTA) of July 22, 1937, as amended December 31, 1996, PL 104333, authorized the Federal government occupancy of farms and farm homes, (originally acquired privately through the *Homestead Act*), thus taking sub-marginal land out of production. *Title III* of the *Act* authorized the acquisition of lands in the Wyoming Counties of Campbell, Converse, Crook, Niobrara and Weston and designated the area as the Thunder Basin National Grassland. The *Act* further authorized the Secretary of Agriculture to develop a program of land conservation and land utilization and to administer any property so acquired to its most beneficial use.

In accordance with Title 36, Code of Federal Regulations (CFR) Part 228, Subpart E, Section 102(d), the United States Forest Service (USFS) was mandated to review and analyze the availability of lands for oil and gas leasing within its jurisdictional holdings. In accordance with Title 36, CFR 228.102(e), and the 1987 *Federal Onshore Oil and Gas Leasing Reform Act (FOOGLRA)* also generally known as the *Leasing Reform Act*, lands were made available to the Bureau of Land Management (BLM) to authorize for lease sale, subject to adequate *National Environmental Policy Act (NEPA)*, 1969 analysis, surface occupancy stipulations for environmental protection, and a determination that development could take place somewhere within a lease hold except where a stipulation would preclude surface occupancy. Leasing availability analysis for the Thunder Basin National Grassland was documented in the *Oil and Gas Leasing on the Thunder Basin National Grassland, Record of Decision (O&G ROD)*, 1994.

Cooperators in this NEPA Document

The BLM is responsible for issuing all oil and gas leases for Federal minerals and subsequently administers Notices of Staking (NOSs) and Applications to Drill (APDs) on those leases regardless of surface ownership. When the USFS administers the land where Federal minerals are located, the USFS works with the lessee/operator to develop the Surface Use Plan of Operation (SUPO). No permit to drill on a federal oil and gas lease under National Forest System (NFS) lands may be granted by BLM without appropriate NEPA analysis and a recommendation or denial of the SUPO by the USFS. The BLM is, therefore, a Cooperating Agency and has contributed by providing technical input for the analysis of drilling methods, sub-surface procedures, and environmental affects of the project.

The Wyoming Oil and Gas Conservation Commission (WOGCC) regulates drilling and well spacing, and requires an approved APD for all oil and gas wells drilled in the state, including Federal surface. Other regulatory agencies involved in authorizing the exploration and production of oil and gas wells are listed in Table T-1 of the EIS. The proponent would be required to apply for permits and/or authorization for all other obligations involved in the process in conjunction with USFS approval of the SUPO.

This EIS will assist the Forest Supervisor in selecting an alternative as written, or with modifications to protect resources and values present on NFS lands. It will also serve the Authorized Officer of the BLM, Buffalo Field Office, to make a decision for mineral resource extraction pursuant to FOOGLRA.

The most important factor related to this proposal is that access to the lease cannot be denied to the company to develop and produce their lease rights, unless the lease holder voluntarily relinquishes the lease back to the BLM or the Federal Treasury purchases back the lease rights and closes the area to future oil/gas development. The probability of purchasing the lease back would constitute a precedent-setting action and would be entertained only if the impacts to existing resources would be significant and non-mitigatable.

Scoping and Community Involvement

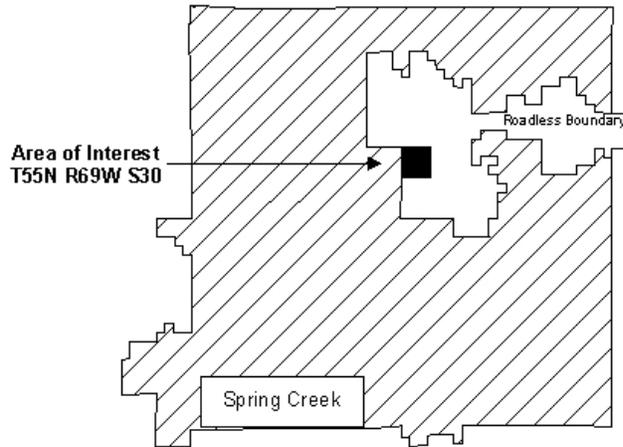
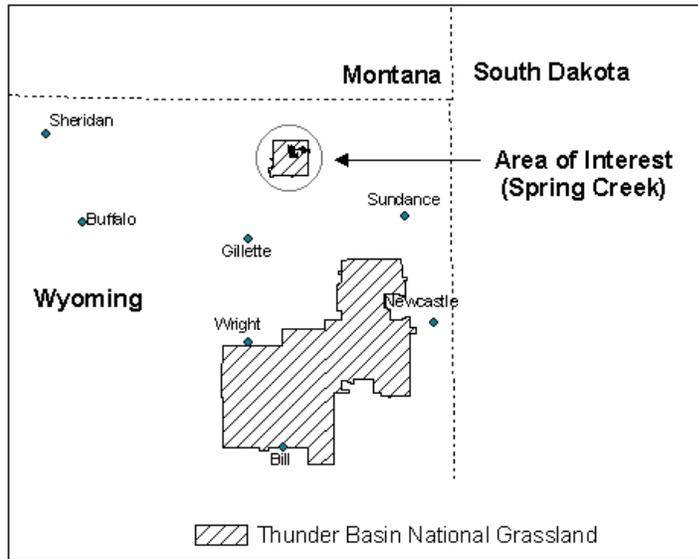
On February 25, a Notice of Intent was published in the Federal Register indicating that the Forest Service intended to prepare an EIS. On February 19, 2002, a formal scoping letter describing background information, the purpose and need for the action, potential issues related to the action and location, and the decision to be made was mailed to interested and potentially affected individuals, groups, organizations and agencies. In an attempt to inform the general public of the proposal, the press release was issued to 22 local and state media contacts on February 25, 2002. One individual comment letter, one corporate letter, two letters from organizations, and one from a state agency, were received in response to this scoping effort. Substantive comments that were received have been incorporated into the alternatives developed for this effort or otherwise analyzed to determine the effects. Chapter 2, Table 2-1, lists the comments received, issues that could affect the resource, and reference where those comments were addressed in the document.

Decision Framework

Because the proposed action is located within an Inventoried Roadless Area (IRA), the responsible Federal Official for this decision would have been the Regional Forester of the Rocky Mountain Region, as directed in Interim Directive 1920-2001-1, (since expired). In 2003, the Wyoming U.S. District Court ruled to block implementation of the Roadless rule, therefore this decision is now under the authority of the Medicine Bow-Routt National Forest Supervisor. See more explanation in **Laws and Policies Guiding the Management of Duck Creek Inventoried Roadless Area**, of the EIS.

As noted above, A Revised Notice of Intent to prepare an Environmental Impact Statement was published to the Federal Register on March 4, 2004, changing the Responsible Official from the Regional Forester of the Rocky Mountain Region to the Forest Supervisor of the Medicine Bow-Routt National Forests and Thunder Basin National Grassland.

Vicinity Map



Disclaimer:
 The Forest Service uses the most current and complete data it has available. GIS data and product accuracy may vary. They may be: developed from sources of differing accuracy, accurate only at certain scales, based on modeling or interpretation, incomplete while being created or revised, have represented features not in accurate geographic locations, etc. The Forest Service makes no expressed or implied warranty, including warranty of merchantability and fitness, with respect to the character, function, or capabilities of the data or their appropriateness for any user's purposes. The Forest Service reserves the right to correct, update, modify, or replace this geospatial information based on new inventories, new or revised information, and if necessary in conjunction with other federal, state or local public agencies or the public in general as required by policy or regulation. Previous recipients of the products may not be notified unless required by policy or regulation. For more information, contact the Medicine Bow - Rout National Forests and Thunder Basin National Grassland Supervisor's Office (2468 Jackson Street, Laramie, WY 82070, 307-746-2300).



Glossary (Terms, Abbreviations, and Acronyms)

APD	Application for permit to drill
AQD	Air Quality Division (State of Wyoming)
ARPA	Archaeological Resource Protection Act of 1979
AUM	Animal Unit Month
BA	Biological Assessment
BE	Biological Evaluation
BLM	U.S. Bureau of Land Management
BO	U.S. Fish and Wildlife Service Biological Opinion
C.F.R.	Code of Federal Regulation
CEQ	Council on Environmental Quality
CERCLA	<i>Comprehensive Environmental Response, Compensation, and Liability Act of 1980</i>
COE	U.S. Army Corps of Engineers
CSU	Controlled surface use
dBA	a-weighted decibel
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	U.S. Environmental Protection Agency
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act of 1976
FOOGLRA	Federal Onshore Oil and Gas Leasing Reformation Act of 1987
FONSI	Finding of No Significant Impact
IRA	Inventoried Roadless Area
LN	Lease Notice
NAAQS	National Ambient Air Quality Standards
NCPA	National Cultural Programmatic Agreement
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSO	No surface occupancy
NTL	Notice to Lessee
RMP	Resource Management Plan
ROD	Record of Decision
SARA	Superfund Amendments and Reauthorization Act of 1986
SHPO	State Historical Preservation Office
SLT	Standard Lease Terms
SWPPP	Storm Water Pollution Prevention Plan
T&E	Threatened and Endangered
TEP&C	Threatened, Endangered, Proposed, and Candidate
U.S.C.	United States Code
USDI	U.S. Department of Interior
USFWS	U.S. Fish and Wildlife Service
VRM	Visual Resource Management
WAAQS	Wyoming Ambient Air Quality Standards
WDE	Wyoming Department of Employment
WDEQ	Wyoming Department of Environmental Quality
WDOT	Wyoming Department of Transportation
WGFD	Wyoming Game and Fish Department
WNDD	Wyoming Natural Diversity Database
WOGCC	Wyoming Oil and Gas Conservation Commission
WQD	Water Quality Division – State of Wyoming
WSEO	Wyoming State Engineers Office

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EXHIBITS Contact Liz Moncrief to obtain copies of exhibits

- EXHIBIT 1 FEDERAL OIL AND GAS LEASE WYW141191
- EXHIBIT 2 REQUEST FOR WAIVER OF LEASE STIPULATIONS
- EXHIBIT 3 APPLICATION TO DRILL (APD) AND SURFACE USE PLAN (SUPO)
- EXHIBIT 4 BLM DIRECTIONL DILLING REPORT

Chapter 1 Purpose of and Need for Action

1.1 Background

On February 4, 1997 the Bureau of Land Management (BLM) issued Yates Petroleum Corporation Lease #WYW141191. The lease was made available under the 1994 Grassland leasing decision documented in the 1994 Record of Decision for Oil and Gas Leasing on the Thunder Basin National Grasslands. The lease includes stipulations (requirements) for protection of resources when and if ground-disturbing activities are proposed on the lease. Specific stipulations attached to this lease include a Timing Limitation for protection of wildlife habitat, a Controlled Surface Use stipulation for the protection of wildlife and their habitat, and a Controlled Surface Used stipulation for preservation of the character of the Duck Creek area (area with special values). The lease also includes notices of requirements under certain nondiscretionary statutes, such as the Endangered Species Act, and a notice of provisions for baseline water quality monitoring. EXHIBIT 1 includes lease #WYW141191 in its entirety.

In October 2001, Yates submitted an Application for Permit to Drill (APD) for the Yates Federal #1 to the BLM - Buffalo Field Office (EXHIBIT 3). The location proposed in the APD is in Lot 6 of Section 30, Township 55 North, Range 69 West, 6th Principle Meridian, Campbell County, Wyoming. The APD includes a drilling plan and a Surface Use Plan of Operations (SUPO), as required under 43 CFR 3162.3-1 and BLM Onshore Order #1. In the case of proposed operations on National Forest System (NFS) lands, the Forest Service must approve the SUPO before BLM can give final approval to the APD. [42 CFR 3162(h)(1)(3) and 36 CFR 228.106-107] In association with the SUPO, Yates has also requested an exception to provisions in the Controlled Surface Use (CSU) Stipulation for Areas with Special Values. These provisions pertain to removal of waste water, drill fluids, and cuttings, and excavation on the drill site.

1.2 Purpose & Need for Action

The Forest Supervisor has determined the need to authorize Yates Petroleum Corporation (Yates) to conduct surface operations associated with exploring for and producing oil on its Federal oil and gas lease under the terms and conditions of the company's Federal oil and gas lease. Surface operations would also be subject to applicable standards and guidelines in the Land And Resource Management Plan for the Thunder Basin National Grassland (2001 Revised Grassland Plan) insofar as they apply to leases in existence at the time the 2001 Revised Grassland Plan was approved (July 31, 2002).

This project would contribute to meeting the goal in the 2001 Revised Grassland Plan to improve the capability of the Nation's forests and grasslands to provide a desired sustainable level of uses, values, products, and services, under which the Plan identifies the objective to honor all valid existing legal mineral rights (i.e., leases in existence at the time the Grassland Plan was approved.) All alternatives, except for the 'No Action' Alternative, would meet the proponent's purpose and need to access, explore and drill for oil within their leasehold. No alternatives have analyzed the actual oil production capability because this is considered an unpredictable outcome of exploratory drilling.

1.3 Proposed Action

The United States Forest Service proposes to authorize Yates Petroleum Corporation to conduct surface operations under the Surface Use Plan of Operations (EXHIBIT 3) for Federal #1 well on Lease #WYW141191 that Yates submitted to BLM as part of the APD in October 2001. Operations are proposed in Lot 6, Section 30, Township 55 North, Range 69 West, 6th Principal Meridian, Campbell County, Wyoming. (See attached map in Exhibit A.) Operations would include clearing and leveling a

1.38 acre site for the drill pad and constructing less than one mile of new road to access the site. Once the site is cleared and the road constructed, drilling equipment would be moved in. Drilling operations would be conducted for approximately 3 weeks until the well is drilled to the target horizon. The well would then be tested for production capability.

If the well is found to be potentially capable of production, it would be cased, cemented, and prepared for additional testing. Based on results from production testing, ancillary equipment (e.g., pumping unit, treater, and storage tanks) may be installed on the site. Trucks would periodically empty the tanks as long as the well produces.

If the well is found to be incapable of production, it would be plugged, and abandoned under BLM and State plugging rules. The site would be re-contoured, covered with topsoil, and seeded per reclamation procedures described in the SUPO.

1.4 Analysis Area

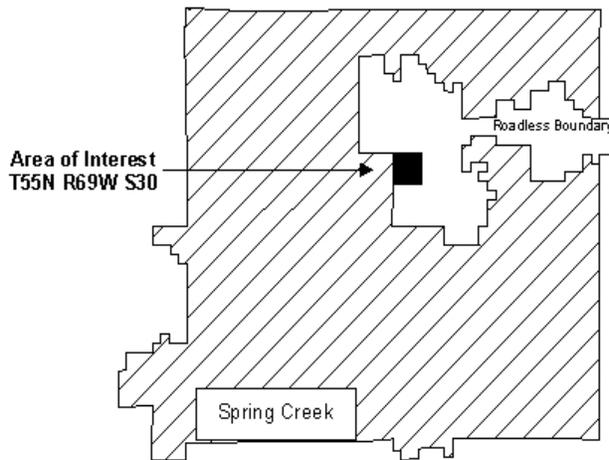
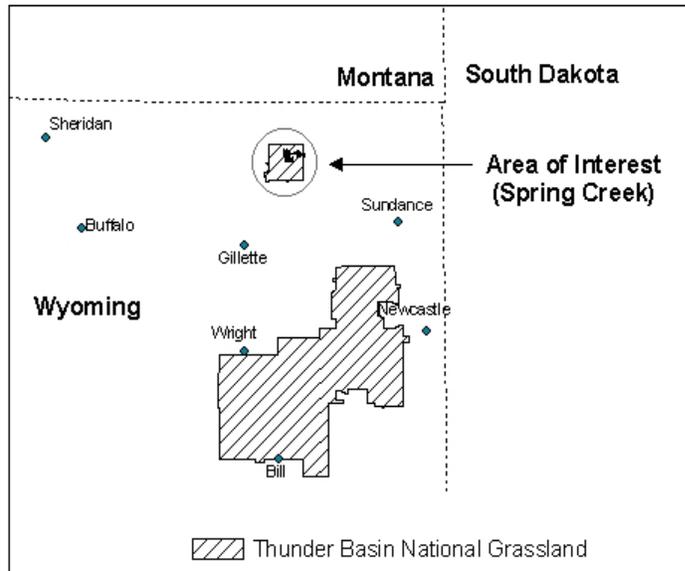
The proposed Yates Duck Creek Federal Oil Well #1 would be located within the Spring Creek Geographic Area of the Thunder Basin National Grassland. This area is located about 30 miles north of Gillette, Wyoming and comprises approximately 50,000 acres.

“The topography of the area is characterized by nearly level to moderately steep plains, with rolling hills and steep escarpments in the western and northern portions of the Geographic Area. Elevations range between 4,100 feet to 4,600 feet above sea level in the Western Hills area.” (2001 Land and Resource Management Plan Revision, Thunder Basin National Grassland, Chapter 2, Spring Creek Geographic Area, p. 2-26.

The Duck Creek Inventoried Roadless Area (IRA), within the Spring Creek Geographic Area, comprises 12,330 acres of pine-covered slopes, ridges and mesas and lowland grassland. Lease WYW141191 lies entirely within the Duck Creek IRA and along the western edge of the IRA boundary. The landscape of the area appears natural, although a fair amount of off-highway, motorized and non-motorized recreation occurs, creating several two-track trails. Access to the proposed well site is from Wyoming Highway 59 to County Road 49, also known as the Heald Road, north into section 30 and onto National Forest System Road (NFSR) 903. Section 30 contains extensive and hard-compacted two-track access leading into Section 29 to the east and into Section 19 to the north.

The area identified for analysis in this project encompasses the entry road (NFSR 903) and proposed access as described under Alternatives 2 and 3, Chapter 3, the proposed well sites and all anticipated disturbance areas. Additionally for the Recreation section of Chapter 3, a wider area was analyzed to address the scenic viewshed that would have the proposed activity within its visual range.

Vicinity Map



Disclaimer:

The Forest Service uses the most current and complete data it has available. GIS data and product accuracy may vary. They may be: developed from sources of differing accuracy, accurate only at certain scales, based on modeling or interpretation, incomplete while being created or revised, have represented features not in accurate geographic locations, etc. The Forest Service makes no expressed or implied warranty, including warranty of merchantability and fitness, with respect to the character, function, or capabilities of the data or their appropriateness for any user's purposes. The Forest Service reserves the right to correct, update, modify, or replace this geospatial information based on new inventories, new or revised information, and if necessary in conjunction with other federal, state or local public agencies or the public in general as required by policy or regulation. For more information, contact the Medicine Bow - Routt National Forests and Thunder Basin National Grassland Supervisor's Office (2468 Jackson Street, Laramie, WY 82070, 307-745-2300).



1.5 Decision Framework

The BLM is the minerals program manager for the Federal government and is responsible for the management of the Federal mineral estate. In the case of oil and gas operations on NFS lands, the Forest Service has authority over surface-disturbing activities. This authority is granted in accordance with the Federal Onshore Oil and Gas Leasing Reform Act of 1987. When an APD is submitted to the BLM and the proposed well location is on NFS lands, BLM must forward the SUPO to the Forest Service for analysis of the proposed surface disturbance and activities associated with drilling and potential production.

This EIS discloses the environmental consequences of implementing the proposed action and alternatives to that action. The decision on the action will be documented in a Record of Decision signed by the Forest Supervisor and forwarded to the BLM.

The Forest Supervisor, as the Responsible Official, will make the following decisions regarding approval of the SUPO, based on the analysis documented in the Final EIS:

- Selection of an alternative that would fulfill the purpose and need for the action.
- Whether or not to approve exceptions to two provisions in the lease stipulation, Controlled Surface Use Stipulation for Areas with Special Values.
- Selection of recommended measures, conditions, mitigation, stipulations, and/or monitoring that would minimize, rectify, or reduce impacts to the environment from operations.

The BLM, as a cooperator in this EIS, will base their decision on the analysis contained in this document. The BLM's decision will include whether or not to approve the APD as submitted by the operator, to approve with modifications, or to reject the APD and deny the action.

1.6 Conformance with Management Plan Direction

The lease on which operations are proposed was issued under the leasing decision documented in the 1994 Record of Decision for Oil and Gas Leasing (1994 Leasing ROD). The 1994 Leasing ROD, as amended by the Grassland Plan, provided direction for the Medicine Bow National Forest and the Douglas Ranger District for leasing and development of oil and gas resources located on the Thunder Basin National Grassland. The 1994 Leasing ROD allowed for leasing by the BLM with stipulations attached to leases to provide for protection of resources where necessary in conducting surface-disturbing operations. It also required stipulations on leases in areas with special values in order to protect the values of those areas. The Duck Creek area was identified as having special values for semi-primitive motorized recreation opportunities and/or biological diversity (1994 Leasing ROD, page D-10).

The Controlled Surface Use stipulation identified in this section of the ROD were attached to Lease WYW141191 at the time of bid and sale. A copy of the Lease with stipulations is attached as EXHIBIT 1.

The lessee for this project filed a request for an exception to the **Controlled Surface Use Stipulation** in the form of a letter of justification to the USFS, dated September 11, 2001, and further incorporated in the lessee's SUPO submitted with the APD in October 2001. The exception request is as follows:

- "to leave drilled solids from the above mentioned well on location" to alleviate the cost of off-site hazardous waste disposal
- "to dig a small earthen sump for collection of normal rig water and for the collection of cement during the surface cement procedure"

For this project, the USFS analyzed the effects of granting an exception to a Controlled Surface Use Lease Stipulation related to the “impacts of oil and gas activities on identified values of the area” WYW141191, Areas with Special Values, Duck Creek. The decision to **except** the lease stipulation identified is subject to administrative appeal only in conjunction with an appeal of the decision on a SUPO (36 CFR 228.104(d)(2)). This EIS documents the effects of granting exceptions to the lease stipulations. An exception to this CSU stipulation would not be in conformance with the O&G ROD.

The 2001 Revised Grassland Plan acknowledges that existing legal minerals rights will be honored. “Existing legal mineral rights” include those granted under leases in existence at the time that the 2001 Revised Grassland Plan was approved, along with the stipulations and other conditions attached to the lease. This action responds to the goals and objectives in the 2001 Revised Grassland Plan (Plan Chapter 1, pages 1-1 through 1-8) and helps move the project area towards desired conditions described in that plan. Applicable goals include:

- Goal 1: Ensure Sustainable Ecosystems
- Goal 2: Multiple Benefits to People
- Goal 3: Scientific and Technical Assistance
- Goal 4: Effective Public Service

In addition to the Goals identified above, a set of Standards and Guidelines are established to implement those Goals. Standards are actions that must be followed or are required limits to activities in order to achieve Grassland wide objectives. Guidelines are advisable actions that should be followed to achieve those same goals. Those Standards and Guidelines can be found in the 2001 Revised Grassland Plan, Chapter 1, pages 1-9 through 1-31 and will not be repeated here.

The 2001 Revised Grassland Plan describes in general terms the desired condition of the Thunder Basin National Grassland and allocates land into Management Areas. Management Areas are defined by the resource(s) that could be optimally produced from a piece of ground given a set of variables. Each Management Area is described by a prescription, which usually emphasizes one resource over others. Resource goals, objectives, standards, and guidelines provide managers a set of parameters, which guide implementation of projects on the ground. The proposed Federal #1 well lies within the Spring Creek Geographic Area. The Desired Condition for this geographic area is described as follows where it pertains to mineral development: *‘Primitive conditions with minimal facility development will be emphasized. Mineral developments such as oil and gas well and pipelines will be present but visually subordinate in the mid and background.’* (2001 Revised Grassland Plan, Chapter 2, page 2-26.) The project is also located within the Management Area Prescription Allocation of 3.65,; Rangelands with Diverse Natural-appearing Landscapes’.

The drilling, production, abandonment, and reclamation activities as proposed would be consistent with the 2001 Revised Grassland Plan.

1.7 Laws, Policy, and Direction Regarding Mineral Activities

Oil and gas resources on NFS lands are managed under a large body of laws and regulations. A few, however, are specific to the mineral resource itself and provide direction on the disposition of Federally owned oil and gas resources, as well as administration of surface activities associated with development of these resources.

Mineral Leasing Act of 1920 – This act authorizes the Secretary of Interior to issue leases for the disposal of certain minerals (currently applies to coal, phosphate, sodium, potassium, oil, oil shale,

gilsonite, and gas). The act applies to National Forest lands reserved from the public domain, including lands received in exchange for timber or other public domain lands and lands with minerals reserved under special authority.

Mineral Leasing Act for Acquired Lands of 1947 - This act states that all deposits of coal, phosphate, oil, oil shale, gas, sodium, potassium, and sulfur that are owned or may be acquired by the United States and that are within lands acquired by the United States may be leased by the Secretary of Interior under the same conditions as contained in the leasing provisions of the mineral leasing laws. No mineral deposits shall be leased without the consent of the head of the executive department having jurisdiction over the lands containing the deposit and subject to such conditions as that official may prescribe.

Mining and Minerals Policy Act of 1970 - This act states that the continuing policy of the federal government is to foster and encourage private enterprise in the development of economically sound and stable domestic mining and minerals industries and the orderly and economic development of domestic mineral resources.

Energy Security Act of 1980 - This act directs the Secretary of Agriculture to process applications for leases and permits to explore, drill, and develop resources on NFS lands, notwithstanding the current status of any management plan being prepared.

The Federal Onshore Oil and Gas Leasing Reform Act of 1987 - This act expands the authority of the Secretary of Agriculture in the management of oil and gas resources on NFS lands. Without Forest Service approval, BLM cannot issue leases for oil and gas on NFS land. The Forest Service must approve all surface-disturbing activities on NFS lands before operations commence.

1.8 Laws and Policies Guiding the Management of Duck Creek Inventoried Roadless Area

In 1970, the Forest Service studied all administratively designated primitive areas and inventoried and reviewed all roadless areas greater than 5,000 acres in the National Forest System. This study was known as the Roadless Area Review and Evaluation (RARE). RARE was terminated in 1972 due to legal challenges. In 1977, the Forest Service began another nationwide Roadless Area Review and Evaluation (RARE II) to identify roadless and undeveloped areas suitable for inclusion in the National Wilderness Preservation System within the National Forest System. No roadless areas were identified on the Thunder Basin National Grassland during RARE II or the 1980s planning effort.

Inventory Process An inventory of areas essentially roadless and undeveloped in character was completed during the analysis process conducted for the Northern Great Plains Plan Revision. All inventories began with an identification of all public highways and Forest Service roads maintained for the administration of each unit. Once such roads were identified, areas more than 5,000 acres in size that excluded such roads were identified (user-developed, unclassified roads may be present in the inventoried areas). The process then varied by unit based on the information contained in each unit's Geographic Information System (GIS) data base. Direction in Forest Service Handbook 1909.12,7 was followed to determine whether existing developments would disqualify the area from roadless inventory. To assess undeveloped character, the amount of other developments, such as fences, water tanks and other human-made structures, was evaluated. Areas identified with essentially undeveloped character became a part of a roadless inventory for evaluation as potential Wilderness.

On units of the Thunder Basin National Grassland, once roadless areas were preliminarily identified, fence density and structure density (e.g.: water tanks, corrals and windmills) were applied to identify areas with less than one mile of interior fence per section and less than three structures per section. Areas of more than 5,000 acres remaining from this analysis comprise the roadless inventory.

The U.S. Forest Service is required by the Forest and Rangeland Renewable Resources Planning Act of 1974, as amended, (RPA) to inventory, evaluate, and consider all roadless areas for possible inclusion in the National Wilderness Preservation System during the planning process (36 CFR 219.17 [pre July 1, 2003 Revision]). The Duck Creek area was identified as a roadless area with special values for semi-primitive recreation opportunities and/or biological diversity in the 2001 Revised Grassland Plan and was evaluated for potential for wilderness designation. The (Final Environmental Impact Statement for the Northern Great Plains Management Plans Revision contains a description of the affected environment, along with a capability analysis, availability analysis, and an evidence of need for wilderness analysis (Chapter 3, pages 3-359 through 3-378, and Appendix C.) It was determined that the Duck Creek area did not meet the required criteria for Wilderness designation. (2001 Revised Grassland Plan Record of Decision, page 26.) The area was allocated to Management Area prescription MA 3.65, Rangeland with Diverse Natural-Appearing Landscapes, allowing for Controlled Surface Use and access that will allow future oil and gas leasing in addition to allowing current enjoyment of an existing oil/gas lease.

In addition, during the initial public comment period for the Northern Great Plains planning effort, the Sierra Club requested that the Forest Service evaluate several areas for Wilderness potential. *The Wilderness Act of 1964* applies to land west of the 100th Meridian and includes the Thunder Basin National Grassland. Although these areas contain more than the one mile of interior fence per section allowed within official Forest Service Inventoried Roadless Areas, they were evaluated for their potential as Wilderness. The Duck Creek Area did not meet the required criteria for Wilderness designation.

The *Special Areas Roadless Area Conservation Final Rule*, 66 FR 3244 (Roadless Rule) was signed by Former Secretary of the U.S. Department of Agriculture Dan Glickman on January 12, 2001. The Roadless Rule, codified at 36 CFR 294 Subpart B (2001), would have prohibited new road construction and timber harvest in inventoried roadless areas subject to exceptions for activities proposed for oil and gas leases issued before January 12, 2001[36 CFR 294.12(b)(7)]and for roads pursuant to reserved or outstanding rights [36 CFR 294.12 (b)(3)]. Interim Direction 7710-2003-1 – *Transportation Atlas, Records and Analysis* was issued in June 2003, which implemented direction to adjust records and note to plats the roadless rule direction.

The Northern Great Plains Plan Revision process began in 1997 prior to the adoption of the Roadless Rule, and the Northern Great Plains FEIS was issued in July 2001 after the May 2001 decision that enjoined the Roadless Rule. As a part of the NGP EIS process, an inventory of areas essentially roadless in character was completed for each planning unit, including the TBNG. For each area, the FEIS contains a description of the affected environment along with a capability analysis, availability analysis, and an evidence of need for wilderness analysis (see FEIS 30359 to 3-378 and FEIS Appendix C).

In addition, roadless areas were allocated to various management areas by alternatives. Roadless areas were considered for management areas that varied from Management Area 1.2 Recommended for Wilderness to Management Area 6.1 Rangeland with Broad Resource Emphasis. Duck Creek was identified as having special values for semi-primitive recreation opportunities and/or biological diversity. This area was allocated to Management Area prescription MA 3.65, allowing for Controlled Surface Use and access that will allow future oil and gas leasing in addition to allowing current enjoyment of an existing oil/gas lease.

In July 2003, the U.S. District Court of Wyoming (10th District Court) issued a decision blocking implementation of the Roadless Area Conservation Rule within the state of Wyoming. As of the date of this document, that ruling stands.

1.9 Other Federal, State and Local Authorizations

Oil and gas operators may be required to obtain permits in addition to the APD, depending on the nature and location of proposed operations.

Federal

Federal agencies are directed to take action to minimize the destruction or degradation of wetlands, and to preserve and enhance the natural and beneficial value of wetlands by Executive Order (EO) 11990, May 24, 1977 (protection of Wetlands). As part of the SUPO approval process for oil and gas drilling on Federal lands, the USFS reviews the surface use and drilling plans submitted by an applicant. If a well site includes or could influence any water resources, USFS would require that an applicant submit a water management plan along with the SUPO.

The US Army Corp of Engineers (COE) authorizes activities that would impact navigable waters and waters of the U.S. through individual permits or nationwide permits for categories of activities, and also receives pre-construction notification of activities.

The Environmental Protection Agency (EPA) has the authority to set permits, mitigating measures, monitoring requirements, and maximum allowable emission rates for mobile sources. New federal regulations on regional haze require reductions in haze over time.

State of Wyoming

The Air Quality Division (AQD) of the Wyoming Department of Environmental Quality (WDEQ) enforces U.S. and Wyoming Air quality standards and regulations, and authorizes the construction and operation of statutory compression facilities. A Section 21 permit application is required prior to construction, modification, or operation of any site, equipment, source, facility, or process that may cause or increase the emissions of an air contaminant into the atmosphere. Emissions from all statutory sources and monitoring activities for these sources are regulated by the WDEQ. The WDEQ has the authority to set permit limits, mitigating measures, and monitoring requirements.

Local Government

Construction within Campbell County, and use of existing right-of-way roads and easements dedicated or maintained by the County may require a permit. Additionally, the appropriation of water, building materials, gravel and base materials, or transporting those materials to the proposed well site may also require a permit from the County.

1.10 Other Related Efforts

As stated under the Decision Framework, the decision to either allow, deny, or modify the APD is made by the BLM. The USFS must approve the SUPO before the BLM can approve the APD.

The USFS will have direct authority to issue permits for or deny use of NFS roads located outside of the lease boundary. Alternatives 2 and 3 describe the NFS roads, if the APD is issued by the BLM, which would be authorized by the USFS for operator use under a Special Use Permit. All NFS roads within the lease boundary would be authorized as ancillary facilities pursuant to the SUPO.

Chapter 2 Alternatives, Including the Proposed Action

2.1 Introduction

The National Environmental Policy Act (NEPA) regulations (Title 40, CFR 1502.14) require rigorous exploration and objective evaluation of all reasonable alternatives, including those not within the jurisdiction of the agency. According to NEPA, Federal agencies are also required to include and discuss appropriate measures to mitigate adverse environmental impacts that could result from implementing a proposed action or an alternative to that action.

This Chapter fully describes two alternatives to the proposed action, The No Action alternative and an alternative that would accomplish the purpose and need but result in different impacts and protection measures. The alternatives present a range of analysis options as required under NEPA, and were developed to meet criteria established under the 1994 Leasing ROD, terms of Lease WYW141191, and the Grassland Standards and Guidelines. Alternatives 2 and 3 contain mitigation measures designed to protect resource uses and values. The Alternatives also contain monitoring requirements designed to ensure that mitigation measures work while still meeting the proponent's purpose and need

Finally, Chapter 2 provides a comparative summary of the environmental consequences associated with the alternatives and rationale for why certain other potential alternatives were eliminated from further analysis.

2.2 Process Used to Formulate the Alternatives

Alternatives to the proposed action are designed to achieve the purpose and need to varying degrees. Developed by an Interdisciplinary Team, alternatives were based on the issues and values identified through public scoping, combined with the knowledge and experience the Forest Service has in managing resources in the project area. Since the proposed action was first introduced in 2001, several administrative initiatives and land management policies have emerged to influence the public's perception of the Duck Creek IRA. The interim moratorium on road construction in a roadless area, the draft road management policy, and the USFS's Roadless Initiative, (all described in Chapter 1 of this document) created new sideboards affecting definition of reasonable alternatives. The direction for managing an inventoried roadless area, and current management direction are detailed in Chapter 1. As stated, the public proposed initiative to designate the Duck Creek IRA as wilderness did not meet the criteria for that designation, therefore no action was taken on the initiative.

2.3 Alternatives Considered in Detail

The Forest Service developed 3 alternatives, including the No Action Alternative and Proposed Action, and another Alternative that reflects the Operator's need, in response to issues raised by the public. A third alternative was developed to consider another access route and well site, which would better address current management plan direction and offer more protection for known resources. Alternative 1 identifies the 'no action' alternative used as a baseline for comparative purposes. The 'no action' alternative can be chosen in the decision, however, it would not meet the proponent's purpose and need.

2.3.1 Alternative 1, No Action

Consideration of the No Action Alternative is required by Council on Environmental Quality (CEQ) regulations (40 CFR 1502.14). Under the No Action Alternative, the USFS would not approve the SUPO submitted for this project and no management actions would be decided or implemented regarding the proponent's Application to Drill (APD). Selection of the No Action Alternative would not authorize

surface occupancy or surface use for the purpose of drilling and production. All activities and natural processes currently permitted or occurring would continue. No additional mitigation or monitoring activities would be required as part of this alternative. The current level of management in the analysis area would remain essentially unchanged, unless/until other proposals are filed for activities requiring authorized use from the Forest.

Forest Service authority to implement a 'No Action' alternative is limited because the public lands have already been leased. The Forest Service has the authority to deny a SUPO under certain limited conditions (i.e., clear violation of an applicable nondiscretionary statute, such as Endangered Species Act). However, an oil and gas lease grants the lessee the 'right'¹ to drill for and extract oil or gas within the lease boundary, subject to the terms and conditions incorporated into the lease. Because the Forest Service has the authority and responsibility to protect the environment within Federal oil and gas leases on NFS lands, restrictions are imposed on the lease terms. For the Duck Creek area, specific requirements concerning Controlled Surface Use were attached to the lease, although none of the stipulations would empower the Forest Service to deny all drilling activity.

Additionally, the implementation of the Roadless Rule would not deny access to the lessee's right. A denial of lessee rights could constitute a 'taking' of the right to explore and produce on a lease held by the company for such activity, (in accordance with Federal Onshore Oil and Gas Act of 1982).

Other opportunities for drilling within the lease-hold could still occur after appropriate APDs and Surface Use Plans have been submitted for review and acceptance, and NEPA analysis has been performed. Rejection of one APD or denial of a SUPO does not preclude the lease-holder from submitting another APD within the same lease but in a different location or with an amended SUPO. Under the 'no action' alternative, oil and gas reserves would continue to be available from the reservoir.

2.3.2 Alternative 2, The Proposed Action: Approve the Surface Use Plan of Operation as submitted October 2001

The Forest Service would authorize Yates Petroleum Company to conduct surface operations under the Surface Use Plan of Operations for the Federal #1 well. In the APD, Yates proposes to access, drill, operate, maintain, and eventually plug and abandon one oil well in the Duck Creek area of the Thunder Basin National Grassland. The proposed location would be in Township 55 North, Range 69 West, 6th Principal Meridian, Section 30, Lot 6, in Campbell County, Wyoming, Map S-1, Chapter 1. The applicant's description of the project proposal can be found as EXHIBIT 3, Application to Drill and Surface Use Plan of Operations, dated October 2001. The proposed well site would be accessed by using a portion of an existing road and construction of a new portion of road. Drilling and production activities and facilities are described fully in the **Methods/Equipment Common to All 'Action' Alternatives** section of this Chapter.

An existing two-track road that traverses to the south of the proposed new road in this alternative crosses an earthen structure which has been deemed unsafe for large vehicle passage. This .35 mile portion of two-track road would be decommissioned by the applicant. Decommissioning would include re-contouring, ripping and seeding the route to properly rehabilitate the two-track, and returning the route to

¹ "This lease is issued granting the exclusive right to drill for, mine, extract, remove and dispose of all the oil and gas in the lands described in Item 3 (Section 19, Lots 5-20 and Section 30, Lots 6-11, 14-19 of Township 55 North Range 69 West, 6th Principle Meridian, Wyoming, Campbell County) together with the right to build and maintain necessary improvements thereupon for the term indicated below, (Competitive lease [10 years]), subject to renewal or extension in accordance with the appropriate leasing authority" *From USDI Bureau of Land Management Form 3100-11b, Offer to Lease and Lease for Oil and Gas: Serial No. WYW141191, issued March 01, 1997 to Yates Petroleum Corp, 105 S 4th St, Artesia, NM 88210.*

a natural state. The total surface disturbance resulting from this proposed action would amount to approximately 1.87 acres or .0015% of the Duck Creek Inventoried Roadless area.

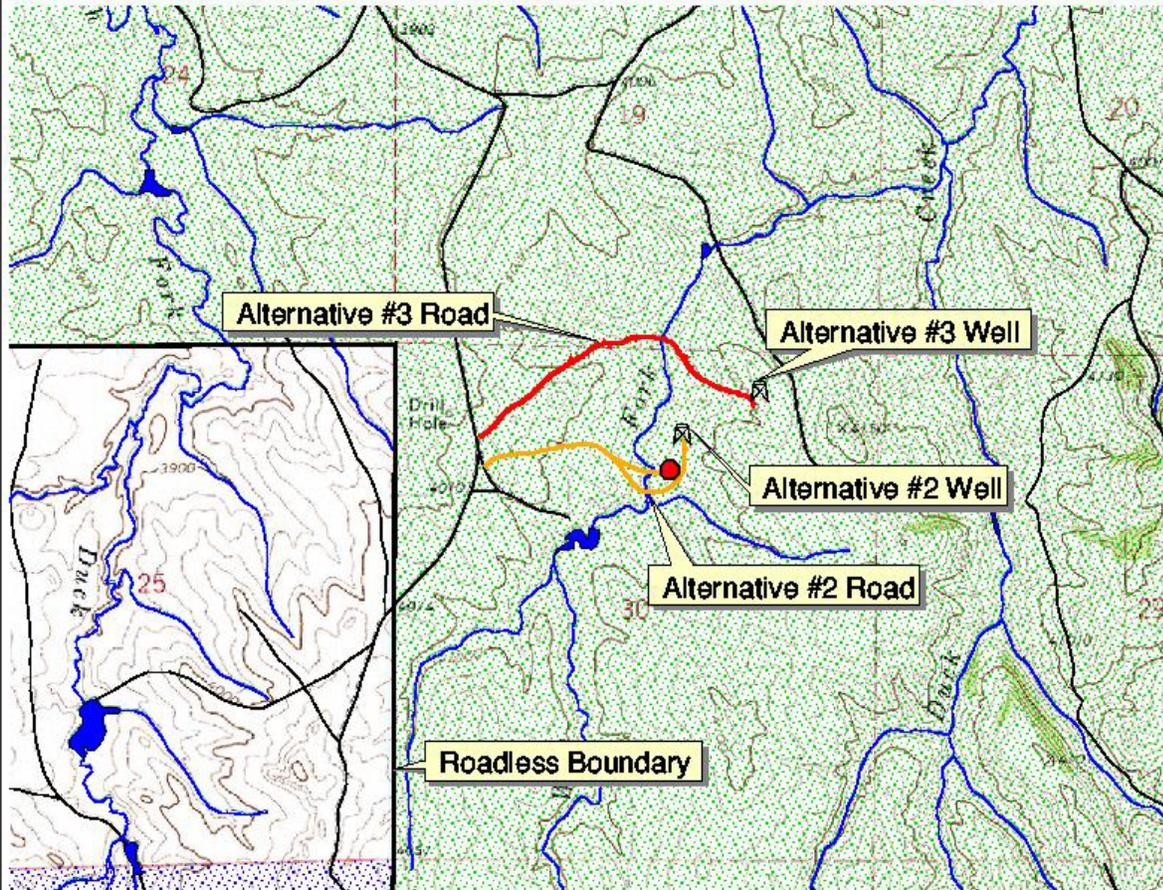
This alternative would meet the purpose and need of the applicant's proposal, however by virtue of the location of the proposed well site, would not be in compliance with the Management Plan. (refer to Wildlife analysis and Management Plan Conformance, Chapter 3.

This APD and SUPO were received by the Buffalo BLM office and forwarded to this office. Upon receipt of these documents, the applicant's proposal was consistent with the Resource Management Plan for Oil and Gas Leasing on the Thunder Basin National Grassland, ROD 1994 (O&G ROD), as stated in the scoping statement for this project dated February 19, 2002. The applicant's letter of request, dated September 11, 2001, requested exceptions to two *Controlled Surface Use Stipulations* attached to the Lease, for *Areas with Special Values*, and are addressed in the analysis. The O&G ROD allowed this lease parcel to be sold only with the stipulations attached, for protection of the special values. Granting exceptions to these two stipulations would not be in conformance with the O&G ROD.

View of the existing stock pond and road crossing the dam. This two-track road would be closed and rehabilitated under Alternative 2



Yates Federal Well #1



- New_prop_pad.shp**
- Raptor Nest**
- Alternative Road 2**
- Alternative Road**
- Roadless Boundary**
- Ponds**
- Streams**
- Roads**
- Land Status**
- NF**
- NON-NF_PVT**
- NON-NF_STATE**

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Map Prepared by: Krystal M. Linhart
 Map Created: 05/12/2004
 File Path: j:\files\office\gls\steps_projects\yates\gis\av_projects\cad\scmly_map.apr
 Layout Name: Roads

2.3.3 Alternative 3, Northern Route and Well Site: Approve the Surface Use Plan of Operation as amended, June 2003, and Modify to Meet Plan Consistency

The proponent would build, operate, and maintain a well and pad outside of a quarter mile radius of the existing raptor nest, believed to be that of a Swainson's hawk, located in Section 30, as identified on the map below and detailed in Chapter 3. This well pad was surveyed and the corners located by the applicant in 2003 and presented to the BLM and USFS in an alternative APD. In addition to locating a new well site, a northern route road was located, surveyed and analyzed by the Forest Service ID Team. The disturbed acreage for this alternative would amount to approximately 2.61 acres and .0021% surface disturbance to the Duck Creek Inventoried Roadless Area. Table 2-2 of this chapter compares the proposed disturbance by alternative. This alternative would add to the disturbed acreage for road access to the well site from the road applied for in Alternative 2, but could lessen the effects to the raptor nest. The design and layout of the proposed well pad and ancillary facilities would remain the same as in the Proposed Action and as described in detail under the **Methods/Equipment Common to All 'Action' Alternatives** section of this Chapter. This Alternative 3 site would lie within a small basin surrounded by higher ridges on the southeast, east, north and northwest. The only open area would be to the south-southwest, from which the access road would enter.

NOTE: The Controlled Surface Use Stipulation for Indicator Species attached to this lease provides specific direction for operations close to nest of specific species: "No activities shall be allowed within 300 feet of any golden eagle, ferruginous hawk, Swainson's hawk, goshawk, osprey or prairie falcon nest at any time if they would cause nest abandonment, unless specific practices are successfully implemented to maintain or increase nesting opportunities at other sites."

This alternative would meet the purpose and need of the applicant's proposal, and would be in compliance with the 1994 Leasing ROD, terms of Lease WYW141191, and the 2001 Revised Grassland Plan. Drilling and production activities and facilities are described fully in **2.4 Methods/Equipment Common to All 'Action' Alternatives** of this Chapter.

Nest tree in foreground looking north
Alternative #2 site on first tier above and west of road



Alternative #3 well site located well north east of the nest tree,
site lies within small basin on upper tier



Alternative #3 well site, center stake, looking to the NE
Site lies within a small basin surround by slightly higher ridges on 3 sides



2.4 Methods and Equipment Common to All ‘Action’ Alternatives

Alternatives 2 and 3 include the use of a closed drilling system, standard production apparatus, and standard construction equipment. These items are common to both action alternatives and are detailed below.

Prior to drilling, the drill site and road must be prepared. This is generally done with a bulldozer, scraper, road grader, and backhoe, which would be transported to the site and left until the entire earthwork is completed, generally less than one week. One to four people would be traveling to the location each day. Additionally, the mouse hole and rat hole are typically drilled with a truck mounted drilling rig or auger rig (+ - 2 two ton truck.) This would require one trip to the location. The access road would be flat-bladed to a 14 foot running surface. In the event that commercial production is established from this well, the access road would be crowned and ditched for permanent, all-weather access, pursuant to the lease Controlled Surface Use Stipulations, and in accordance with roading guidelines established in the joint BLM/USFS publication: *Surface Operating Standards for Oil and Gas Exploration and Development*, Third Edition

Drilling would take approximately 3 weeks with drilling crews of 5-15 people, requiring a minimum of 4-10 vehicle trips to the location each day. Drilling the well would require a large rotary drilling rig rated to at least 7500'. These rigs are made up of separate components including the derrick, draw-works, mud pumps, the drill floor where the rotary table is located, a blow out preventer (BOP), the drill pipe with appropriate drill bit, a power source (either diesel engines or diesel-electric power source), miscellaneous support equipment, etc. Miscellaneous major support equipment would include bulk mud component tanks, mud tanks, mud-gas separator, pipe racks, pipe tubs, degasser, desander, desilter and water tanks, fuel tanks, the dog house, and office trailers for the drilling crew, company representative and, geologist & mud logging unit.

Moving this equipment in would require the aid of several tractor-trailer rigs and often a crane to move the equipment on site, assemble the drilling rig, and dismantle the drilling rig upon finishing the drilling program. Traffic for setting up the drilling rig would involve 12 to 15 tractor-trailer trips to bring in the drilling rig and 12 to 15 to remove the rig and likely two support pick ups for the week. These support vehicles would be in addition to the 4 to 10 vehicle trips listed above. During the drilling operation, it may take about 10 additional tractor-trailer loads of drilling supplies.

Once the drill rig is in place, the conductor pipe and well casing are cemented in place to avoid contamination of other permeable strata and to prevent blowouts. The contractor would utilize several (usually two to five) specially built trucks and a support pick up truck to mix and pump the cement into the wellbore. This requires two trips by the contractor, one trip to set the conductor casing and one trip to set the surface casing.

At the end of the drilling a technical activity known as well logging occurs. This is a process to gather downhole information about the geology and oil reservoir. An electric data gathering (well logging) truck, which is typically 10-ton truck, would make one trip to the well site and would be accompanied by two pick up trucks.

If the well is successful, the drilling rig sets production casing. After production casing is set, the drilling rig is moved off site and a workover/completion rig (usually a larger truck mounted rig with one or two support pick up trucks) is moved over the wellbore to complete the well for production, which may take up to two months. Traffic to the well during completion procedures typically is about two or three pick up truck trips to the well each day by contractors and company representatives. During this completion, a pumping unit and appropriate ancillary equipment are installed. This ancillary equipment is determined by the amount of production anticipated and could include two or more collection tanks and separator equipment. This equipment is hauled in on tractor-trailer rigs and typically takes 6 trips.

The disturbed soils not needed for production are reshaped, covered with topsoil, and seeded with a recommended seed mixture. This typically takes a bulldozer and grader to shape the site, a farm tractor with a drill for re-seeding, and a support pick up truck. Pulling back the perimeter of the well pad is accomplished in one or two days.

The drilling, well control, casing and cementing requirements, and abandonment of the well are regulated in the Federal Onshore Oil and Gas Order No.2, under the authority of and administered by the Bureau of Land Management. Information on abandonment of the well is also found in Onshore Oil and Gas Order No. 1.

After completion of the drilling activity (if the well is successful), small crews would use a backhoe to install a production tank, pump jack, and a heater-treater. Noise from production equipment, once installed and operating, would not exceed 70 decibels at a distance of over 90 meters from the equipment producing the noise, as required under the terms of Lease WYW141191 (Controlled Surface Use Stipulation for Areas with Special Values). Putting the well into production would take approximately 4-8 months, during which time the crews would reshape the perimeter of the well pad to conform to producing well requirements. Seeding of the disturbed area outside of the pulled-back well pad would occur during the first season after drilling.

If the well is unsuccessful, it will be plugged and abandoned. Down hole plugging procedures for abandoning the well would be determined pursuant to Onshore Oil and Gas Order No. 2 (Section G) and would be supervised by the BLM representative. Generally, the well, when abandoned, would be plugged over the permeable strata. The surface plug of at least 50 feet would be placed across the annulus. The top of the surface plug shall be placed as near to the eventual casing cutoff point as possible. A surface cap, as per Onshore Oil and Gas Order No. 2, section G (10), would be placed on the abandoned well. All casing shall be cut off at the base of the cellar or 3 feet below final restored ground level whichever is deeper. A ¼ inch thick steel plate would then be welded on the top of the wellbore. A below ground dry hole marker with the well location and identity permanently inscribed would be placed on the wellbore.

The plugging procedures use the same equipment as is used to set the casing. The contractor would utilize several (usually two to five) specially built trucks and one support pick up truck to mix and pump the cement into the wellbore. This requires one trip by the plugging contractor. A backhoe (hailed by low boy) and welding rig (a 1 ton Pick up) are also required for plugging the well. One trip to the location is all that should be required of these vehicles. Final reclamation of the drill site would occur at one of two times. If the well proves uneconomic, final reclamation would occur after drilling in lieu of well completion. If the well is economic and put into production, full reclamation of the site would occur upon well abandonment. After the well is plugged and equipment removed, the well site is reclaimed and reseeded. Reshaping of the site is typically done with a bulldozer and grader each hauled in on a low boy. Reseeding is accomplished using a farm tractor with drill seeder. This work often is accomplished in less than a week, with one trip in for the heavy equipment and up to five pick up trips.

- *Fresh water to be utilized in the drilling operation would be obtained from Norfolk #sC36 (Soda Well) artesian water well and pond located in the SW1/4NW1/4 of Section 20 in Township 54 North, Range 70West, Permit #P12604P. Approval of a Temporary Water Use Agreement would be obtained from the office of the Wyoming State Engineer Prior to the use/diversion of any water from the Norfolk #SC36 water well.*

2.5 Resource Protection Considerations Common to All ‘Action’ Alternatives

The resource protection stipulations attached to Lease #WYW141191 in 1997, are detailed below. These stipulations were designed to avoid adverse impacts to the Duck Creek area of the Thunder Basin National Grassland. These stipulations are not to be confused with mitigation measures determined in this NEPA document, but are addressed in this section to inform the reader of overriding requirements for design of the project under all ‘action’ alternatives.

In addition to stipulations attached to the lease, **lease notices** are attached to leases to transmit information at the time of lease issuance to assist the lessee in submitting plans of operation, or to assist in administration of leases. Lease Notices are attached to leases in the same manner as stipulations, however, there is an important distinction between Lease Notices and Stipulations. Any requirements contained in a Lease Notice must be fully supported by law, regulations, standard lease terms, or onshore oil and gas orders. Guidance in the use of Lease Notices for Cultural and Paleontological Resources, and for Endangered or Threatened Species, which are to be attached to all leases on the Thunder Basin National Grassland can be found in Region 2 supplement to FSM 2820. Because Cultural and Paleontological Resources have not been identified in the affected environment of this project, those Lease Notices have not been itemized here.

- *Provisions from Oil and Gas Lease WYW141191, March 1, 1997, Controlled Surface Use Stipulations (relevant to this project):*
- *No activities shall be allowed within 300 feet of any Golden eagle, Ferruginous hawk, Swainson's hawk, goshawk, osprey or prairie falcon nest at any time if they would cause nest abandonment.*
- *New roads or other developments shall be placed out of sight of the existing raptor nest if possible, unless specific practices are successfully implemented to maintain or increase nesting opportunities (Forest Plan Standard and Guideline 7012MB).*
- *Noise from oil and gas production facilities will not exceed 70 decibels as measured by the A-weighted Sound level (dBA) system of measurement at a distance of over 90 meters from the oil and gas production facility producing the noise. Methods to accomplish this may include but are not limited to using mufflers on gas powered pumpjacks, or using electric powered pumpjacks.*
- *Drilling fluids and cuttings will be confined in portable tanks and closed systems. Reserve pits or evaporation pits will not be allowed. Waste water, drill fluids, and cuttings will be removed from the area to an approved disposal site.*
- *For exploration wells, vegetation and soil disturbance for well access roads and well pads will be minimized. The surface Use Plan of Operations will include a plan to minimize motorized traffic to and from the drill site, a plan to limit vegetation and soil disturbance due to road construction and use.*
- *Methods to accomplish this may include but are not limited to the following: using existing roads to the maximum extent possible, minimizing excavation for roads. The maximum road width that will be allowed is 14 feet. limiting travel to periods of low moisture (less than 25%) of field capacity). Typically, high soil moisture conditions occur in the early spring to early summer.*
- *A plan to limit vegetation and soil disturbance on the drill site. Excavation to level the drill rig will be permitted. Excavation will be minimized. Methods to accomplish this may include but are not limited to the following: Use of portable tanks rather than excavated pits, Use of temporary supports and timber cribs to level equipment (other than drill rig) rather than excavation, Locating staging, storage, and crew camps areas outside of the special value area.*
- *Reclamation will be designed to return the area to the condition which existing prior ground disturbance, including approximate original contour, Land contours will be reclaimed to the pre-disturbance condition as near as possible, Travel-ways, drill pads and ruts may be required to be harrowed, to minimize the effects of soil compaction.*
- *A plan to re-vegetate will be submitted with the Surface Use Plan of Operations. The objectives will be to stabilize soil erosion, to restore biological diversity to within the range of conditions at the time of disturbance and to minimize color and vegetation contrasts using native species. This may include: More than one seed mixture. (if) Native seed may be in short supply, difficult to*

obtain (,) or expensive. On some soils, a nurse crop of annual species may be required to prevent soil erosion until native species can become established.

In addition to Lease Stipulations and Notices which might affect the Operator's activity, the Forest Service developed the following design criteria, stated as **Conditions of Approval (COAs)**, to be applied to the SUPO as part of all of the action alternatives. Conditions of Approval are site-specific mitigation and coordinating measures that reduce the impacts that come from a specific oil and gas project. They come from three different sources. First, they come from programmatic decisions. Current applicable programmatic decisions and/or guidance about COAs are contained in Appendix E of the 1994 Final Environmental Impact Statement, Oil and Gas Leasing on the Thunder Basin National Grassland, and Appendix F of the 2001 Land and Resource Management Plan, 2001 Revision for Thunder Basin National Grassland. A typical example of a COA coming from the programmatic documents is the prohibition of burying trash on drill locations. The second category of COA's are those determined by the Interdisciplinary Team during the on-site review of the project and in subsequent interactions. They determine needed site-specific mitigation based on issues and concerns identified. The third category of COAs contain those more in nature of administrative and coordination concerns. A typical example is requiring a 48 hour notice before earthwork on the drill location begins so that appropriate inspections can occur.

Conditions of Approval (COAs) that would be applied as standard requirements which the proponent is obligated to adhere to are as follows: note: some COAs have been eliminated from the list as they would not apply to this action. COAs may be altered by the Authorized Officer depending on the site condition at the time of the activity and the need for change in items such as recommended seed mix, fencing requirements, and reclamation.

2.5.1 DURING CONSTRUCTION AND OPERATION

1. If snow is on the ground when construction begins, it will be stockpiled separately from the topsoil.
2. The top twelve (12) inches of soil material will be removed from all areas to be cut or filled. This soil material will be stockpiled and saved for later distribution over the properly reclaimed site. The cut and fill slopes will be constructed at 3:1 grade.
3. Construct a terrace at the top of cut slope on the location. The terrace width will equal blade width, but will not be less than 10 feet. The terrace should slope 1-2% for drainage and be inclines 1-2 feet toward cut.
4. The entire location will be fenced with woven wire. A cattle guard will be installed for access (a diagram will be supplied to the contractor prior to construction).
5. Sewage will be confined to a chemically treated portable unit on location and disposed of at a State Approved disposal site upon completion of operations. The portable latrine unit will remain on location until completion of operations.
6. All garbage/trash/drilling debris will be put in an enclosed trash cage and hauled to an approved State landfill. Burying trash or trash within reserve pit will not be allowed. Burning of trash on the location will not be allowed. The cage must be on-site throughout all drilling, testing and completion activities.
7. The cattle guard within the access road must be installed with side wings. The fence on both sides of the cattle guard must be reinforced with H bracing, utilizing six (6) inch diameter wooden posts.

8. Install culverts within the drainages used for the access route. The size, configuration, fill and freeboard of the culverts and crossings will be determined when the crossing is professionally designed and submitted to the USFS. All designs will be approved by USFS prior to authorization of the activity.
9. The new access road will be 14 feet wide with culverts installed as needed during the construction and drilling phase and upgraded if production is established.
10. The rathole and mousehole must be filled-in immediately after the rig is removed for safety.
11. All equipment and vehicles must be confined to the access road and pad.
12. Drilling company signs will be allowed on National Forest System lands during the construction and drilling phase.
13. If subsurface cultural materials and/or paleontological resources are found during construction, the District Ranger must be notified immediately. Construction must cease until the impact has been properly mitigated.
14. A Forest Service representative will monitor construction of the location. Notify the Forest Service (358-4690) 48 hours in advance of any construction of the well pad.

2.5.2. PRODUCING WELL

1. Production facilities (including dikes) will be placed on cut and a minimum of 20' from the toe of the back cut.
2. The dikes for the production facilities will be constructed of compacted subsoil, be impervious, hold the capacity of the largest tank, and be independent of the back cut.
3. The load out line will remain inside the dike. A drip barrel will be installed under the end of the load out line.
4. The wellhead, pump jack, treater, and tank battery must be fenced with sheep-tight fencing around each facility (see attached diagram). A fence constructed entirely of barbed wire will not be allowed. The company has the option of fencing the entire location instead of each facility and installing a cattle guard in the access road (see item A.5b).
5. If each facility is fenced separately as described above, the fence around the tank battery and treater must be constructed on the outside perimeter of the dikes.
6. All production facilities, i.e. pump, pump house, storage tanks, oil-water separator, etc. will be painted with a lusterless color as on the "Standard Environmental Color Sheet" Munsell soil Color Charts, published by the Wyoming State Office of the Bureau of Land Management. The company may choose Sand Beige (5Y 6/3), or Desert Brown (10YR 6/3) or Juniper Green (No Munsell Color) or Yuma Green (5y 3/1) to meet this requirement. The exception being that Occupation Health and Safety Act Rules and Regulations are to be complied with where special safety colors are required. All facilities will be painted within six (6) months of installation.
7. There will be no pits at producing oil well locations.

8. Reduce the slopes to 3:1 grade by pulling fill material up from fore slope into the toe of cut slopes. All stockpiled material will be distributed and landscaped to the surrounding topography over all areas not needed for production. The reclamation work, including seeding and mulching, should be completed by 6 months of completion of drilling. Keep all vegetation a minimum of 15' from all pump jacks, internal combustion engines, electrical installations, treaters, wellheads, etc.
9. Those areas on the oil well location, which are not to be re-vegetated, or which are not needed for facilities are to be surfaced with a minimum of 4" of gravel or scoria. Thereafter, periodic additions of gravel or scoria will be required in order to maintain a rut-free surface for driving and equipment handling. Gravel or scoria, which become oil-soaked, must be removed and the area resurfaced.
10. Pesticides may not be used to control undesirable woody and herbaceous vegetation, aquatic plants, insects, rodents, trash fish, etc., without the prior written approval of the Forest Service. A request for approval of planned uses of pesticides will be submitted 4 months prior to proposed starting date. Information essential for review will be provided in the form specified. Exceptions to this 4 month prior notification may be allowed, subject to emergency request and approval, only when unexpected outbreaks of pests require control measures which were not anticipated at the time a request was submitted.
 - a. Only those materials registered by the U.S. Environmental Protection Agency for the specific purpose planned will be considered for use on National Forest System lands. Label instructions will be strictly followed in the application of pesticides and disposal of excess materials and containers.
 - b. The flat bladed access road must be crowned and ditched. The Operator has the option of placing a minimum of four (4) inches of gravel or scoria on the driving surface (see attached road diagram). Additional culverts will be installed as needed
11. All gasoline and diesel powered equipment must be equipped with approved spark arresters or mufflers. The decibel level must not exceed 70 decibels at a distance of 200 feet from the exhaust of any muffler.
12. Surfacing access roads on Forest Service administered land will be required if determined by a Forest representative that maintenance of the road is inadequate without gravel. Excessive rutting, drive arounds, etc. would precipitate this action.

Changes to these COAs must be submitted in writing and be approved by the Authorized Officer prior to implementation. Detailed descriptions of rehabilitation efforts, as proposed by the lessee, are contained in item 10 of the Multi-Point Surface Use & Operations Plan submitted by Yates Petroleum Corporation as a part of the APD.

2.5.3. ABANDONED WELL

1. A below ground permanent abandonment marker, permanently inscribed with operator, well number, lease number, and location (1/4 section 1/4 section, township, range, county, and state), is required.
2. All disturbed areas (roads, well pads and ancillary facilities areas) will be scarified. The cut and fill slopes will be re-contoured to original contours. The entire disturbed area will then be

back-filled with topsoil, landscaped, seeded and fenced with woven wire to exclude livestock. The fence will remain in place. It will be removed prior to approval of final abandonment.

Water bars (contour ditches) are to be constructed on the contour at seventy five (75) foot intervals beginning at the top of the disturbed slope. They should be at least one (1) foot deep, with approximately two (2) feet of drop per one hundred (100) feet of length, and with the berm on the downhill side.

3. The Forest Service must approve the seed mix used for reclamation. The following seed mixture and fertilization is recommended, however this list may change depending on the season and environmental conditions at the time.

<u>Species</u>	<u>lbs./ac. P.L.S.</u>	<u>Fertilizer</u>
western wheatgrass	5.0	90 lbs. 33-0-0
slender wheatgrass	3.0	30 lbs. 0-45-0
thickspike wheatgrass	2.0	
green needlegrass	2.0	

Drill seed on the contour at a depth of 1/2 inch.

It is recommended that fall seeding take place after September 1 and prior to ground frost. To be effective, complete spring seeding after the frost has left the ground and prior to May 15. To maintain purity and quality certified seed will give the best results.

4. All disturbed areas must be mulched at the rate of two tons/acre with certified weed free mulch. Acceptable materials to use as mulch consists of hay, straw, wood chips, etc. The mulch must be crimped into the surface with a disk.
5. Upon receipt of "Subsequent Report to Abandon" via the BLM, the reclamation will be inspected (usually after the second growing season) by the Forest Service. Reclamation will be approved when the established vegetative cover is equal to 70% of that of adjacent areas.
6. If the well being plugged and abandoned was a producing well, the areas where the production facilities were located and the area where the on location access road was located will be ripped to a depth of eighteen (18) inches before the location is disked, seeded, mulched and fenced. This ripping is to break up the soil compaction to get better re-vegetation in these areas.

2.5.4 GENERAL CONDITIONS OF APPROVAL

1. During all road building, pad construction, drilling, well completion, producing and abandonment activities, all gasoline, diesel powered equipment used must be equipped with approved spark arresters or mufflers. Notify the Forest Service in the event of any fire occurrence.
2. Should the use of explosives be required during the construction the operator shall comply with all applicable local, State, and Federal laws, regulations and requirements involving the storage handling, preparation and use thereof. Prior to any blasting, the District Ranger, Thunder Basin National Grassland, will be notified and an approved blasting plan submitted to the Forest Service. This is to be deleted since no use of explosives is anticipated.

3. Design night lighting to minimize light pollution. Limit continuous or dusk-to-dawn lighting at facilities. Exceptions may be made for the lighting of towers or lines to facilitate flight safety, and staffed, around-the-clock operations. Whenever the facilities are not actively being worked the lights should be at a minimum.
4. The operator is responsible for all spills of crude oil, automotive fuels, lubricants, liquids and EPA listed hazardous materials. The operator shall give prompt notice to the U.S. Forest Service of any spill. The Operator will report to the Wyoming DEQ all releases that are determined to be a threat to enter the waters of the state and are considered a hazardous substance or an amount greater than 10 barrels of any combination of crude oil/petroleum condensate/produced water or 25 gallon of refined oil.
5. Spill prevention containment devices will be place for all fluids on the location. This includes, fuel tanks, barrels and all other containers one quart in size or larger.
 - *In the event that commercial production is established, all portions of the access road will be crowned and ditched for permanent all-weather access to the location. Other improvements will include ditching, draining, graveling, crowning, and capping the roadbed as deemed necessary to provide all weather access. The surface will be capped with a minimum of 4 inches of gravel or scoria if necessary to facilitate travel.*
 - *A minimum of 6 inches of topsoil will be removed from the access road route and stockpiled for reclamation of the "borrow" ditch areas upon completion of construction activities. Water for dust abatement would be applied to the road surface as appropriate.*
 - *A culvert will be installed in the Creek bottom where the access road crosses, using a cut/fill appropriate to the slope. All new construction will be designed and submitted to the USFS for approval prior to initiation of the construction.*
 - *A cattle guard with an appropriate pass-gate will be installed at the fence crossing to allow access for stock and movement of road traffic.*
 - *Construction material for the well pad and all ancillary facilities will be obtained from the site.*
 - *All permanent (6 month or longer) above-the-ground structures will be painted Carlsbad Canyon (Munsell standard color 2.5Y 6/2) or another appropriate color approved by the USFS.*
 - *A self-contained fiberglass tank will be utilized for containment of waste fluids.*

All produced fluids will be collected in test tanks and disposed of as determined by an application for disposal within 90 days of initial production.

All hazardous and extremely hazardous substances and commercial preparation will be handled in an appropriate manner to minimize the potential for leaks or spills to the environment.

The company will be allowed to proceed with operations after all surveys have been approved, environmental clearances accepted and a **Notice to Proceed** has been issued.

If the hole does not produce and the well is plugged and abandoned, a marker (either above or below ground) will be installed

The Thunder Basin National Grassland Plan Revision, 2002, identifies Oil and Gas Stipulations that would be imposed as a result of a decision made under the direction of this Plan. The stipulations can found in the Appendix D of the Plan. Because the lease was sold in 1997, and was authorized under the direction of the 1994 ROD, only those stipulations resulting from the 1994 ROD and attached to the lease can be imposed.

2.6 Monitoring Activities Common to all ‘Action’ Alternatives

- *The following monitoring is recommended for inclusion in the selected alternative and will be brought forward to the Decision, if applicable. Monitoring will be conducted by employees of the USFS unless otherwise noted.*

Best Management Practices and mitigation outlined in Chapter 3, Hydrology, should be monitored for implementation and effectiveness weekly, and after any significant precipitation events during construction activities. Following construction, monitoring should on a monthly basis and after all significant precipitation events. If monitoring reveals unexpected effects in the West Fork Duck Creek drainage, additional monitoring for potential impacts to amphibian habitat may be initiated, and steps could be taken to reduce effects detrimental to habitats.

No aquatic species were identified for direct project monitoring. There are no fish populations present to be monitored. Although present in the project area, amphibians were not selected for direct monitoring in this project, because there are limited amphibian habitats and populations within areas immediately affected by treatments. However, if project implementation monitoring indicates that aquatic habitats may be threatened, northern leopard frogs (*Rana pipiens*) are recommended as a project-level management indicator species.

2.7 Alternatives Considered but Eliminated from Detailed Study

Federal agencies are required by NEPA to rigorously explore and objectively evaluate all reasonable alternatives and to briefly discuss the reasons for eliminating any alternatives that were not developed in detail (40 CFR 1502.14). Public comments received in response to the Proposed Action provided suggestions for alternative methods for achieving the purpose and need of the proponent. Some of the alternatives may have been outside the scope of the analysis, duplicative of the alternatives considered in detail, or determined to be components that would cause unnecessary environmental harm. Therefore, a number of alternatives were considered, but dismissed from detailed consideration for reasons summarized below:

2.7.1 Directional Drilling Alternative: The proponent would be required to directionally drill the well by locating the well pad and all other facilities outside of the IRA. This alternative would propose no road building within the IRA boundary, but would utilize directional drilling to reach the oil reservoir from either the state or the private parcels located to the west. This alternative would lessen affects to the roadless character. If technically feasible, this alternative would meet the purpose and need of the applicant’s proposal (to drill for and produce oil from their lease) however it would not meet several other requirements regulated by law and lease rights. In accordance with 40CFR1502.14, ‘In determining the scope of alternatives to be considered, the emphasis is on what is “reasonable” rather than on whether the proponent or applicant likes or is itself capable of carrying out a particular alternative’.

The directional drilling alternatives that were analyzed for the Federal #1 well, (see EXHIBIT 5, YATES PETROLEUM CORPORATION FEDERAL #1 WELL, BLM report) are impractical considering the geologic setting of the Minnelusa reservoir and drilling aspects as discussed in the report, leading the BLM Wyoming State Office Reservoir Management Group to conclude that the Federal #1 Well is not a possible candidate for directional drilling.

Directional drilling from outside the IRA, hence outside of the lease boundary, would not be allowed, as the lessee is required to operate within lease boundaries. Consequently, this alternative would not meet the purpose and need and would violate regulations of the Mineral Leasing Act.

2.7.2 Aerial Access Alternative: The proponent would be required to access the site only by air, including mobilizing all equipment for construction, installation and operation of the proposed well. This alternative would eliminate the need to construct roads within the inventoried roadless area

for drilling purposes. Access for operation and maintenance of the well would be allowed overland only. Carrying this alternative forward would involve substantial compilation of the proponent's financial capability and determining the reasonability of this alternative. The alternative would meet the purpose and need of the applicant's proposal for drilling however, the operator would still need road access to transport a product out of the area. In accordance with 40CFR1502.14, 'In determining the scope of alternatives to be considered, the emphasis is on what is "reasonable" rather than on whether the proponent or applicant is itself capable of carrying out a particular alternative'. This alternative was rejected from further consideration because a well pad and full drilling operations would still need to be constructed within the lease hold (located entirely within the Inventoried Roadless Area) for drilling purposes and if the well produces, road access would need to be constructed to transport the product. Implementing this alternative would not avoid or reduce surface impacts within the Duck Creek Inventoried Roadless Area.

2.8 Comparison of Alternatives

This section provides a summary of the effects of implementing each alternative. Information in the table is focused on activities and effects where different levels of effects or outputs can be distinguished quantitatively or qualitatively among alternatives.

Alternative 1: No Action

Alternative 2: Proposed Action

Alternative 3: Northern Route and well site

The Table below, T-1, quantifies the acres of disturbance expected for each alternative under this analysis. All disturbed acreage would be fully reclaimed to the satisfaction of the authorized officer either end of the drilling and construction activity and prior to production or when the well is plugged and abandoned. Alternative 2 proposes 'no net gain' for road disturbance within Section 30 by rehabilitating that portion of existing road which would not be utilized by this alternative. Alternative 3 avoids the existing roadbed altogether for protection of wildlife.

Table 2-1. How Surface Disturbance is Addressed by Alternatives

Surface disturbance and visual intrusion within the Duck Creek Inventoried Roadless Area	Alternative 1	Alternative 2	Alternative 3
well pad and associated disturbance	0	1.38 ac	1.38 ac
Existing access road upgraded to 18' width if well produces	0	2,693', 1.11 ac	0
new road construction	0	1,742', .72 ac	3,854', 1.59 ac
Existing road (+- 12' wide) not utilized and reclaimed as part of this project	0	(1,848', .51ac)	0
Net loss of acreage to surface resources	0	2.7 ac	2.97
% of IRA surface lost to disturbance	0	.0021%	.0024%
Acreage (viewshed) compromised within the IRA ² (assuming .5 mile buffer for access roads and well pads)	0	+800	+800
% of visual intrusion in Duck Creek IRA	0	6%	6%

² refer to Chapter 3, Section 3.5

2.9 Public Involvement

Scoping is an important part of the environmental analysis process for determining the scope of issues to be addressed and for identifying the issues related to a proposed action.

On February 25, a Notice of Intent was published in the Federal Register indicating that the Forest Service intended to prepare and EIS. On February 19, 2002, a formal scoping letter describing background information, the purpose and need for the action, potential issues related to the action and location, and decision to be made was mailed to interested and potentially affected individuals, groups, organizations and agencies. In an attempt to inform the general public of the proposal, the press release was issued to 22 local and state media contacts on February 25, 2002. One individual comment letter, one corporate letter, two letters from organizations, and one from a state agency, were received in response to this scoping effort. Substantive comments that were received have been incorporated into the alternatives developed for this effort or otherwise analyzed to determine the effects

A Revised Notice of Intent to prepare an Environmental Impact Statement was published to the Federal Register on March 4, 2004, changing the Responsible Official from the Regional Forester of the Rocky Mountain Region to the Forest Supervisor of the Medicine Bow-Routt National Forests and Thunder Basin National Grassland and notifying the public that a Draft EIS would be made available within 60 days.

2.10 Issues

Federal Regulation 40 CFR 1500.2 requires that Federal agencies ‘identify and assess the reasonable alternatives to proposed actions that would avoid or minimize the adverse effects of the actions upon the quality of the human environment’. CFR 1502.14 requires agencies to ‘(a) rigorously explore and objectively evaluate all reasonable alternatives’ and (d) include the alternative of the No Action’.

The Forest Service reviewed and analyzed the comments received during the scoping process. The agency’s process for reviewing issues involved three steps. First, specific comments were arranged into groups of common concerns. Next, a primary issue statement was developed for each group of comments. Finally, the issue statements were evaluated for their applicability to this NEPA analysis. The analysis of comments initially identified several separate and distinct issues. Many of these were identified as key issues. These issues were used to identify the scope and content of this NEPA analysis. These key issues were used to analyze environmental effects or prescribe mitigation measures, or both. Issues were deemed ‘key’ by the intensity of interest or resource conflict with the proposed activity. Determination of significance is different than and separate from any determination of significance of an impact to a resource.

As for key issues, the Forest Service identified topics raised during scoping and as a result of on-sites to the location. These topics include:

- Wide Range of Alternatives to Provide Informed Decision
- Authority to make decisions and Forest Plan Consistency
- Cultural Resource Protection
- Cumulative Impacts
- Energy development
- Level of Analysis required for this effort
- Enforcement of leasing stipulations
- Impacts to Plants
- Development of New Roads in an Inventoried Roadless Area
- Wilderness designation and protection
- Impacts to Wildlife, T&E and protected status species

The Table of Issues and the responses to those issues can be found below: TABLE 2-2, below.

The Forest Service separated the issues into two groups:

1) Key issues which were used to develop alternatives to the Proposed Action, or were otherwise considered during the development of alternatives. Significance of issues was determined based on extent and/or duration of effects, and/or intensity of interest or resource conflict.

2) Other issues were identified as those: a) outside the scope of the proposed action; b) already decided by law, regulation, Forest Plan, or other higher level decisions; c) irrelevant to the decision to be made; or d) conjectural and not supported by scientific or factual evidence. The Council on Environmental Quality (CEQ) NEPA regulations explain this delineation in Sec. 1501.7, "...identify and eliminate from detailed study the issues which are not significant or which have been covered by prior environmental review (Sec. 1506.3)

Non-significant issues are also listed in the table below however, they are addressed only in the table and not carried forward in this document for consideration.

TABLE 2-2 ISSUES TABLE

Issues	Summary	Response and location in document	Appendix A Public Involvement
Alternatives	<p>(3) The DEIS should present well-developed alternatives that provide a broad decision space</p> <p>DEIS should include at least one conservation alternative that goes beyond simply being the "no Action" alternative. Alternative should identify potential negative impacts of permitting oil and gas development in the project area. Alternative should "articulate the importance of preventing energy development in the area and how this alternative would lead to the long-term stewardship responsibilities of the Forest Service".</p>	<p>Alternatives can be found in Chapter 2. All alternatives should meet the Purpose and Need for the Action, although the No Action Alternative is identified as not meeting the Purpose and Need.</p> <p>It is not within the scope of this document to analyze negative impacts of oil and gas development as a whole, or of preventing energy development. The effects of developing one oil well as proposed in this document are articulated in Chapter 3.</p>	Letter 3
Authority and Forest Plan	<p>(4) No decision may be made regarding the Yates/Duck Creek APD until such time as legal challenges to the validity of the 1985 Plan can be resolved.</p>	<p>LEASE WYW141191 was authorized under the direction of the TBNG Oil and Gas ROD, 1994, therefore additional planning to accommodate this action is not needed.</p> <p>In addition, The Thunder Basin National Grassland Plan was implemented in July 2002, therefore the 1985 Plan is no longer at issue.</p>	Letter 4
Cultural Resources	<p>(4) An archaeological survey should be undertaken before ground is broken on any well-site approve under this project.</p> <p>Tribes should be formally consulted to determine the location of important sacred or cultural sites in the general area, and such sites must be avoided in the choice of well placements.</p> <p>(7) Provided the Med/Bow-Rouff NF follows the procedures established in the regulations, the WY SHPO has no objections to this project.</p>	<p>As required by the Archaeological Resources Protection Act , an archeological clearance was conducted across a broad area of the proposed and alternative sites. In addition, if Alternative 3 is selected and any previously unsurveyed areas are authorized, archeological surveys will be conducted and appropriate mitigation or avoidance will follow.</p> <p>Several tribes and tribal jurisdictional agencies were consulted during the scoping process. No response was received from these entities.</p> <p>All SHPO consultations have been met.</p>	<p>Letter 4</p> <p>Letter 7</p>

Cumulative Impacts	(2) There seems to be little regard for cumulative impacts of development. We should “slow development in order to get a handle on how its effects play out over the long term”	‘Slowing development’ is not within the scope of this document. The 1997 lease conferred rights to explore for and produce oil and gas.	Letter 2
Energy Development	(3) “...once a test well is drilled, and if viable, then additional requests for development will occur...DEIS must recognize this potential and discuss what the future desired conditions for the public lands in the project area are and how this development will impact that vision” (9) It is in Wyoming’s best interest to continue to pursue the proposed project.	Future Desired Conditions have been identified in the Thunder Basin National Grassland Plan, 2002. It is not within the scope of this document to further analyze management strategy or to amend the Plan. No response	Letters 3 Letter 9
EIS Scale Development	(1) I gather from the fact that an EIS is contemplated that the Forest Service has determined that a single exploratory oil and gas well is likely to have a significant impact on the human environment thus triggering the need for an EIS”.	The Secretary of Agriculture directed Forests to prepare an EIS when an activity is proposed within an Inventoried roadless area and no Forest scale roads analysis is in place In addition, in both <u>Mitchell Smith V. U.S. Forest Service</u> , NO.9336187 (9 th Cir. 1994) and <u>National Audubon Society V. U.S. Forest Service</u> , 4F.3d.832, 836-837 (9 th Cir 1993) the Ninth Circuit has found that an EA may not be an adequate document for NEPA review when entering a roadless area.	Letter 1
Comments concerning leasing stipulations	(1)The draft EIS should clearly set forth the stipulations to which the lease was made subject when it was issued. Well-site reserve pits of drilling muds should not only be fenced, but should also be netted. Toxic materials must not be buried on-site (4) A recommendation was made in 1992 for No Surface Occupancy in Duck Creek	Stipulations attached to the lease are identified in EXHIBIT 1, and would be implemented by selection of Alternative 3. No reserve pits would be allowed. No toxic materials would be buried on site. The TBNG Plan did not assign NSO for Duck Creek.	Letter 1 Letter 4
Misc. Issues	(3) Renewable natural resources are being negatively impacted Wyoming is losing its wild and undeveloped state It is critical that developments are limited from certain areas. (4) Drilling should be excluded from steep slopes, unstable soils, and erodible soils. Well-site should be constructed in highly-reclaimable lands with a minimum of road construction	This exclusion is made within the stipulations of the lease. Every effort has been made to minimize the road construction and assure that reclamation will follow production activity.	Letter 3 Letter 4
Impacts to Plants	(4) Potential impacts to rare and declining plant species Noxious, non-native weed often invade during surface disturbing activities USFS should disclose the effects of herbicides, general defoliant, dicots	No rare and declining plant species or their habitats have been identified within the effected area. All herbicide, defoliant and dicot use must be in compliance with state regulations and approved by USFS.	Letter 4
Roadless Area	(2) No development of these remnant roadless areas should be permitted. (3) Existing roadless areas should be protected. (4) Until a forest-scale roads analysis is completed and incorporated into a Forest Plan, inventories roadless areas should be managed to preserve their roadless characteristics. decision should be delayed until roadless issues are more resolved. (8) Letter requested USFS to address the apparent dichotomy of roads existing within an Inventoried roadless area	The 1997 lease and associated rights pre-date the roadless inventory. The mineral lease allows access to drill for and produce oil or gas somewhere within the lease boundary. The lease is located entirely within the Inventoried Roadless Area. An area-wide roads analysis was conducted and utilized in this effort. An Inventoried Roadless Area is not necessarily void of roads, it is merely an <i>inventory</i> of an area having potential for protection.	Letters 2,3,4 & 8

Wilderness	(4) The USFS should manage the area for the wilderness qualities that are present here	The lease conveys a right to drill and produce on mineral subsurface lands, 'together with the right to build and maintain necessary improvement thereupon.' See EXHIBIT 1. Additionally, the Duck Creek Inventoried Roadless Area does not meet the criteria for Wilderness.	Letter 4
Impacts to Wildlife	(3) Impacts to wildlife species and their habitats must be minimized where possible (4) minimize potential impacts to sage grouse, swift fox, mountain plover, burrowing owl, prairie falcon, and other raptors two mile buffers around prairie dog towns, sage grouse leks, raptor nests one mile buffers around mountain plover nest sites USFS should take 'extra precautions' against, USFS must take 'concrete steps' to reduce road and well-pad construction to avoid further fragmenting the sagebrush steppe habitats used by these species. (6) The document should address minimizing site disturbance to browse species in order to protect forage abundance for mule deer and antelope. (10) Commenter requests that USFS follow consultation measures as defined in Section 7© of the Endangered Species Act of 1973. Commenter also lists species which are of concern and need to be addressed: Black-footed ferret, Bald eagle, Mountain plover, Ute ladies tresses, other migratory birds, other raptors, sensitive species Commenter also requested a careful review of compliance with section 404 of the Clean water Act.	Alternative 3 has been developed to accommodate an active raptor nest. Alternatives 1 & 3 would be in compliance with the Standards and Guidelines in the TBNG Plan for protection of active raptor nests. Alternative 2 would not be in compliance with those Standards and Guidelines, however Alternative 2 is in compliance with the 1994 ROD for protection of raptors. Mule Deer and antelope do not utilize the area to any significant degree therefore nor extraordinary measures will be taken to minimize the ground disturbance (?) No Section 7 consultation is required as there are no T&E species or habitat in the effected area. Only T&E species and their habitat are subjects that require section 7 consultation. 404 permit is not required as no activities affecting water resources under that authority are present.	Letters 3,4,6, & 10
Protect existing raptor nest and habitat	Internal scooping combined with several field trips to the site revealed a raptor nest believed to be occupied by a Swainson's hawk within the visual filed of the Alternative #2, originally proposed well site.	The lease stipulation from the 1994 ROD and under which the lease is bound to comply, requires a 300 foot buffer from active nests. Extra protections, allowing a ¼ mile buffer were designed into Alternative 3 with the cooperation of the proponent, and further detailed in the APD and SUPO.	
Economics	This proposed well is considered an exploratory well to determine if economic quantities of oil exist in the formation to justify production and possible full-field development.	Past development has demonstrated mineral values, and professional geologists have confirmed that there is a reasonable possibility of finding and producing oil. In economic quantities.	

Chapter 3

Affected Environment & Environmental Consequences

3.1 Introduction

The purpose of this chapter is to fully describe the existing condition (affected environment) in the project area and to describe the environmental consequences of implementing the alternatives. It also presents the scientific and analytical basis for the comparison of alternatives presented in Chapter 2.

For the purpose of readability and better tracking, this chapter is divided by Resources with the following sub-headings described in detail under each resource.

Affected Environment includes all resources known to be present in the area, and those that could be affected. Where the resource being affected could not be limited to the project area, the area of analysis is expanded to fully describe the affected environment for that resource, why the area of analysis was expanded, and how the expansion could affect or otherwise impact other resources or values. If resources are present in the project area but are determined not to be affected in any way by any of the alternatives, they will be mentioned briefly with a description of why they are not fully described and/or affected, or other reasons why they were screened out of the analysis process. Some resources were identified in response to issues and concerns raised during the scoping process, however if they are either not present or not affected, they are also discussed briefly.

- **Environmental Consequences** summarizes the physical, biological, social and economic environments of the affected project area and the potential changes to due to implementation of any of the alternatives analyzed in this document . It also presents the scientific and analytical basis for the comparison of the alternatives. The consequences are detailed within each resource known to be present in the area and which would be affected.
- **Potential Mitigation Measures** are measures that can be implemented to lessen the impacts to resources given an action. Mitigation can include avoidance of the impact altogether by not taking the action or parts of an action, minimizing impacts by limiting the degree or magnitude of the action, rectifying the impact by repairing, rehabilitating, or restoring the effected environment, reducing or eliminating the impact over time by preservation and maintenance operations and compensating for the impact by replacement or providing a substitute resource or environment.

Following the resource analysis section of this Chapter, the following summations are made regarding all of the resources involved in order to show the effects as a whole to the area and it's values.

- **Cumulative Effects** section summarizes the incremental impacts of an action added to other past, present, and reasonably foreseeable future actions in the area of influence. Cumulative affects can be identified both quantitatively and qualitatively, by magnitude of single actions, by the number of single actions combined, and by a time period in which the actions occur and have an effect on the environment.
- **The Reasonably Foreseeable Development** scenario describes the resources identified within and adjacent to the project area and how those resources may affect future

management decisions within the project area. Resources, other than those currently located within the project area, but likely to move into or inhabit the area in the foreseeable future are also included in this discussion. For resources that would have no change in value from selection of any alternative such as geology, (other than mineral potential), those resources have been eliminated from further discussion in this section.

- **Irreversible and Irretrievable Commitment of Resources** is a term that describes loss of future options. It applies primarily to the effects of use of nonrenewable resources such as minerals, cultural resources, or soil productivity.
- **Short-term Uses and Long-Term Productivity.** Short-term is described as the life of the proposed project through the completion of the reclamation. For exploratory wells that are expected to be economically viable, final reclamation would not take place until the resource has been exhausted and the well is plugged and abandoned (typically 5-15 years). Long-term productivity refers to the capability of the land to produce according to desired future levels. Long-term for this project would be the time beginning after full reclamation has occurred. Productivity for soils, vegetation, watershed and rangeland would be restored following successful reclamation of disturbed lands.
- **Forest Plan Consistency.** The National Forest Management Act (NFMA) requires consistency between projects and Forest plans [36CFR219.10(e)]. Proposed management practices, activities, and specific projects, such as analyzed in this document, must be consistent with the management plan standards and guidelines, can be made consistent by appropriate changes in specific activities, or the plan can be amended to allow for the activity.

3.2 Lands, Minerals, and Non-Recreation Special Uses

3.2.1 Affected Environment

Lease WYW141191, and upon which the Operator has proposed this activity, is within the Powder River Geologic Basin of the Missouri Plateau and east of the Coal Outcrop line defined in the TBNG revised Plan. It is further defined as the Spring Creek Geographical Area. The only mineral within the area known to be economically viable is conventional oil. ‘...Production in the area is from two reservoirs, Cretaceous Muddy and Pennsylvanian Minnelusa, at depths ranging from about 5,000 ft. to 8,000 ft.... Success rate over the 1989-1997 time period has been about 20%.’ (*Oil and Gas Resources of the National Grassland, Wyoming, USDA Forest Service, Rocky Mountain Region, June 2001.*)

The absence of known minerals includes common variety minerals (gravel) coal, coal bed methane, economic quantities of conventional natural gas, valuable metals, uranium, geo-thermal resources and bentonite. Because no known minerals from this category exist within the affected area, or would be affected by the proposal, no further discussion on these minerals is necessary.

For the purpose of this discussion, the affected environment for oil and gas resources is being described as the Spring Creek Division, a non-designated area of approximately 50,000 acres made up of mostly mineral development located north of Gillette, Wyoming. The Duck Creek IRA (12,330 acres) is located entirely within the Spring Creek Division, and further, Lease WYW141191 is located entirely within the Duck Creek IRA. Duck Creek IRA is approximately 24 % of the Spring Creek Division. The Spring Creek Division is identified on the Geologic Setting Map, following page.

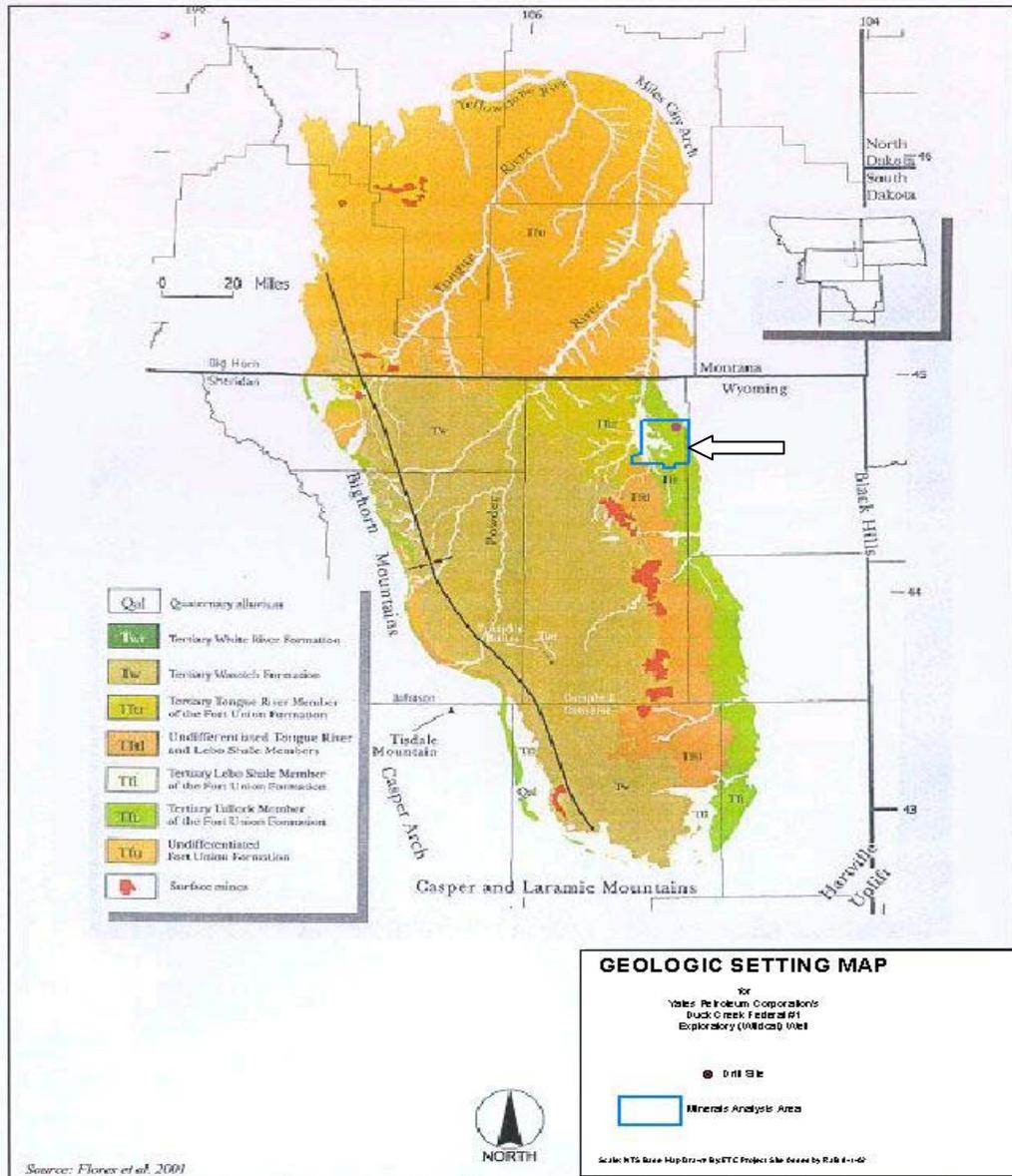
The Spring Creek Division is east of the coal outcrop line. The only mineral within the Spring Creek Division area known to be economically viable is oil. While, conventional gas, Coal Bed Methane Gas, uranium, bentonite and scoria (a gravel material) have all been developed within the Powder River Basin and on Thunder Basin National Grassland, none are known to exist in economic amounts within the Spring Creek Division. This absence of known minerals specifically includes common variety minerals (gravel), coal, coal bed methane, economic quantities of conventional natural gas, valuable metals, uranium, geo-thermal resources and bentonite.

There are 23 oil fields within or touching the Spring Creek Division. These fields are not new developments. The last large development was the Victor field in the early 1980’s. Several of the fields no longer have producing wells and are abandoned (P&A). Many of the fields are marginal producers or stripper fields (wells producing less than 10 barrels per day.) The following table exhibits those wells plugged and abandoned (as of May 2003) and their locations in relation to the Yates proposed well in Township 55 N, Range 69 West:

Township	Range	Plugged and Abandoned Wells
55N	69W	9
55N	70W	36
54N	69W	32
54N	70W	45
54N	71W	2
53N	69W	3

Extensive seismograph surveys have been accomplished within the Spring Creek Division during the last 20 years. A major 2-D, 3-D survey project was conducted by Reliable Exploration and

funded by local industry and was accomplished on the northwest portion of the area in late 2001. The seismic lines were approximately sixteen miles long, in total and located on NFS lands and private property. The seismic activity consisted of conventional shot-hole operations. The survey included the Yates WYW141191 lease.



Currently there is two new producing oil well +five miles south of the proposed Yates well, one approved well not yet drilled, and 5 proposed wells – including Yates proposal , + 8 miles and one proposed seismograph project within the Spring Creek Division, also within Duck Creek Inventoried Roadless Area.

Well Name	Well status	Well location
Ballard Federal # 12-11	APD Approved, well not drilled	T. 54 N., R. 70 W Sec 11
Ballard Wildhorse 1-18	Producing well	T. 54 N., R. 69 W Sec 18
Ballard Wildhorse 2-18	Producing well	T. 54 N., R. 69 W Sec 18
Ballard Wildhorse #3-18	APD being processed	T. 54 N., R. 69W Sec 18
Ballard York Hill 32-31	APD Approved, well not drilled	T. 54 N., R. 69 W Sec 31
Ballard York hill 21-31	APD Approved, well not drilled	T. 54 N., R. 69 W Sec 31
Federal 11-11 Ballard	APD being processed	T. 54 N., R. 70 W Sec 31
Yates Duck Creek Federal #1	APD being processed	T. 55 N., R. 69 W Sec 30
Reliable Ballard's PO NW 3.6 miles of seismograph line.	Project completed 2002	T. 54 N., R. 70 W Sec 28, 34, and 33
Reliable Ballard's Spring Creek 2.8 miles of seismograph line	Project completed 2002	T..55N, R.70W. Sec. 3,7,9,10, and 18

The leases vary from those over 20 years old, that have no stipulations, to leases issued under the April 22, 1994 Oil and Gas Leasing On The Thunder Basin National Grassland Record of Decision. New leasing may result in the expiration of an old lease with that lease parcel being re-purchased. All 'available-for-leasing' parcels have been purchased and no new parcels are available.

The standard royalty rate is 12.5% of the gross value of produced oil and gas. Of this 12.5%, 65% goes into the General Treasury, 10% goes to the Forest for use on roads and trails, and the remaining 25% is sent to the State, which then distributes the dollars to the counties (commonly known as the 25% Fund, which is used for roads and schools). Additionally, revenues from bonus bids and annual lease rentals are divided and distributed between the various entities. Once a well is established, annual lease rentals are discontinued and royalties are paid. The lessee's royalty rate is 12.5% of the gross value of produced oil and gas. 10% of the royalty goes to the US Treasury, 50% to the State of Wyoming and 40% to the Bureau of Reclamation.

If Yates Petroleum Corporation's forecast of initial production between 300 and 500 barrels of oil per day and that production holding up to those levels for some time past the first year of production leveling off to 100 to 150 barrels of oil per day, a variable revenue flow will occur fluctuating with the price of oil lasting for the life of the well.

Successful production continues from the Victor field, which is approximately four miles west, and two miles south of the proposed Yates Federal #1. The Victor field is completed in the same geologic formation, i.e., Minnelusa, as is planned for the Yates Federal #1 Well. While it is highly speculative to use an adjacent field to forecast production on an exploratory well, production from the Victor field gives a suggestion of what may occur.

The following table reflects production from the Victor field nearby the proposed exploratory well.

Well Name	Production Dates	Production Jan 2002 BBLs of oil	Total Production BBLs of oil
Victor Fed. 1-33	Sep 84 to May 02	328	179,599
Victor Fed. 1-34	Jul 85 to May 02	229	96,386
Victor Fed. 2-33	Dec 84 to May 02	79	42,478
Victor Fed. 3-33	Feb 85 to P&A	Plugged & Abandoned	0,552
Victor Fed. 9-33	Jun 85 to Mar 87	Converted to injection well	41,400
Victor Fed. 10-33	Aug 87 to P&A	Plugged and Abandoned	3,099
Victor Fed. 11-33	Aug 87 to May 02	1,213	447,721
Victor Fed. 1-4	Dec 84 to May 02	1,508	903,718
Victor Fed. 6-4	Jun 85 to Shut in Jan 89	Shut in Well	102,223

Special Uses are "All uses of National Forest System land, improvements, and resources, except those provided for in the regulations governing the disposal of timber (Part 223) and minerals (part 228) and the grazing of livestock (part 222) are designated "Special uses" and must be approved by an authorized officer." {Code of Federal Regulations Title 36 Part 251.50(a)}

There are no major transmission lines within the lease or this western portion of the IRA. One single-pole, above ground, electric distribution lines is located within a mile of the proposed well site. Other authorized uses in the immediate area include a single permit for haying on 20 acres, crude oil pipe lines to central tank batteries, and two crude oil "transmission" lines. They are the Belle Fourche Recluse - Camp Creek 6 5/8-inch crude oil line in Sections 6, 7, 17, 20, 21, 28, and 34 of T.54N. R.70W., the Belle Fourche Rocky Point 8 5/8 inch crude oil pipe line which lies within the Duck Creek IRA area in Sections 11, 14, 23, 24, 25, of T.55N., R. 69W., and outside of the IRA in Sections 24 and 25 of T.54N., R.69W.

3.2.2 Environmental Consequences

Alternative 1, No Action

Selection of Alternative 1 would result in a decision not to approve the Surface Use Plan of Operations. The Bureau would then write a decision to either honor the USFS recommendation or to approve the APD. If the BLM chooses to honor the USFS recommendation, the company would forgo the potential production and the income based on sales of the oil product. In addition, when Federal leases are not put under mineral production, the oil resource may be drained by wells on adjacent non-federal leases resulting in a loss of resource from the field and the potential loss of Federal revenues. It is likely, however that additional APDs will be submitted within existing leases and oil or gas will be produced within both the Spring Creek Division and Duck Creek Inventoried Roadless Area within the next ten years.

Alternative 2, Proposed Action

The proponent would access, drill, complete and produce oil from the well site. Because this well is considered exploratory, the outcome of the drilling operation would result in one of two scenarios.

1) Dry Hole: No product would be produced if the operation results in a dry hole. Operations would cease, the well would be plugged and abandoned, and reclamation of the disturbance would be completed.

2) The well would produce until no longer economically viable, which may be from 3 to 50 years, depending on the discovery. At the end of production the surface disturbances are reclaimed as in scenario number one. Successful production from this well would result in a loss of the non-renewable resource for future generations, and a depletion of the reservoir.

Alternative 3, Northern Access Route and Well Site

The well site and all facilities would be the same as addressed in Alternative #2. Only the road access to the proposed well site would change. The results to the mineral resources would be the same.

3.3 Watershed, Hydrology, Aquatics, Fisheries, and Soils

3.3.1 Affected Environment

Watersheds and Streams

The proposed Yates Federal #1 Well project is located in West Fork Duck Creek watershed [Hydrologic Unit Code (HUC) 100902080304], which is tributary to Duck Creek and then Little Powder River. West Fork Duck Creek is approximately 4.8 km (3 miles) in length; 1.6 km (1 mile) of this is downstream from the proposed well site. Flows leaving West Fork Duck Creek traverse approximately 23 stream miles in Duck Creek before entering the Little Powder River. Average annual precipitation in the watershed is 33 mm (13 inches) per year and there are no perennial water sources in the analysis area. West Fork Duck Creek, an ephemeral stream, is the only named stream within the analysis area. West Fork Duck Creek is a low-gradient, shallow stream that experiences large fluctuations in flow in response to rain events and more minor flow fluctuations from snowmelt.

West Fork Duck Creek is classified as Class 3B water. Class 3B waters, established under criteria developed by the Wyoming Department of Environmental Quality, are “tributary waters ... not known to support fish populations or drinking water supplies and where those uses are not attainable. Class 3B waters are intermittent and ephemeral streams with sufficient hydrology to normally support and sustain communities of aquatic life including invertebrates, amphibians, or other flora and fauna which inhabit waters of the state at some stage of their life cycles” (WYDEQ, 2001, p.2). The Little Powder River is the nearest connected Class 2AB water. Class 2AB streams “are those known to support game fish populations or spawning and nursery areas at least seasonally and all their perennial tributaries and adjacent wetlands and where a game fishery and drinking water use is otherwise attainable. Class 2AB waters include all permanent and seasonal game fisheries and can be either "cold water" or "warm water" depending upon the predominance of cold water or warm water species present (WYDEQ, 2001, p. 1-11).

Lakes and Reservoirs: There are no naturally occurring lakes in the analysis area. There are three small intermittent reservoirs, used as a stock watering facilities, within the analysis area. These in-channel reservoirs are located on West Fork Duck Creek at the NFSR 1025.C road crossing (T55N, R69W, Sec 19), the NFSR 903C road crossing (T55N, R69W, Sec 30), and off the NFSR 903B road (T55N, R69W, Sec 31). These impoundments have surface areas of approximately 80 m² (860 ft²), 120 m² (1290 ft²) and 360 m² (3875 ft²), respectively. Rainfall provides the primary source of reservoir water, and outflow from the reservoirs normally only occurs during high streamflow events.

Riparian Areas, Floodplains and Wetlands: Riparian areas in the project area are narrow strips associated with the ephemeral drainages. West Fork Duck Creek provides the only appreciable floodplain in the analysis area. The only known developments in the West Fork Duck Creek floodplain are the NFSR 903B, 903C and 1025.C road crossings and associated reservoir dams. Ephemeral stock water developments contain the only potential for wetlands in the analysis area. Field review (Allison and Kirol, 2002) indicated that the ephemeral stock ponds have limited emergent vegetation associated with them. Due to the limited amount and intermittent nature of water in the area, the analysis area does not appear to contain any potentially jurisdictional wetlands. National Wetlands Inventory (NWI, USFWS, various dates) maps are not available digitally for this area, and no information is available from the NWI user mapping function at www.nwi.fws.gov. It is very unlikely that jurisdictional wetlands occur in the project area, based on field review.

Biotic Existing Conditions

Fishes: Due to the limited amount and intermittent nature of water in the area, the analysis area does not contain any fish bearing waters or known fish species.

Amphibians: Due to the limited amount and intermittent nature of water in the area, the analysis area provides limited habitat for amphibians. The three reservoirs in the general area provide the only known potential habitat for amphibians. Leopard frogs have been documented in two of the three reservoirs on West Fork Duck Creek (Allison and Kirol, 2002). Woodhouse toads have been documented in a reservoir on Duck Creek, just to the east of the analysis area (Allison and Kirol, 2002). The Wyoming Natural Diversity Database (WNDD 2000) does not include records for any aquatic species of concern in the Duck Creek area, nor in the Spring Creek area as a whole. Findings from recent field reviews will be added to that database for future use.

Other Aquatic Species: Due to the limited amount and intermittent nature of water in the area, the analysis area provides limited habitat for other aquatic species. The three reservoirs in the area provide the only known potential habitat for other aquatic species. Painted turtles have been documented in two reservoirs on South Fork Duck Creek and Duck Creek (Allison and Kirol, 2002), which are adjacent to the analysis area. It is likely that painted turtles occur in the analysis area, but neither they nor other aquatic species have been documented in the analysis area (Allison and Kirol, 2002; WNDD, 2000).

Soils

This section describes the soils resource in the Yates Duck Creek analysis area, and discusses soils issues related to management in the area. The information presented in this report is based on the soil survey of the area that was conducted in 2000, and field observations. During field survey and mapping, soil observations were recorded and typical soil profiles were described. This report described the various soils and their distributions within the analysis area, identifies their capabilities and limitations for roading and vegetation management, and predicts soil performance and potential impacts of management.

Fort Union formation is the main geology in the area. This is a non-marine sedimentary rock comprise of light color massive sandstone interbedded with gray shales and coal beds. The Fort Union formation is the major coal producing formation in the eastern Powder River Basin. The landforms in the analysis area are mostly ridges and rolling upland with numerous escarpments in the area. There is some planned ground disturbing activities in these areas. However, there are no areas of concern for mass movement.

The upland rangeland communities are dominated by coarse texture soils. The soils formed from this geology are usually sandy loam or loamy sand with a fair amount of rock fragments in the soil profile. The soils in the bottoms (riparian areas) are reworked alluvium.

Soil characteristics that are of major concern relative this project include erosion hazard, revegetation potential, stability hazard and limitations to unsurfaced roads. Erosion hazard is the inherent susceptibility of a soil to erosive forces such as raindrop impact or water flow over the surface and is dependent on particle size distribution, organic matter content, soil structure, permeability, rock fragment content, slope gradient and rainfall characteristics. Erosion hazard on most of the soils in the analysis area can be characterized as low to moderate, with the moderate rating being dominant. The high erosion hazards are on those soils with slopes greater than 40 percent slopes.

Revegetation potential is the expected response of a disturbed soil to revegetation efforts and is primarily dependent on available water holding capacity, infiltration capacity, depth to bedrock, and erosion hazard. Slope, flooding, texture, rock fragments, soil depth and depth of high water table create limitation for unsurfaced roads.

Ditch conditions greatly affect the sediment yield: sediment yield from road segments with freshly graded ditches is five to seven times greater than the yield from segments with vegetated ditches. In a sensitivity analysis, the sediment yield also varies with topography, soil type, and climate

3.3.2 Environmental Consequences

Watersheds and Streams

Alternative 1, No Action

Current management plans would continue to guide management of project area. Proposed actions to access, drill, operate, and maintain one oil well would not occur.

Water Quality: There would be no *direct or indirect effects* to water quality from the no action alternative since there would be no potential water quality contaminants introduced into the area. Similarly, the no-action alternative would not contribute to *cumulative effects* in West Fork Duck Creek.

Erosion and Sedimentation: The no action alternative would have no *direct or indirect effects* on sedimentation since there would be no ground disturbing activities. Road improvements which would curtail erosion on existing roads would not take place as a result of this action, but could be accomplished under existing management plans through standard road maintenance. No further environmental documentation would be needed to address existing road conditions. The no action alternative would not contribute to *cumulative effects* in West Fork Duck Creek.

Aquatic Habitat and Populations: The no-action alternative would have no *direct or indirect effects* on aquatic habitat or populations since there would be no new management activities. Reclamation of NFSR 903C would not occur and road access near occupied habitat would continue and therefore the potential for mortality to leopard frogs from vehicles traveling near occupied habitat would still exist. The no action alternative would not contribute to *cumulative effects* on aquatic habitat or populations in West Fork Duck Creek. There would be no known unacceptable aquatic resource conditions under this alternative.

Alternative 2, Proposed Action

Approximately 2.4 miles of existing road would be upgraded and 0.6 miles of new road would be constructed. Reclamation of approximately 0.6 miles of NFSR 903C would occur under this alternative. Oil would be stored in tanks on site and trucks would periodically transported oil off site.

Water Quality: *Direct effects* of the proposed action to water quality could occur as a result of a spill of petroleum products as they are being transported off-site on the new road over West Fork Duck Creek. Because only one well is involved, the potential impact from a spill is

low. If a spill did occur, it would most likely occur while West Fork Duck Creek was dry and contaminated soil could be cleaned up before water quality was adversely affected. These risks are mitigated by application of stipulations which require immediate clean up of any hazardous materials (see Mitigation below).

Indirect effects to water quality could occur if waste water, drill fluids, cuttings and petroleum products were delivered from the well pad to the drainage network. Based on incidental observations at a nearby oil field, there is a risk of on-site soil contamination during the lifetime of the project. Waste water, drill fluids, and cuttings associated with development and operation of the proposed oil well, which could degrade water quality, are estimated to be located over 500 feet from West Fork of Duck Creek and the closest tributary. The closest downstream reservoir is over 0.5 mile from the proposed well pad location. Potential for detrimental water quality effects is estimated to be negligible, due to the location of facilities away from perennial and intermittent sources of water, project design, and recommended mitigation measures (see Mitigation below).

Alternative 3, Northern Access Route and Well Site

Access to well site in alternative 3 involves constructing 0.8 mile of new road approximately 0.5 mile north of NFSR 903C, and reconstructing 2.4 miles of existing road.

Water Quality: *Direct, indirect and cumulative effects* to water quality would be the same as the proposed action with the following exception. The access road crossing would be located approximately 0.25 mile from the closest downstream reservoir. The potential for spilled petroleum products being transported downstream to the reservoir are higher than under the proposed action, but still negligible. The risks are mitigated by application of stipulations which require immediate clean up of any hazardous materials (see Mitigation below).

Erosion & Sedimentation: *Direct, indirect and cumulative effects* to sedimentation would be the same as the proposed action with the following exceptions. This alternative involves 0.8 mile of new road construction, 0.2 mile more road construction than the proposed action. The additional ground disturbance occurs in locations away from West Fork Duck Creek, but will slightly increase the potential for erosion and sedimentation compared to the proposed action. Seeding of cut and fill slopes in the vicinity of West Fork Duck Creek is recommended to minimize erosion from the access road (see Mitigation below).

Aquatic Habitat and Populations: *Direct, indirect and cumulative effects* to aquatic habitat and populations would be the same as the proposed action with the following exception. The access road crossing would be located farther downstream on West Fork Duck Creek, approximately 0.25 mile from the closest downstream reservoir. This slightly increases the potential for water quality degradation. Therefore potential impacts to aquatic habitat and populations would increase slightly.

Soils

The primary goal of soil management is to maintain or enhance long-term site productivity. There are five categories of physical soil disturbances that have been found to affect soil productivity. The categories include: compaction, displacement, and erosion, puddling, and severely burned. Soil impacts may not exceed 15 percent of an activity area (USDA Forest Service 1992).

Alternative 1, No Action

Under this Alternative, no further effects on the soil, beyond existing condition would occur. No further accelerated disturbance would occur, whether compaction, displacement or erosion at whatever rate beyond existing condition, due to any oil and gas activities.

There would be continuing erosion occurring on the areas on some of the existing roads. This alternative would not move the existing condition toward the desired condition in regard of soil and water goals.

Alternative 2, Proposed Action

Under this alternative, there would be road building and pad construction occurring. Direct effects would be potential soil erosion and displacement. Loss of soil productivity from the road and pad construction would be another effect for the short term. Indirect impacts would be probable short-term decreases in soil productivity within the cutting units and in association with newly disturbed roads and pad. There will be some short term erosion until disturbance is stabilized.

Under this alternative, 1,742 linear feet of new road would be constructed and 2,693 linear feet of existing road would be widened and improved. The roads, as proposed would for several years, affect soil resource by reducing the soil productivity. Many of the impacts of roads come from the first years immediately after construction (or reconstruction). When the closures are implemented and revegetation occurs, the soil productivity would be restored to near pre-disturbance level.

When and if roads cross (or otherwise affect) stream courses, mitigation measures need to be implemented, such as discussed in watershed conservation practices handbook and the Packer Guide. Mitigation measures may include buffer strips, avoidance, stabilized fill slopes and culvert crossing, road locations may affect stream courses. The proposed action does not constitute a detriment to the soil resources.

Alternative 3, Northern Access Route and Well Site

Under this alternative there will be one well pad and road construction. The direct and indirect effect would be similar to Alternative 2, but to a lesser degree. Under this alternative, 3,854 linear feet of road would be constructed and no existing-road improvement would occur

Comparison of Alternatives

Water Quality: Since Alternative 1 does not introduce water quality contaminants, the risk of adverse water quality effects from the Alternative 1 is less than the action alternatives. The proposed access road in alternative 3 is 0.25 mile downstream and closer to a reservoir than the proposed action access road. Therefore potential for spilled petroleum products being transported downstream and adversely affecting water quality are slightly higher in Alternative 3 as compared to Alternative 2.

Erosion & Sedimentation: Erosion and sedimentation effects from Alternative 1 would be less than the action alternatives since there would be no ground disturbing activities. Alternative 3 involves 0.2 mile more road construction than the proposed action. The additional road construction occurs in upland locations away from West Fork Duck Creek, but will slightly increase potential for erosion and sedimentation compared to the proposed action.

Aquatic Habitat and Populations: Alternative 1 would have less effect on aquatic habitat or populations than the action alternatives. Under alternative 3, the access road crossing would be located farther downstream on West Fork Duck Creek, approximately 0.25 mile from the closest downstream reservoir. This slightly increases potential for water quality degradation. Therefore potential impacts to aquatic habitat and populations would increase slightly under Alternative 3 compared to the proposed action.

There is very little difference in effects between Alternative 2 & 3 for water, aquatic habitats/populations and fisheries resources. No significant project effects on fisheries, aquatic habitats/populations, or watershed resources are expected for any of Alternatives 1-3.

3.3.3. Mitigation

The following mitigation measures have been developed specifically for this project, based on site-specific review of the project. They are appropriate for any action alternative and recommended for inclusion in the selected alternative. Lease stipulations (see Consistency with Lease Stipulations below) also provide specific mitigation for this project and should be followed. Standard best management practices (BMPs) outlined in the Wyoming Nonpoint Source Management Plan (WYDEQ, 1997) and the Watershed Conservation Practices (WCP) Handbook (FSH 2509.25) are also recommended for inclusion in the selected alternative.

- 1) Reconstruct and surface (e.g. gravel) portions of NFSR 903. This will provide improved all-weather access to accommodate the vehicles needed for oil development and ensure rutting, erosion and transport of sediment off site is minimized.
- 2) Reconstruct and surface (e.g. gravel) portions of NFSR 903C. This will provide improved all-weather access to accommodate the vehicles needed for oil development and ensure rutting, erosion and transport of sediment off site is minimized.
- 3) Obliterate (re-contour to the extent possible, scarify, seed) NFSR 903.C. Proposed action – obliterate 0.3 mile of route near stock watering reservoir when alternative access is constructed; obliterate remainder of 903.C when no longer needed for access to the well site. Alternative 3 – obliterate all of 903.C when the “northern access” route is constructed.
- 4) The project proponent shall immediately clean up all diesel, hydraulic fluids or other contaminant spills, including the contaminated soils. All spill-related material shall be hauled to a Wyoming Department of Environmental Quality (DEQ) approved disposal site. The Authorized Officer shall be notified in writing of all spills within 7 days from when the spill is discovered.
- 5) Cut and fill slopes within 500 feet of West Fork Duck Creek should be seeded during the first practicable seeding period after road construction (fall seeding should occur after September 1 and prior to ground frost and spring seeding should occur after frost has left the ground and prior to May 15).
- 6) The project proponent shall comply with the construction practices and mitigating measures established by 33 CFR 323.4, which sets forth the parameters of the “nationwide permit” required by Section 404 of the Clean Water Act. If the proposed action exceeds the parameters of the nationwide permit, the project proponent shall obtain an individual permit from the appropriate office of the Army Corps of Engineers and provide the Authorized Officer with a copy of the permit. Failure to comply with this requirement shall be cause for suspension or termination of the Operating Plan.
- 7) The project proponent shall comply with the State of Wyoming storm water discharge permit requirements for construction activities (NPDES permit WYR10-0000). If the proposed action exceeds amount of ground disturbance specified in the permit, then an “authorization to discharge storm water associated with large construction activity under the National Pollutant Discharge Elimination System (NPDES)” must be obtained. The Authorized Officer shall be provided a copy of the permit upon request. Failure to comply with this requirement shall be cause for suspension or termination of the Operating Plan.
- 8) No operations will be conducted during periods of wet weather or wet ground conditions when rutting may result. Surface ruts deeper than 3 inches will be cause for the operations to cease.

Soils

The most important mitigation measures depend on the location of the road with respect to the stream. If a road is far from the stream, little mitigation is required. If the road is close to a stream, then mitigation should focus on the road ditch or traveled way. If there is a moderate distance between the road and the stream, then mitigation to reduce both road erosion and channel erosion may decrease sediment delivery. Channel treatment options include lining the channel with rock or similar materials, establishing vegetation, or installing control structures. These mitigation

techniques are expensive and may be ineffective during severe runoffs. A generally much better approach to reduce channel sediment delivery is to direct road runoff to hillsides or ridges where it is more likely to disperse and infiltrate, keeping channels free from excess runoff. Adding quality gravel to a road is another mitigation technique to reduce runoff and subsequently both ditch and channel erosion, as well as erosion on the traveled way.

3.4 Fish and Wildlife (those not covered above)

Note: for tracking purposes the Affected Environment and Environmental Consequences for this section are written under each group or species evaluated

3.4.1 Big Game Species Antelope and Mule Deer

Affected Environment

The project area provides yearlong sagebrush and grassland habitat for the North Black Hills antelope herd. Antelope numbers and densities vary within this large herd unit. The 2000 postseason population estimate for this herd was about 14,000 antelope (Oedekoven 2000a). More antelope are found on private land than on Thunder Basin National Grassland in this herd unit. Antelope were seen south of the project area during a site visit in the spring of 2003 by U.S. Forest Service personnel.

The project area provides winter yearlong habitat for the Powder River mule deer herd. Herd numbers periodically cycle, largely due to severe winter weather or summer drought. The 2000 postseason population estimate for this herd was about 51,000 mule deer (Oedekoven 2000b). Shed mule deer antlers were found within the project area in the spring of 2002 during a site visit.

Roadless designation reduces access, hunting opportunities and mortality of mule deer and antelope by hunters in the Spring Creek Geographic area.

Cattle grazing occurs on National Grasslands lands in the vicinity of the proposed oil well. Horse grazing occurs on private land just south of the project area. Application of “Spike” herbicide followed by a wildfire has reduced the density of sagebrush for antelope and mule deer and increased herbaceous forage for mule deer and cattle in the vicinity of the proposed oil well.

The general condition of native vegetation during the 2000 – 2002 growing seasons was considered poor as a result of drought. Mild temperatures and below normal precipitation resulted in below average forage production. Increased winter and spring moisture in 2003 has resulted in a dramatic increase in grasses and forbs in and around the project area when compared to the past three seasons.

Environmental Consequences

There would be no change in existing access or habitat conditions for antelope and mule deer with the No Action Alternative.

Forest Service Road #903, an unimproved two-track dirt road, would be flat bladed and widened to 18 feet providing access to Alternative 2 or Alternative 3 well pad sights. Minimal loss of foraging habitat for antelope and mule deer would occur with either Alternative 2 or 3. Less than 3 acres of land would be disturbed for the life of the well.

Road construction and increased traffic on Forest Service Road #903, during exploratory drilling activities proposed in either Alternative 2 or 3, would occur outside the fawning season for antelope and mule deer. Road construction and increased traffic from exploratory drilling activities would temporarily disturb and displace antelope and mule deer from the project area. Improving Forest

Service Road #903 would increase access, including hunter access, to the project area and roadless area. Increased hunter access would increase mortality and displacement of antelope and mule deer from the vicinity of the project area during the fall hunting season annually. However, hunting mortality is controlled by the State to meet herd population objectives.

Should the well prove productive, under Alternative 2 about 0.72 miles of two-track road would be improved for all-weather access and the entire length of Forest Service Road #903 used to access the well site would be graveled.

Under Alternative 3 well, should the well prove productive, 1.59 miles of two-track road would be improved for all-weather access and the entire length of Forest Service Road #903 used to access the well site would be graveled.

Building of the improved road to access the well would occur outside the months of March-July to avoid disturbance to wildlife during the birthing and nesting seasons.

Year-round weekly and emergency servicing of the productive well would occur on Forest Service Road #903. Weekly travel and activity to and from the well would disturb and perhaps displace antelope and mule deer during fawning and winter seasons.

If no oil is discovered, the well site and the access road will be reclaimed under either alternative.

3.4.2 Management Indicator Species

Selection of Management Indicator Species (MIS) is made during the planning process in accordance with 36 CFR 219.19 and 219.20, which calls for selection, evaluation, and monitoring of management indicator species and their habitat. The intent of the regulations is that population trends of the selected species occurring on or in the vicinity of NFS lands would be closely tied to habitat conditions resulting from authorized lands uses on those same NFS lands and that a suite of species would react to the authorized lands uses in a manner similar to the response of the MIS. MIS serve as barometers for species diversity and viability and are monitored over time to assess the effects of management activities on their populations and habitat, and the populations of other species with similar habitat needs.

Management Direction

The National Forest Management Act directs National Forests to designate management indicator species. Forest Service Manual Direction 2621.1 defines the criteria for selection of management indicator species.

Thunder Basin National Grassland Land and Resource Management Plan (USDA Forest Service 2001) designated management indicator species by geographic area. Management direction for management indicator species of the Hilight Bill Geographic Area can be found in Chapter 2 of the Plan, on pages 24 through 28. The greater sage grouse (*Centrocercus urophasianus*) has been designated the management indicator species for this Geographic Area. Sage grouse generally do not respond positively to human activities and disturbances. The decline in sage grouse across its range has been attributed, in part, to a loss in habitat or its function, and increased human disturbances during critical periods of its life cycle. These periods include breeding, nesting, and in some cases during stressful periods due to winter conditions. The sage grouse is selected as a management indicator species for sagebrush habitats that have a tall, dense and diverse herbaceous understories (USDA, 2001).

The TBNG LRMP (Grassland Plan) also identified goals and objectives for the management of habitat for these species, as well as, standards and guidelines to guide management activities on NFS lands.

Greater Sage Grouse

This Grouse is referred to both as *Sage Grouse* and *Greater Sage Grouse*, and the two terms are interchangeable. They have been used as appropriate where citations have been taken from the context of either a species list, a management plan or some other direction or policy.

Greater sage grouse are found in sagebrush shrub-land habitat. Sagebrush is essential for sage grouse during all seasons of the year. Sage grouse require an extensive mosaic dominated by sagebrush of varying densities and heights along with an associated diverse native plant community dominated by high levels of native grasses and forbs (Wyoming Greater Sage Grouse Conservation Plan 2003). Food sources for sage grouse include sagebrush, succulent forbs and insects. The amount of potential sagebrush habitat currently available to sage grouse on Thunder Basin National Grassland is estimated at 438,500 acres (USDA Forest Service, 2001b). The quality of the available sagebrush habitat on Thunder Basin National Grassland is unknown.

Sage Grouse congregate on strutting grounds called leks for spring breeding. Male sage grouse appear to form leks opportunistically within or adjacent to potential nesting habitat (Connelly, et al., 2000). Lek habitat generally tends to be areas of low vegetation, with little, or no sagebrush on the site. However, often there are areas of denser sagebrush nearby the lek that are used for foraging, loafing and hiding cover (Wyoming Greater Sage Grouse Conservation Plan 2003). Once formed, grouse (both male and female) tend to return to these leks habitually each year. Males will remain in attendance at the lek until all females have left the area.

The majority of nesting sage grouse nest within 3 miles of their breeding lek (Wyoming Greater Sage Grouse Conservation Plan 2003). Sage grouse normally nest under tall sagebrush, but may use other plants as well. Nesting habitat in Wyoming is described as sagebrush stands with between 6% and 40% canopy cover, with higher quality nesting habitat found in the areas of higher canopy cover. Sagebrush stands used for nesting range in height from 8 to 18 inches tall, with individual nest plants reaching up to 32 inches tall (Wyoming Greater Sage Grouse Conservation Plan 2003). A dense understory of herbaceous plants (grasses and forbs) are needed in association with the nesting area. These plants need to be greater than 6" tall (Connelly, et al., 2000). Both new spring herbaceous growth and residual cover are important in the understory for nesting sage grouse (Wyoming Greater Sage Grouse Conservation Plan 2003). Characteristics of sagebrush stands for nesting and wintering are very similar, but at least 12 inches of the sagebrush plant needs to remain above the snow.

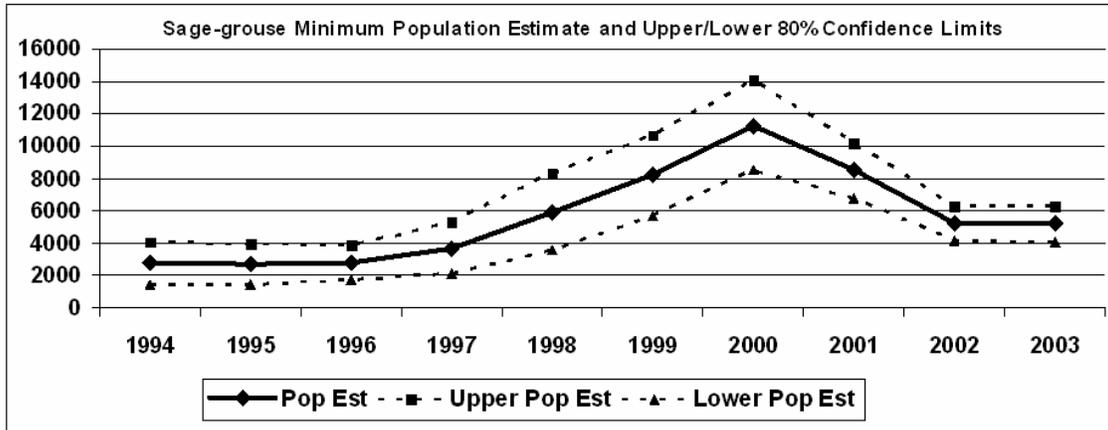
Greater sage grouse are year-round residents of Thunder Basin National Grassland. Breeding populations of this species have declined by at least 17-47% throughout much of its range (Connelly, et al., 2000). Sage grouse populations and their distribution in Wyoming have declined over the last five decades (Oedekoven 2001). According to the Wyoming Greater Sage Grouse Conservation Plan "it appears that the statewide sage-grouse population was at very low levels in the mid 1990s but increased approximately three-fold during the late 1990's, peaking in 2000. This increase was attributed to increased precipitation received in those years." The Plan also indicates that this population increase was "short-lived due to the return of drought conditions" across the State. In 2001 and 2002 the population again declined with the population appearing to stabilize in 2003.

Thunder Basin National Grassland, Hilight Bill Geographic Area, is within Wyoming Game and Fish Department's (WYGF) Sheridan Region. The minimum population estimate for sage grouse within the Sheridan Region for 2001 was about 7,000 adult birds (Oedekoven 2001). The trend in

the sage grouse population for the Sheridan Region suggests about a 10 year cycle with periodic highs and lows. Subsequent population peaks appear lower than the previous peak, suggesting a steadily declining sage grouse population within the Sheridan Region (Oedekoven 2001).

The following graph, provided by Wyoming Game and Fish Department, illustrates the sage grouse trend for the Sheridan Region over the last 33 years. While experiencing significant peaks and declines, the overall indication is a decreasing population trend.

Graph I: Sage Grouse Trends for the Wyoming Game and Fish Department, Sheridan Region

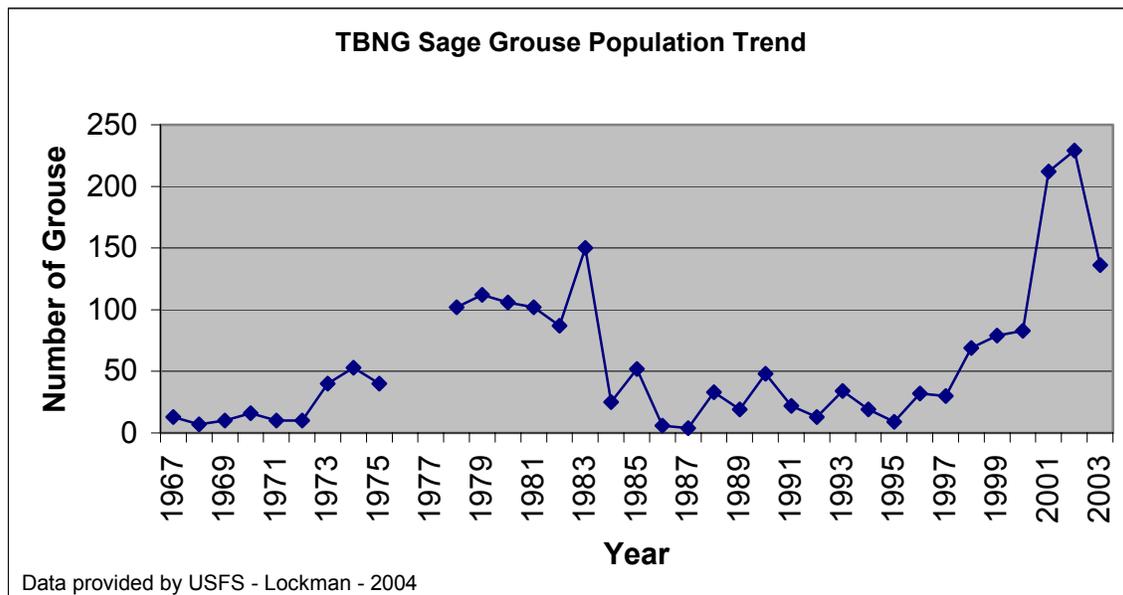


Population estimates based on lek complex counts. Average complex population estimate based on a sex ratio of 2 females for every male. Total population estimate multiplies Average Complex Population Estimate by the total number of lek complexes in the last year of the report, typically the maximum number of possible lek complexes for the analysis area. Confidence intervals calculated at 80%.

(Data provided by Wyoming Game and Fish – Oedekoven – 2004)

Sage grouse monitoring has also occurred on Thunder Basin National Grassland since 1967. The following graph shows the population numbers reported during that time.

Graph II: Sage Grouse Trends for Thunder Basin National Grassland



Data provided by USFS - Lockman - 2004

Sage Grouse populations on Thunder Basin National Grassland followed a pattern similar to that of the Wyoming Game and Fish Department Sheridan Region (Graph I) and those of the state. Populations were at low levels throughout the mid 1990's, with an increase beginning about 1997, and continuing until 2002. The population then began declining.

As a part of interpreting population data, several cautions must be remembered,

1. The information is based on lek counts, not a total population inventory
2. The survey effort and the number of leks surveyed/counted has varied over time
3. It is assumed that not all leks in the state have been located,
4. Sage grouse populations appear to cycle over about a 10 year time frame
5. The effects of unknown leks cannot be quantified
6. Lek locations may change over time

(Wyoming Greater Sage Grouse Conservation Plan 2003)

With this said, monitoring male attendance at leks is a widely accepted process for determining relative population size and trend. This is the process used extensively by both state and federal agencies in monitoring populations and their trends.

Throughout the project implementation, sage grouse will continue to be monitored.

Existing Environment (Baseline)

The amount of potential sagebrush habitat currently available to sage grouse on Thunder Basin National Grassland is estimated at 438,500 acres (USDA Forest Service, 2001b). The project area provides suitable habitat for greater sage grouse with a mosaic of sagebrush, grasses and forbs. The density of sagebrush varies across the project area. A visual estimate of the average canopy cover provided by sagebrush across the project area is approximately 20%.

The general condition of native vegetation during the 2000-2002 growing seasons was considered poor as a result of drought. Mild temperatures and below normal precipitation resulted in below average forage production. In May 2002, there appeared to be less than a desirable amount of residual herbaceous cover was available to nesting sage grouse in the project area. Increased winter and spring moisture in 2003 has resulted in a dramatic increase in grasses and forbs in and around the project area when compared to the past three seasons.

One known sage grouse lek occurs on private land over two miles southwest of the proposed oil well site. See Map A attached to this document. This lek is over a mile from Forest Road #903. The status of the Bergreen lek was unknown between the years 1992 through 1994, active in 1995, and unknown between 1996 through 2001 (Oedekoven 2001). Other leks are located even farther from the proposed project.

No sage grouse were observed in or near the project area by US Forest Service biologists during site visits. Grouse excrement (species unknown) was seen on the ground in several locations in May 2003.

Environmental Consequences

Sage grouse are known to nest primarily within 3 miles of lek sites (Connelly et al. 2000) Based on existence of the known leks within 3-4 miles of the project area, it is likely that some sage grouse may nest near the project. However, this project is expected to have minimal adverse impacts to sage grouse using the project area. The net area of new disturbance is expected to be 2.7 acres

under Alternative 2 and 2.97 acres under Alternative 3 after existing two-track roads are obliterated. A COA will limit the timing of disturbance during construction activities to after the sage grouse nesting season. Under Alternative 1, no adverse impacts to sage grouse or their habitat would occur.

If the well goes into production, the timing limitation will not apply to daily or weekly visits to the well to remove the oil and maintain the well. Some longer term disturbance is likely under this scenario. It is not known whether sage grouse habituate to such levels of background disturbance.

Although the project activities may impact habitat and sage grouse using the Project Area, impacts are not expected to adversely affect population trends in the project area because of the small amount of area affected by the proposal. Timing limitations will help prevent disturbance of breeding and nesting grouse. This project has been mitigated to the full extent possible under the Proponent's existing leases.

Forest Plan Compliance

The following Objectives for sage grouse in the Spring Creek Geographic Area are taken from the TBNG LRMP, pg 2-29. Responses follow each objective.

1. Provide a diverse and quality sagebrush habitat across the geographic area at levels that, in combination with habitat on adjoining lands, helps support stable to increasing populations of sage grouse and other wildlife with similar habitat needs.

Response: Diversity and quality of sagebrush habitat in the Project Area are generally good. This Project has been designed to protect sagebrush habitat to the extent feasible under the Proponent's existing gas leases. Decreases in habitat quality and quantity are minimal. The Project has been designed to meet this objective.

2. Establish and maintain quality nesting habitat for sage grouse and associated wildlife by meeting vegetation objectives for high structure sagebrush understories within 10 years.

Response: Only minimal blading of the access roads will be allowed during the drilling phase to minimize disturbance to native vegetation. If this well is not productive, the proponent will revegetate the well site and access roads with a mix of native species. This will lead to high structure grasslands adjacent to sagebrush areas. If the well goes into production, the proponent will reclaim all disturbed lands not needed for production facilities. The entire site will be reclaimed at the time of well abandonment. The Project has been designed to meet this objective to the extent possible under the existing lease.

3. Reduce the impacts of extended droughts on sage grouse populations and their recovery after droughts by managing land uses in sage grouse habitat in a manner that does not significantly magnify the adverse effects of drought on grouse nesting, brooding and foraging habitats.

Response: See responses to #1 and #2 above. This project helps to meet this objective.

The TBNG LRMP specifies the following standards and guidelines for sage grouse as follows:

Standard 46. To help reduce adverse impacts to breeding sage grouse and their display grounds, construction of new oil and gas facilities within 1/4 mile of active display grounds will be

prohibited. A display ground is no longer considered active if it is known to have been unoccupied during the past five breeding seasons. This does not apply to pipelines and underground utilities.

This project will not construct any new facilities within 1/4 mile of any sage grouse leks.

Standard 47. To help reduce disturbances to nesting sage grouse, oil and gas drilling and construction of roads and oil and gas facilities will be prohibited within two miles of active display grounds from March 1 to June 15.

There are no known active leks within two miles of the well site. However, portions of FSR 903 area located within 2 miles of the Bergreen lek. Road construction activities will be prohibited from March 1 to June 15 on this road.

Standard 48. To reduce disturbances to nesting sage grouse, construction of pipelines, utilities, and fencing and work-over operations for maintenance of oil and gas wells will not be authorized within two miles of active display grounds from March 1 to June 15.

There are no known active leks within two miles of the well site.

Guideline 49. To help prevent reproductive failure, noise on sage grouse display grounds from nearby facilities and activities will be limited to 49 decibels (10 dBA above background noise) from March 1 to June 15. This project will not exceed the 49 decibel limit on any display grounds during March 1 to June 15. Activities that may exceed this noise limitation will not occur within between March 1 and June 15.

No compressors or other noisy facilities would be located near the historic lek location.

Guideline 51. Facilities or structures constructed within two miles of a sage grouse active display ground will be designed to discourage raptor perching by maintaining a low profile or using perch inhibitors.

No overhead power lines will be constructed for this project. All other facilities are outside 2 miles of known leks.

The following additional guidelines are taken from the TBNG LRMP, Spring Creek Geographic Area Direction – Standards and Guidelines, pg. 2-31:

Sage Grouse (MIS)

1. A range of 17,059 to 19,496 acres of high structure sagebrush understory is prescribed for this geographic area. A substantial amount of this should be located where it would optimize sage grouse habitat and associated species. The following criteria will be considered during site-specific project planning to help determine the best locations to manage for high structure grasslands:
 - Presence of moderate to highly productive soils and range sites;
 - Plant composition dominated by mid and/or tall grasses with sagebrush canopy cover of 10 to 35%;
 - Proximity to sage grouse display grounds, 2 miles in uniform patches and 3 miles in irregular patches. **Guideline**

Response: The project area contains moderately productive soils with mid-grass species. It is located within 3 miles of known display grounds. This Project has been designed to protect sagebrush habitat to the extent feasible under the Proponent's existing gas leases.

Decreases in habitat quality and quantity are minimal. The Project has been designed to meet this guideline.

2. Establish and maintain quality foraging habitat for sage grouse and associated species by enhancing and/or maintaining productive sagebrush stands with a diversity of forb species.
Guideline

Response: It is recommended that the seed mix to be used for site reclamation include native forb species. This will help to establish and maintain quality foraging habitat. This project has been designed to comply with this guideline.

3. At the onset of drought, evaluate the need to modify land use practices in sage grouse habitat to avoid significantly magnifying the adverse effects of drought on their populations and vegetation for nesting, brooding and foraging. **Standard**

Response: Impacts on habitat from this project are minimal and are not expected to magnify the impacts of drought. Likewise any modification of such a small area in response to drought is not likely to have any appreciable effect. This project complies with this standard.

Mitigation and Recommendations

Add native forb species to seed mix to be used for site reclamation.

Plains Sharp-tailed Grouse

Plains sharp-tailed grouse (also referred to as “sharp-tailed grouse”) are found primarily in mixed grass prairies. Optimum habitat consists of a mosaic of grass, deciduous trees, various shrub and shrub/grass communities (NatureServe 2002).

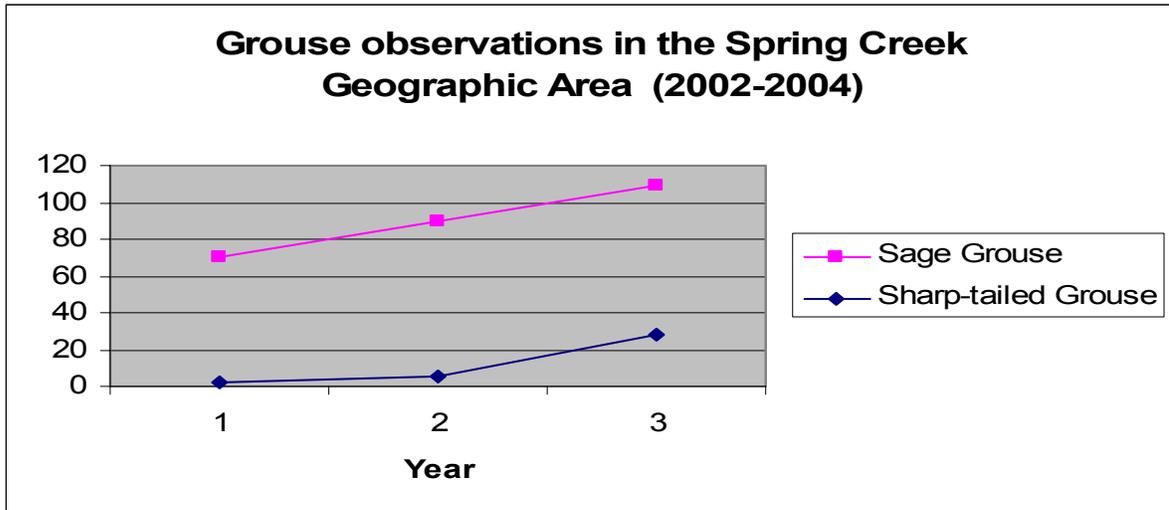
The plains sharp-tailed grouse is selected as a management indicator species for the biological community most often found in high structure grasslands. Interspersed shrubs and shrub communities also contribute to suitable habitat for this and many other wildlife species (USDA 2001). Reference NatureServe 2002 and The Nature Conservancy 2000 for further life history information on the species.

Plains sharp-tailed grouse are year-round residents of Thunder Basin National Grassland. Population trends of sharp-tailed grouse have not been established on Thunder Basin National Grassland. The amount of potential habitat and quality habitat currently available to sharp-tailed grouse on Thunder Basin National Grassland is unknown (Final Environmental Impact Statement, Northern Great Plains, 2001).

Thunder Basin National Grassland, Spring Creek Geographic Area, is within Wyoming Game and Fish Department’s Sheridan Region. Approximately 30 sharp-tailed grouse leks occur in the Sheridan Region (Oedekoven, personal communication). Grouse hunters are requested to deposit wings from bird taken during hunting season to assist in population estimation. However, compliance has been very low. Therefore no population estimate for plains sharp-tailed grouse within the Sheridan Region is available. The trend in the sharp-tailed grouse population for the Sheridan Region appears to be similar to sage grouse. When sage grouse numbers decline, a similar decline is noticed in sharp-tailed grouse numbers (Oedekoven, personal communication).

Plains sharp-tailed grouse were designated as a Management Indicator Species for portions of the Thunder Basin NG including the Spring Creek Geographic Area under the Revised Grasslands Plan (2001). Prior to that time this was not a species of concern, so no population data had been

collected by the U. S. Forest Service. The Forest Service began lek surveys for sharp-tailed grouse in spring of 2002. The number of sharp-tailed grouse seen during these surveys has increased over the last three years as displayed in the figure below. In 2002 only one lek was located with two individuals observed. In 2004, four leks were located with a total of 28 individuals observed. Although this data appears to show an upward trend, this data should be considered preliminary and inadequate to establish a definitive trend for the local area.



Data provided by USDA Forest Service, Douglas Ranger District

Breeding Bird Surveys (Sauer Hines, and Fallon 2003) have been conducted in the vicinity of the project area. Breeding Bird Survey (BBS) data for Wyoming from 1966 to 2002 indicate an upward trend for the sharp-tailed grouse. The Wyoming trend is also upward for the time period 1990-2002. Trends across the High Plains, USFWS Region 6, and the entire U.S. appear stable (*ibid*).

Existing Environment (Baseline)

The project area provides suitable habitat for plains sharp-tailed grouse. Shrubs provide good cover but are generally limited to draws. Winter habitat occurs near the West Fork of Duck Creek which is within the project area.

The general condition of native vegetation during the 2000-2002 growing seasons was considered poor as a result of drought. Mild temperatures and below normal precipitation resulted in below average forage production. In May 2002, there appeared to be less than a desirable amount of residual herbaceous cover was available to nesting sharp-tailed grouse in the project area. Increased winter and spring moisture in 2003 has resulted in a dramatic increase in grasses and forbs in and around the project area when compared to the past three seasons.

There are two sharp-tailed grouse leks in the vicinity of the project. They are located over two miles southeast or southwest of the proposed oil well site. See Map A attached to this document. The southwest sharp-tailed grouse lek, located on private property is a little less than one mile from FSR 903. The southeast sharp-tailed lek is over a mile from FSR 903 and is on National Forest Service System Lands.

A sharp-tailed grouse was observed within the project area by US Forest Service personnel during a site visit on June 5, 2002.

Environmental Consequences

This project is expected to have minimal adverse impacts to sharp-tailed grouse using the project area. The net area of new disturbance is expected to be 2.7 acres under Alternative 2 and 2.97 acres under Alternative 3 after existing two-track roads are obliterated. The COA for sage grouse will also limit the timing of disturbance during construction activities to after the sharp-tailed grouse nesting season. Sharp-tailed grouse may move more than 18 miles between seasonal ranges (Hoffman 2001). During these migrations the birds can cross highways, roads, agricultural fields and other areas of non-native vegetation. The level of habitat fragmentation that would occur with this project is minimal and is not expected to effect patterns of habitat use and seasonal movements.

Under Alternative 1, no adverse impacts to sharp-tailed grouse or their habitat would occur.

If the well goes into production, the timing limitation will not apply to daily or weekly visits to the well to remove the oil and maintain the well. Some longer term disturbance is likely under this scenario. It is not known whether sharp-tailed grouse habituate to such levels of background disturbance.

Although the project activities may impact habitat and sharp-tailed grouse using the Project Area, impacts are not expected to adversely affect population trends in the project area because of the small amount of area affected by the proposal. Timing limitations will help prevent disturbance of breeding and nesting grouse. This project has been mitigated to the full extent possible under the Proponent's existing leases.

Forest Plan Compliance

The following Objectives for sharp-tailed grouse in the Spring Creek Geographic Area are taken from the TBNG LRMP, pg 2-29. Responses follow each objective.

1. Provide a diverse and quality grassland habitat across the geographic area at levels that, in combination with habitat on adjoining lands, helps support stable to increasing populations of sharp-tailed grouse and other wildlife with similar habitat needs.

Response: Diversity and quality of grassland habitat in the Project Area are generally good. This Project has been designed to protect sagebrush habitat to the extent feasible under the Proponent's existing gas leases. Decreases in habitat quality and quantity are minimal. The Project has been designed to meet this objective.

2. Establish and maintain quality nesting and brooding habitat for sharp-tailed grouse and associated wildlife by meeting vegetation objectives for high structure over the next 10 to 15 years.

Response: Only minimal blading of the access roads will be allowed during the drilling phase to minimize disturbance to native vegetation. If this well is not productive, the proponent will revegetate the well site and access roads with a mix of native species. This will lead to high structure grasslands adjacent to sagebrush areas. If the well goes into production, the proponent will reclaim all disturbed lands not needed for production facilities. The entire site will be reclaimed at the time of well abandonment. The Project has been designed to meet this objective to the extent possible under the existing lease.

3. Reduce the impacts of extended droughts on sharp-tailed grouse populations and their recovery after droughts by managing land uses in sharp-tailed grouse habitat in a manner that does not significantly magnify the adverse effects of drought on grouse nesting, brooding and foraging habitats.

See responses to #1 and #2 above. This project helps to meet this objective.

The following standards and guidelines are taken from the TBNG LRMP, Spring Creek Geographic Area Direction – Standards and Guidelines, pg. 2-32:

Plains Sharp-tailed Grouse (MIS)

1. A range of 17,059 to 19,496 acres of high structure grasslands is prescribed for this geographic area. A substantial amount of this should be located where it would optimize sharp-tailed grouse habitat and associated species. The following criteria will be considered during site-specific project planning to help determine the best locations to manage for high structure grasslands:

- Presence of moderate to highly productive soils and range sites,
- Plant composition dominated by mid and/or tall grasses,
- Proximity to sharp-tailed grouse display grounds,
- Proximity to shrub habitats, private croplands, and other sharp-tailed foraging habitats.

Guideline

Response: The project area contains moderately productive soils with mid-grass species. It is located within 5 miles of known display grounds. There are woody draws with shrub habitats in the vicinity. This Project has been designed to protect grassland habitat to the extent feasible under the Proponent's existing gas leases. Decreases in habitat quality and quantity are minimal. The Project has been designed to meet this guideline.

2. Establish and maintain quality foraging habitat for sharp-tailed grouse and associated species by enhancing and/or maintaining a diversity of forb species in grassland communities and regeneration of shrub patches and the shrub component of wooded draws and riparian habitats. **Guideline**

Response: It is recommended that the seed mix to be used for site reclamation include native forb species. This will help to establish and maintain quality foraging habitat. This project has been designed to comply with this guideline.

3. At the onset of drought, evaluate the need to modify land use practices in sharp-tailed grouse habitat to avoid significantly magnifying the adverse effects of drought on grouse populations and vegetation for nesting, brooding and foraging. **Standard**

Response: Impacts on habitat from this project are minimal and are not expected to magnify the impacts of drought. Likewise any modification of such a small area in response to drought is not likely to have any appreciable benefit. This project complies with this standard.

Mitigation and Recommendations

Add native forb species to seed mix to be used for site reclamation.

3.4.3 Land Birds

Continental and local declines in numerous bird populations have led to concerns for the future of migratory and resident land birds. The reasons for declines of migratory and resident land birds are complex. Habitat loss, modification and fragmentation, loss of wintering and migratory habitat, and brood parasitism have been implicated (Executive Summary, Partners in Flight Conservation Plans).

Management Direction

Laws and treaties have been enacted that provide protection for migratory birds. The Migratory Bird Treaty Act and the Migratory Bird Conservation Act focus on the protection of migratory bird populations and their habitats.

36 CFR Ch. II states that fish and wildlife habitat shall be managed to maintain viable populations of existing native and desired non-native vertebrate species. Forest planning shall provide for diversity of plant and animal communities and tree species.

As part of the Bird Conservation Initiative, the Forest Service Landbird Strategic Plan (USDA, 2000) and the Partners in Flight Conservation Program (PIF, 2003) have developed a conservation program to maintain and restore habitats necessary to sustain long term, healthy migratory and resident bird populations. The USDA Forest Service Landbird Conservation Program is a component of the Forest Service Natural Resource Agenda. In January of 2001, President Clinton signed an Executive Order defining the responsibilities of Federal agencies to protect migratory birds.

The Forest Service Landbird Strategic Plan recommends that management activities complement the goals and objectives identified in Partners in Flight Conservation Plans. The goal of PIF landbird conservation planning is to ensure long-term maintenance of healthy populations of native land birds. Partners in Flight Conservation Plans are being written for all western states.

Wyoming Partners in Flight, Wyoming Bird Conservation Plan (2001) identifies priority species and habitats and establishes objectives for bird populations and habitats in the State of Wyoming.

Shortgrass Prairie Bird Conservation Region

Thunder Basin National Grassland, including the Spring Creek Geographic Area, is located within the Shortgrass Prairie Bird Conservation Region. The habitat types described in the Wyoming Bird Conservation Plan for the Yates Petroleum project area are shortgrass prairie and plains/basin riparian.

The shortgrass prairie habitat type includes mixed grass species of blue grama, buffalo grass, wheatgrass, bluestem and needle-and-thread grass. The plains/basin riparian habitat type is dominated by cottonwoods, elderberry, buffaloberry, Russian olive, boxelder, willows, green ash, American elm, snowberry, chokecherry, Virginia Creeper and grasses, rushes, and sedges (WY PIF, 2001).

Priority Land Birds

Priority land birds of Thunder Basin National Grassland were identified in the Final Environmental Impact Statement for the Northern Great Plains Management Plans Revision (USDA Forest Service 2001) on page 3-478. Below is a list of those priority land birds that have potential habitat within or in close proximity to the project area.

- Mountain Plover (*Charadrius montanus*)
- Burrowing Owl (*Athene cunicularia*)

- Ferruginous Hawk (*Buteo regalis*)
- McCown's Longspur (*Calcarius mccownii*)
- Swainson's Hawk (*Buteo swainsoni*)
- Northern Harrier (*Circus cyaneus*)
- Loggerhead Shrike (*Lanius ludovicianus*)
- Lark Bunting (*Calamospiza melanocorys*)
- Brewer's Sparrow (*Spizella breweri*)

Mountain plovers had been proposed for listing under the Endangered Species Act. Recently the USFWS withdrew its proposal to list this species. Effects of this project proposal on mountain plovers are evaluated in the Biological Evaluation section of this report.

Ferruginous hawks, burrowing owls and loggerhead shrikes are currently listed as USDA Forest Service, Rocky Mountain Region sensitive species (list dated 1994). These three species are evaluated in the sensitive species section of this document.

McCown's longspur, chestnut-collared longspur, short-eared owl, grasshopper sparrow, Northern harrier, sage sparrow and Brewer's sparrow are proposed additions to the Rocky Mountain Region's list of sensitive species. These seven land bird species will be evaluated in this section until such time a final decision is reached by the Regional Forester.

Swainson's hawk, sage thrasher and the lark bunting are also identified as high priority bird species in the Wyoming Bird Conservation Plan (2001). Swainson's hawk and lark buntings will be evaluated in this section.

Sage thrashers are one of four highest priority shrubland bird species in Wyoming. Sage thrashers are a sagebrush obligate species, just as sage grouse, sage sparrows and Brewer's sparrows. Sage grouse, sage sparrows and Brewer's sparrows are evaluated in this section. Impacts to sage thrashers and their habitat, resulting from implementation of the preferred alternative, are anticipated to be similar to that of sage grouse, sage sparrows and Brewer's sparrows. No further discussion of sage thrashers will occur.

Land Bird Monitoring

Breeding bird surveys are conducted annually during the peak of the nesting season across North America. Breeding bird survey routes are randomly located in order to sample habitats that are representative of the entire region (Sauer et al. 1997). The Soda Well roadside route #46 is one of 108 Wyoming breeding bird routes surveyed annually in the vicinity of the project area. Breeding bird survey data has been collected on this route since 1980 through 1983 and from 1987 through 1998 (WY PIF 2001). In addition, random observations and surveys results in the project area have been recorded by US Forest Service biologists.

Golden Eagle

A golden eagle nest is located approximately 0.75 miles northeast of the project area. The nest occurs outside the zone of influence for any of the activities proposed in any of the action alternatives. None of the alternatives proposed would have any impact on golden eagles. No further discussion and analysis of golden eagles will occur.

Swainson's Hawk

Swainson's hawks prefer open grassland areas with scattered trees or with small clumps of trees or shrubs for nesting (Deschant et al. 2001). The species migrates to breeding areas from South American, returning to the same area where it nested in previous years and often reuses the same

nest. Swainson's hawks prey on insects and small mammals. For more information on Swainson's hawks reference NatureServe 2002.

Threats to the species include loss of native grasslands and nest trees, conversion of suitable agricultural land to urbanization, pesticide use, disturbance at nest sites and shooting during migration (Cerovski et al., 2001).

Environmental Consequences

There are only two other Swainson's hawk nests known to occur in the Spring Creek Geographic Area (Cristi Lockman, personal communication). Suitable nest trees are limited in the project area and Spring Creek Geographic Area as well. The Spring Creek unit is the northernmost extension of the Thunder Basin National Grasslands. In order to maintain this species well distributed throughout the Grasslands, it is important to maintain the viability of this nest site.

Alternative 1 would have no effect on this nest site. No further developments or disturbance would be authorized under this project. Alternative 2 has the potential to cause direct adverse impacts to this nest location by causing noise and increased human activity and presence in the immediate vicinity of the nest. The proposed well location is only about 0.15 miles from the nest site. Swainson's hawks are sensitive to such disturbances and are not likely to use the nest location under these conditions. Alternative 3 would locate the well over 0.25 miles from the nest and out of line-of-sight. Alternative 3 also proposes an alternate route into the well site which would avoid passing close to the nest site altogether. This location was based on mitigation measures developed in the TBNG LRMP and was designed to minimize adverse impacts to Swainson's hawks. It is expected that hawks would continue to use the nest under this alternative.

Timing limitations would apply to construction activities from March 1 to July 31 under both action alternatives to minimize the possibility of disturbance. However, if the well should go into production, these timing limitations would not apply to routine daily operation and maintenance activities. It is likely that there would be some human activity at the well and on the access road most days including during the nesting season.

Lark Bunting

Lark buntings breed in plains, prairies, meadows and sagebrush, using grasslands of low to moderate height. In Wyoming, lark buntings are found in open habitats with relatively short, herbaceous vegetation (Cerovski et al. 2001). Lark buntings nest on the ground in grass, under or near clumps of vegetation or shrubs (The Nature Conservancy 1999d). These birds nest in areas with 60-70% low grass cover, 10-15% bare ground, and 10-30% shrub or tall grass cover (Cerovski et al. 2001). The bird forages on the ground for insects, especially grasshoppers, seeds and waste grain (NatureServe 2002).

Threats to the species include heavy grazing in shortgrass habitats, pesticides and fragmentation of expanses of grassland habitat by intensive agricultural operations.

Nation-wide surveys show a significant decline in lark buntings over the past 30 years (The Nature Conservancy 2002a). About 39% of the lark bunting population breeds in the Northern Shortgrass Prairie Physiographic Region #39. Trend interpretation for this region indicates a significant increase in the population of lark buntings. About 46% of the lark bunting population breeds in Bird Conservation Region #17, Badlands and Prairies. Trend interpretation for breeding lark buntings in Bird Conservation Region #17, indicates a stable population (Panjabi 2001). Lark bunting populations appear to be stable in Wyoming (Sauer et al., 2001).

Lark buntings are considered one of twelve highest priority grassland bird species in Wyoming (Cerovski et al. 2001). The project area provides suitable habitat for lark buntings. The average

number of individual lark buntings observed during all years the Soda Well breeding bird roadside route #46 was run is 73. Lark buntings have not been noted in the project area by US Forest Service biologists during site visits.

Environmental Consequences

The disturbance of habitat (~2.7 to ~2.97 acres) for this species is expected to be minimal under Alternatives 2 & 3. The timing limitations imposed on construction activities to protect the Swainson's hawk nest during the breeding season will also protect this ground nesting species.

Grasshopper Sparrow

Grasshopper sparrows prefer grasslands of intermediate height and are often associated with clumped vegetation interspersed with patches of bare ground (Deschant et al. 2001). Grasshopper sparrows avoid areas with greater than 35% shrub cover (Cerovski et al. 2001). These birds nest and forage on the ground, consuming most insects, especially grasshoppers, as well as seeds.

Threats to the grasshopper sparrow are primarily due to loss of habitat by cultivation and urbanization. These sparrows are sensitive to burning, haying and heavy grazing in nesting habitat during the breeding season (Deschant et al. 2001).

Global trend data on grasshopper sparrows indicate a significant population decline (NatureServe 2002). About 22% of the grasshopper sparrow population breeds in Bird Conservation Region #17, Badlands and Prairies. Trend interpretation for this region indicates a significant decline in grasshopper sparrows. About 6% of the grasshopper sparrow population breeds in the Northern Shortgrass Prairie Physiographic Region #39. Trend interpretation for this region indicates a possible increase in the grasshopper sparrow population. Grasshopper sparrows have shown a decline in Wyoming (Sauer et al., 2002).

Grasshopper sparrows are considered one of twelve highest priority grassland bird species in Wyoming (Cerovski et al. 2001). The average number of individual grasshopper sparrows observed during all years the Soda Well breeding bird roadside route #46 was run is 7. The project area provides suitable habitat for grasshopper sparrows. Grasshopper sparrows have not been noted in the project area by US Forest Service biologists during site visits.

Environmental Consequences

The disturbance of habitat (~2.7 to ~2.97 acres) for this species is expected to be minimal under Alternatives 2 & 3. The timing limitations imposed on construction activities to protect the Swainson's hawk nest during the breeding season will also protect this ground nesting species.

Short-eared Owl

In Wyoming, short-eared owls require large, expanses of open grasslands, shrub steppe or marshland habitat (Cerovski et al. 2001). Short-eared owls require grassland areas of approximately 123 acres or larger (NatureServe 2002). Varying heights of dense vegetation provides nesting cover and habitat for prey species. Short-eared owls nest on the ground. Voles and other small mammals are the primary prey of short-eared owls. Short-eared owl populations fluctuate in response to vole population densities (Dechant et al., 2001.)

Loss of large expanses of open grasslands is the biggest threat to short-eared owls.

The global trend for short-eared owls is declining (NatureServe 2002). About 6% of the short-eared owl population breeds in the Northern Shortgrass Prairie Physiographic Region #39. About 4% of the short-eared owl population breeds in Bird Conservation Region #17, Badlands and Prairies. Partners In Flight species assessment database trend interpretation for breeding short-eared owls is uncertain (Panjabi 2001). The population trend for short-eared owls in Wyoming has not been determined.

Short-eared owls are considered one of twelve highest priority grassland bird species in Wyoming (Cerovski et al. 2001). The project area provides habitat for short-eared owls. Short-eared owls have been reported on the Soda Well breeding bird roadside survey route #40. Short-eared owls have not been noted in the project area by US Forest Service biologists during site visits.

Environmental Consequences

The disturbance of habitat (~2.7 to ~2.97 acres) for this species is expected to be minimal under Alternatives 2 & 3. The timing limitations imposed on construction activities to protect the Swainson's hawk nest during the breeding season will also protect this ground nesting species.

McCown's Longspur

McCown's longspurs use sparse short-grass plains and grasslands with little litter and areas of bare or nearly bare ground (NatureServe 2002). In Wyoming, McCown's longspurs are found in open, dry, sparsely vegetated areas. Forty-five to 80% grass cover and 15-25% bare ground areas are used for nesting (Cerovski et al. 2001). Ground nests are placed near clumps of grass, shrubs, prickly pear cactus or cowpies (The Nature Conservancy 1999c). McCown's longspur forages on the ground for weed and grass seeds and insects, primarily grasshoppers and beetles.

Threats to the species include habitat destruction due to agricultural conversion and development of native prairie habitat, fire suppression, insecticides, and heavy grazing and subsequent nest predation by ground squirrels.

McCown's longspur appear to be stable globally, however erratic fluctuations and unpredictable occurrences on breeding and wintering areas make interpretation difficult (NatureServe 2002). About 57% of McCown's longspur population breeds in the Northern Shortgrass Prairie Physiographic Region #39. About 20% of the McCown's longspur population breeds in Bird Conservation Region #17, Badlands and Prairies. Partners In Flight species assessment database trend interpretation for breeding McCown's longspur is uncertain (Panjabi 2001). McCown's longspur numbers appear to be increasing in Wyoming (Sauer 2001).

McCown's longspurs are considered one of twelve highest priority grassland bird species in Wyoming (Cerovski et al. 2001). McCown's longspur are reported to occur in Campbell County. The project area *may* provide suitable habitat for McCown's longspurs. No McCown's longspurs have been reported on the Soda Well breeding bird roadside route #46. McCown's longspurs have not been noted in the project area by US Forest Service biologists during site visits.

Environmental Consequences

The disturbance of habitat (~2.7 to ~2.97 acres) for this species is expected to be minimal under Alternatives 2 & 3. The timing limitations imposed on construction activities to protect the Swainson's hawk nest during the breeding season will also protect this ground nesting species.

Chestnut-collared Longspur

Chestnut-collared longspurs prefer open, native, mixed-grass and short grass prairies. Vegetation less than 7 to 12 inches high is preferred. Excessively shrubby areas and dense litter accumulations are avoided (The Nature Conservancy 1999c). Chestnut-collared longspurs breed primarily in the eastern half of Wyoming, with males returning to the same breeding territories 67 to 85% of the time. Chestnut-collared longspurs nest and forage on the ground, eating a variety of insects and seeds.

Conversion of grasslands to cropland and urban development is the primary threat to chestnut-collared longspurs. Pesticides reduce hatch success (NatureServe 2003).

Chestnut-collared longspurs appear to be experiencing a long-term decline globally (NatureServe 2002). About 51% of the chestnut-collared longspur population breeds in the Northern Shortgrass Prairie Physiographic Region #39. About 22% of the chestnut-collared longspur population breeds in Bird Conservation Region #17, Badlands and Prairies. Partners In Flight species assessment database trend interpretation for breeding chestnut-collared longspur is stable (Panjabi 2001). The population trend for chestnut-collared longspurs in Wyoming has not been determined.

Chestnut-collared longspurs are considered one of twelve highest priority grassland bird species in Wyoming (Cerovski et al. 2001). The project area *may* provide suitable habitat for chestnut-collared longspurs. No chestnut-collared longspurs have been reported on the Soda Well breeding bird roadside route #46. Nor have they been noted in the project area by US Forest Service biologists during site visits.

Environmental Consequences

The disturbance of habitat (~2.7 to ~2.97 acres) for this species is expected to be minimal under Alternatives 2 & 3. The timing limitations imposed on construction activities to protect the Swainson's hawk nest during the breeding season will also protect this ground nesting species.

Brewers Sparrow

Brewer's sparrows are shrub obligate species strongly associated with sagebrush (NatureServe 2002). Brewer's sparrows are found across Wyoming in prairie and foothills shrubland habitats (Cerovski et al. 2001). Brewer's sparrow nests are placed in shrubs, most often sagebrush. These sparrows forage mainly on the ground for a variety of insects and seeds (The Nature Conservancy 1999a).

Threats to Brewer's sparrow include loss of sagebrush habitat from range improvement projects promoting grass production, land conversion to agriculture, pesticide and herbicide application and cowbird nest parasitism.

Brewer's sparrows have exhibited significant and strong declines throughout its range (NatureServe 2002). Partners In Flight Species Assessment Database also reports significant declines in trend for Brewer's sparrow (Panjabi 2001). Brewer's sparrows have shown significant declines in Wyoming (Sauer 2001).

Brewer's sparrows are considered one of six highest priority shrubland bird species in Wyoming (Cerovski et al. 2001). Brewer's sparrows are documented to occur in Campbell County. The average number of individual Brewer's sparrows observed during all years the Soda Well breeding bird roadside route #46 was run is 29. The project area provides suitable habitat for Brewer's sparrows. Brewer's sparrows have not been noted in the project area by US Forest Service biologists during site visits.

Environmental Consequences

The disturbance of habitat (~2.7 to ~2.97 acres) for this species is expected to be minimal under Alternatives 2 & 3. The timing limitations imposed on construction activities to protect the Swainson's hawk nest during the breeding season will also protect this species.

Sage Sparrow

Sage sparrows are shrub obligate species strongly associated with sagebrush (NatureServe 2002). Sage sparrows are found across most of Wyoming in prairie and foothills shrubland habitats where sagebrush is present (Cerovski et al. 2001). Sage sparrows nest on the ground or low in a shrub, most often sagebrush (The Nature Conservancy 1999c). These sparrows forage mainly on the ground for a variety of insects and seeds.

Threats to sage sparrow include loss of sagebrush habitat resulting from range improvement projects, such as herbicide application that promote grass production, conversion of rangeland to cropland and urban development.

North American Breeding Bird Survey data show a significant decline survey-wide for the years 1966-1979 and a significant increase per year for 1980-1996. Sage sparrows have shown a non-significant decline in Wyoming for the years of 1980 – 1995 (The Nature Conservancy 1999).

Sage sparrows are considered one of six highest priority shrubland bird species in Wyoming (Cerovski et al. 2001). Sage sparrows are documented in Campbell County. No sage sparrows have been reported on the Soda Well breeding bird roadside route #46. The project area provides suitable habitat for sage sparrows. Sage sparrows have not been noted in the project area by US Forest Service biologists during site visits.

Environmental Consequences

The disturbance of habitat (~2.7 to ~2.97 acres) for this species is expected to be minimal under Alternatives 2 & 3. The timing limitations imposed on construction activities to protect the Swainson's hawk nest during the breeding season will also protect this ground nesting species.

Northern Harrier

Northern harriers prefer relatively open meadow habitats and are found in undisturbed wetlands or grasslands (Deschant et al. 2001). Northern harriers nest over water on platforms in wetlands or on the ground. Ground nests are well concealed in tall, dense grasses and forbs with abundant residual vegetation. In the northern Great Plains, harrier nests are often associated with western snowberry (*Symphoricarpos occidentalis*). The primary prey of Northern harriers are small mammals and birds, amphibians and reptiles (NatureServe 2002).

Threats to Northern harriers include habitat loss from wetland drainage and agricultural practices, pesticides and human disturbance of nesting birds.

Harriers have exhibited significant declines in the Northern Plains (NatureServe 2002). Trend indications for Northern harriers from Partners In Flight Species Assessment Database are uncertain (Panjabi 2001). The raptor is apparently secure in Wyoming (NatureServe 2002). Northern harriers may be recommended for conservation action but are not otherwise considered high priority in Wyoming (Cerovski et al. 2001).

The project area provides suitable habitat for Northern harriers. Grasses, forbs, and Western snowberry is present in the West Fork Duck Creek drainage in the project area. Northern harriers have been recorded most years on the Soda Well breeding bird roadside route #46 (Cerovski et al. 2001). No observations of Northern harriers have been made in or near the project area by US Forest Service biologists during site visits.

Environmental Consequences

Suitable nesting habitat is not present in the project area. The disturbance of foraging habitat (~2.7 to ~2.97 acres) for this species is expected to be minimal under Alternatives 2 & 3. No wetlands will be affected by the project.

3.4.4 Sensitive Species

Sensitive species are those that are vulnerable to decline and loss of viable populations and have the potential for being listed as threatened or endangered. The purpose of this biological evaluation is to determine potential effects of actions proposed on sensitive species and their habitats known or

suspected to occur in or near the project area. The species used for this evaluation are those included in the R-2 Sensitive species list dated 1994. This list is being used because this project was considered “well underway” at the time the R-2 Sensitive Species list was revised in November 2003. This is acceptable under FSM R2 Supplement 2600-2003-1, Section 2672.11(7). In addition, the mountain plover is discussed in this section because it is no longer a species proposed for listing under ESA.

Management Direction

Sensitive species are managed under the authority of the National Forest Management Act (PL 94-588) and the USDA Forest Service Manual Direction (FSM 2600). Sensitive species are administratively designated by the Regional Forester (FSM 2670.5).

The Land and Resource Management Plan for Thunder Basin National Grassland (USDA Forest Service 2001) provides grassland-wide management direction for sensitive species. Management direction for sensitive plant and animal species can be found on pages I-17 to I-20 in the Plan. Pages D-6 to D-17 of Appendix D in the Plan provides oil and gas lease stipulations for wildlife resources.

Sensitive Species for Thunder Basin National Grassland

Eighteen sensitive terrestrial animals were evaluated for the 2001 Thunder Basin National Grassland Land and Resource Management Plan. This subset of sensitive species for Thunder Basin National Grassland was derived from the complete list of Rocky Mountain Region Sensitive Species (1994). (Reference the Biological Evaluation in Appendix H, pages H-100 to H-108, of the Final Environmental Impact Statement for the Northern Great Plains Management Plans Revision, May 2001.)

Sensitive Species, Habitat and/or Occurrence in the Yates Oil Well Project Area

<i>Species</i>	Habitat Required	Habitat And/Or Occurrence In Or Near Project Area?
	<ul style="list-style-type: none"> ▪ <i>Mammals</i> 	
<i>Cynomys ludovicianus</i>	<ul style="list-style-type: none"> ▪ <i>Black-tailed Prairie Dog</i> 	Dry, flat open grasslands with low, relatively sparse vegetation Yes
<i>Myotis thysandodes pahasapensis</i>	<ul style="list-style-type: none"> ▪ <i>Fringe-tailed Myotis</i> 	Mid-elevation grasslands, deserts and woodlands with caves, mines, rock crevices and buildings No occurrence records for Campbell County, WY
Vulpes velox	<ul style="list-style-type: none"> ▪ <i>Swift Fox</i> 	Open prairie and arid plains of shrublands and grasslands Yes
	<ul style="list-style-type: none"> ▪ <i>Birds</i> 	
	<ul style="list-style-type: none"> ▪ <i>Mountain Plover</i> ▪ Charadrius montanus 	High, dry shortgrass prairie with level slope and very short Yes

<i>Species</i>		Habitat Required	Habitat And/OR Occurrence In Or Near Project Area?
		vegetation	
<i>Ammodramus bairdii</i>	<ul style="list-style-type: none"> ▪ <i>Baird's Sparrow</i> 	Prairie grasslands	No occurrence records for Campbell County, WY
Picoides arcticus	<ul style="list-style-type: none"> ▪ <i>Black-backed Woodpecker</i> 	Mature and over-mature coniferous forests with dead and dying trees infested with wood boring beetle larvae	No Habitat
<i>Chlidonias niger</i>	<ul style="list-style-type: none"> ▪ <i>Black Tern</i> 	Shallow (<3-4' water) marshes >12 acres in size with a ratio of 50:50 emergent vegetation to open water	No Habitat
<i>Ferruginous Hawk</i> Buteo regalis		Open grassland and shrub steppe communities	Yes
<i>Fox Sparrow</i> Passerella ileaca		Wooded habitats with dense shrubby undergrowth	No Habitat
Melanerpes lewis	<ul style="list-style-type: none"> ▪ <i>Lewis' Woodpecker</i> 	Open country with scattered trees, especially ponderosa pine, that have understories of grasses and shrubs	No Habitat
Lanius ludovicianus	<ul style="list-style-type: none"> ▪ <i>Loggerhead Shrike</i> 	Low stature grasses and forbs with scattered shrubs and low trees	Yes
Numenius americanus	<ul style="list-style-type: none"> ▪ <i>Long-billed Curlew</i> 	Expansive, open, level to gently sloping, short grass prairies	Yes
Falco columbarius	<ul style="list-style-type: none"> ▪ <i>Merlin</i> 	Shrublands and grasslands adjacent to	No habitat

<i>Species</i>	Habitat Required	Habitat And/Or Occurrence In Or Near Project Area?
	woodlands, including ponderosa pine stands, woody draws and riparian areas	
Accipiter gentiles	<ul style="list-style-type: none"> ▪ <i>Northern Goshawk</i> 	Large tracts of mature, flossed canopy, deciduous, coniferous and mixed forests with an open understory
<i>Contopus borealis</i>	<ul style="list-style-type: none"> ▪ <i>Olive-sided Flycatcher</i> 	Variety of montane, coniferous forests which include meadows, beaver ponds and marshes with a preponderance of standing live or dead trees
<i>Progne subis</i>	<ul style="list-style-type: none"> ▪ <i>Purple Martin</i> 	Deciduous riparian woodlands, aspen and open coniferous forests with snags
Sitta pygmaea	<ul style="list-style-type: none"> ▪ <i>Pygmy Nuthatch</i> 	Pine forests, particularly ponderosa, with <70% canopy closure
Bartramia longicauda	<ul style="list-style-type: none"> ▪ <i>Upland Sandpiper</i> 	Grassland areas with low to moderate grass and forb cover and low woody cover
Athene cunicularia	<ul style="list-style-type: none"> ▪ <i>Western Burrowing Owl</i> 	Level to gently sloping, sparsely to barely vegetated grasslands with burrows
Coccyzus americanus	<ul style="list-style-type: none"> ▪ <i>Yellow-billed Cuckoo</i> 	Moderately dense thickets near large, cottonwood riparian areas

<i>Species</i>	Habitat Required	Habitat And/OR Occurrence In Or Near Project Area?
	<ul style="list-style-type: none"> ▪ <i>Insects</i> 	
<i>Phyciodes batesii lakota</i>	<ul style="list-style-type: none"> ▪ <i>Tawny Crescent Butterfly</i> 	Moist meadows and clearings of grasses and forbs, particularly aster No occurrence records for Campbell County, WY

No sensitive plants occur on Thunder Basin National Grassland (John Proctor, Botanist, USDA Forest Service, Medicine Bow-Routt National Forests, personal communication, September 23, 2002).

Twelve of the twenty sensitive terrestrial species listed above for Thunder Basin National Grassland do not have habitat present or are not known to occur near the Yates Petroleum oil well project area. This proposal will have **no impact** on fringe-tailed myotis, Baird’s sparrow, black-backed woodpeckers, black terns, fox sparrows, Lewis’ woodpeckers, northern goshawks, merlin, olive-sided flycatchers, purple martin, pygmy nuthatches, yellow-billed cuckoos and tawny crescent butterflies. No further discussion of these species will occur in this document. Sensitive aquatic species that may be affected by this proposal are evaluated by different authors under separate cover.

SENSITIVE SPECIES EVALUATIONS
Mountain Plover (Charadrius montanus)

Mountain plovers are summer residents in Wyoming, arriving in early April and departing in September for wintering range in California, the lower Colorado River Valley and Northern Mexico.

Habitat Requirements

Mountain plovers prefer large, flat grassland expanses with sparse, short vegetation and bare ground. Areas disturbed by prairie dogs, heavy grazing or fire provide suitable habitat (Dechant, et al., 1998). For complete information on the ecology and habitat of mountain plovers reference NatureServe 2002, Cerovski et al. 2001, and Byer, et al., 2000.

Currently there are over 14,000 acres of occupied mountain plover habitat identified on the Thunder Basin National Grassland. Over 12,000 acres of mountain plover habitat occurs in black-tailed prairie dog colonies. The other approximately 2,000 acres of mountain plover habitat occurs in sparse birdsfoot sagebrush (*Artemisia pedatifida*) habitat type (Byer, 1997).

Threats to the Species

Mountain plovers are threatened range-wide due to habitat loss by conversion of short-grass prairie to agricultural land, agricultural practices and drastic landscape declines of prairie dog towns (NatureServe 2002).

Management Direction

As part of the Bird Conservation Initiative, the Forest Service Landbird Strategic Plan (USDA, 2000) and the Partners in Flight Conservation Program (PIF, 2000) have developed a conservation program to maintain and restore forest and grassland habitats necessary to sustain long term, healthy migratory and resident bird populations. Wyoming Partners in Flight, Wyoming Bird Conservation Plan ranked mountain plovers as the highest priority bird species needing conservation action in the state. The Wyoming Bird Conservation Plan has population and habitat objectives and recommendations for mountain plovers (pages F-112-115).

The 2002 Thunder Basin National Grassland Land and Resource Management Plan provides management direction for mountain plovers. Grassland-wide direction for mountain plovers can be found on pages I-15-17. Oil and Gas Stipulations for mountain plover are found on pages D-10, D-13, and D-14.

Current Population Information

Mountain plovers are declining rapidly globally. Current population is less than 10,000. Population declines range-wide exceed 50% since 1966 (U. S. Fish and Wildlife Service, 1999). Fewer than 1500 individuals occur in Wyoming (Bennett, 2001). It is estimated that more than 150 adults and fledglings use Thunder Basin National Grasslands annually (Byer, et al., 2000).

Existing Environment (Baseline)

In short-grass prairie, mountain plovers clearly prefer black-tailed prairie dog (*Cynomys ludovicianus*) colonies to areas without prairie dogs (Beauvais, 1999). Both black-tailed prairie dogs and mountain plovers are documented to occur in Campbell County, Wyoming (Fertig and Beauvais, 1999). Mountain plovers have not been recorded on the Soda Well breeding bird roadside route #46 or any other breeding bird survey route in Campbell County, Wyoming (Cеровski et al., 2001).

Surveys of black-tailed prairie dog towns and mountain plover habitat on the Thunder Basin National Grassland have been conducted by U. S. Forest Service personnel since 1992. Mountain plovers were looked-for while US Forest Service personnel were mapping prairie dog towns in the Spring Creek Geographic area in 1997 and 2001 (Cristi Lockman, personal communication).

Habitat for mountain plovers occurs within 2 miles northwest of the proposed drill site at black-tailed prairie dog town #102-1 (see map of black-tailed prairie dogs mentioned earlier in this document. Black-tailed prairie dog town #102-1 was surveyed for mountain plovers on May 2 and 3, and June 24-26, 2002. No mountain plovers were seen at black-tailed prairie dog town #102-1, within two miles of the project area. To date, mountain plovers have not been observed nesting at black-tailed prairie dog town #102-1 (Cristi Lockman, personal communication).

Forest Service Road #903 is an unimproved two-track dirt road to the project area. A pair of mountain plovers were observed on May 2, 2002 on FSR #903 (Cristi Lockman, personal communication). No nest was found. Parrish et al. (1993) noted that investigators have found mountain plovers are attracted to animal and wheeled track paths barren of vegetation.

Plague outbreak at black-tailed prairie dog town #102-1, and recreational shooting and poisoning of prairie dog colonies on state, federal and private lands in the Spring Creek Geographic Area has reduced the amount of habitat available to mountain plovers. An increase in the acres of croplands on private land and oil and gas development on public lands has reduced the amount of habitat available to mountain plovers.

Environmental Consequences

Neither Alternative 2 nor preferred Alternative 3 sites, nor the immediate area surrounding them, would be considered suitable habitat for mountain plovers. See Figures 2 & 3 previously. The topography is rolling with little bare ground. Sage brush, grasses and forbs are present. There would be no change in the amount of existing habitat for mountain plovers with the No Action Alternative, #1.

There is no difference in effects to mountain plovers with either Alternative 2 or preferred Alternative 3. The area that would be disturbed around either proposed oil well pad site would temporarily create some open habitat with bare ground. However, the rolling topography in the vicinity of the well pads limits visibility of mountain plovers and increases their risk of predation. As such, the sites would likely be avoided by mountain plovers.

Forest Service Road #903 provides access to the project area. This unimproved two-track dirt road currently provides some amount of mountain plover habitat as evidenced by a pair observed on May 2, 2002.

Forest Service Road #903 would provide access to either Alternative 2 or Alternative 3 well pad sites. In Alternative 2 or 3, FSR #903 would be flat bladed and widened to 18 feet. Widening this road would increase the amount of bare ground available to mountain plovers in and near the project area. About 0.32 miles of road would be constructed to the well site Under Alternative 2. About .72 miles of would be constructed to the preferred well site under Alternative 3.

Road construction and increased traffic on Forest Service Road #903, during exploratory drilling activities proposed in either Alternative 2 or 3, would occur outside the mountain plover nesting season of March 15 to July 31 per guideline direction provided in the Thunder Basin Grassland Plan on page 1-14. If road construction and increased traffic from exploratory drilling activities occurred during mountain plovers use periods, temporary disturbance and displacement of plovers could occur.

If no oil is discovered at well site 2 or preferred well site 3, the entire length of new and/or improved roads will be obliterated and 1.38 acres of well site will be rehabbed. Until vegetation is reestablished on the bladed road and well pad, the bare areas may temporarily provide some habitat for mountain plovers.

Should the preferred Alternative 3 well prove productive, about .72 miles of road would be built and the entire length of FSR #903 would be graveled and used to access Alternative 3 well site. Building of road to access Alternative 3 well site would occur outside the months of March 15 to July 31 to avoid disturbance to wildlife during the birthing and nesting seasons.

If oil is discovered during exploratory drilling, year-round weekly and emergency servicing of the well site would occur on FSR #903. Mountain plovers would be directly affected by vehicles traveling on Forest Service Road #903. Mountain plovers are known to feed and nest on and along flat, improved, graveled roads (Bradley Rogers, US Fish and Wildlife Service, personal communication). Vehicle activity on Forest Service Road #903 to and from a producing well, could cause the loss of eggs, young or adult mountain plovers. Mountain plover mortality could occur from stress related disturbance, displacement or abandonment of eggs, chicks and adults by vehicles or directly from impact with vehicles.

After the new road is built, 0.51 miles of existing road would be closed and rehabbed under Alternative 2. Under Alternative 3 none of the old road would be reclaimed. Until vegetation is reestablished on the reclaimed road, the bare road bed may temporarily provide some habitat for

mountain plovers. Rehabbing the old road would occur outside the months of March 15 to July 31 to avoid disturbance to wildlife during the birthing and nesting seasons.

Mitigation

Since there is no known occupied nesting habitat within 0.25 miles of the project area, no additional mitigation is recommended.

Conclusion and Determination

Alternative 1, no action would have “No Impact” on mountain plovers.

The associated activities and construction required to drill one oil well as proposed in Alternative 2 "May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing".

The associated activities and construction required to drill one oil well as proposed in preferred Alternative 3 "May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing".

Black-tailed Prairie Dog

Black-tailed prairie dogs live in densely populated colonies primarily in open, level arid short to mixed grass plains and shrublands. Black-tailed prairie dogs are diurnal, dig and occupy extensive burrow systems, and consume grasses and forbs. Colonies fluctuate in size from year to year. Precipitation during the previous summer positively correlates to litter size (Hoogland 1996). Average colony size is 49-148 acres with a range of <25 to more than 700 acres. The black-tailed prairie dog is a keystone species upon which many other prairie species depend. Prairie dogs alter plant communities, vegetation and soils within their colonies and are critical to grassland biodiversity (NatureServe 2002).

Threats to the species include habitat alteration and fragmentation, habitat loss from agriculture and urbanization; lack of fire; human control efforts from shooting and poisoning; and sylvatic (bubonic) plague.

Black-tailed prairie dogs are a candidate species and listing of the species as threatened is warranted but precluded by actions of higher priority by US Fish and Wildlife Service. Black-tailed prairie dogs are declining rapidly globally. The current population is less than 10% of its original numbers. The abundance and extent of occupied black-tailed prairie dog habitat has declined by 94-99 percent since 1900 (NatureServe 2002). In Wyoming, black-tailed prairie dogs are considered imperiled (NatureServe 2002). The current abundance and population status of black-tailed prairie dogs in Wyoming is debatable (Oakleaf et al. 2002).

The US Forest Service reported a decline of 58% in occupied black-tailed prairie dog habitat on National Grasslands (NatureServe 2002). Thunder Basin National Grassland reported 18,340 acres in 146 active prairie dog colonies in 1998 (Byer et al. 2000). Sylvatic plague was discovered in black-tailed prairie dog colonies on and near Thunder Basin National Grassland in 2001. Sylvatic plague reduced the amount of active prairie dog acres by about 14% across Thunder Basin National Grassland.

As stated under the Management Indicator Species section, the Black-tailed Prairie Dog was not selected as an MIS for the Spring Creek Geographic Area as one of the criteria for this species would include the presence of low structure grasslands. This habitat type is not

found in the Spring Creek area in sufficient quantity or quality to warrant designation of the Black-tailed Prairie Dog as a Management Indicator Species.

Four black-tailed prairie dog colonies exist on National Forest System Lands in the Spring Creek Geographic Area. One of the four black-tailed prairie dog towns in this complex, number 102-1, occurs within two miles of the proposed drilling site. See Map C, found at the end of this section. Prairie dog colony number 102-1 has been surveyed for prairie dogs in 1976, 1980, 1984, 1986, 1988, 1997, 2001, and 2002.

The original size of prairie dog town 102-1 was approximately 35 acres. About half of the town died from a recent outbreak of sylvatic plague, reducing the size of the colony and number of prairie dogs occupying the town (Cristi Lockman, personal communication). This is the first incidence of plague reported in prairie dog towns in the Spring Creek area (Tim Byers, personal communication). The other three prairie dog towns in the Spring Creek complex do not appear to be infected with plague.

Environmental Consequences

There would be no change in the existing condition of black-tailed prairie dog town 102-1, within two miles of the project area with the No Action Alternative 1.

There is no difference in effects to the black-tailed prairie dogs with either Alternative 2 or Alternative 3. Construction activities within the project area would occur approximately two miles away from the closest black-tailed prairie dog colony number 102-1. Neither alternative has any action proposed that would change habitat conditions for black-tailed prairie dogs.

Both action alternatives would improve road access into the project area. Improved road access, increased travel and other activities associated with this project would occur away from and outside black-tailed prairie dog colony 102-1. However, improved road access into the area would facilitate access to the prairie dog town by recreational shooters, which could result in increased incidental mortality of prairie dogs. No other direct or indirect effects to prairie dogs are anticipated with the implementation of Alternative 2 or 3.

Conclusion and Determination

Alternative 1, no action will have "No impact" on black-tailed prairie dogs or their habitat.

Alternative 2 "May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing".

Alternative 3 "May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing".

Swift Fox

Suitable habitat for swift fox in Wyoming includes shortgrass, mixedgrass, sagebrush-grassland, and sagebrush-greasewood habitat types with topography ranging from flat to badland-like terrain (Kahn et al. 1997). Swift foxes usually excavate their own dens and use them year-round for protection from predators and weather and raising their young. Swift fox eat a variety of small mammals, birds, insects, reptiles, and carrion (Kahn et al.1997).

Threats to the species are due to loss of habitat to agriculture and mineral extraction; habitat fragmentation and habitat degradation due to control of colonial rodents; interspecific competition with coyote and red fox and mortality associated with predator control (NatureServe 2002).

Population trend of swift foxes is poorly known in most areas. Swift foxes occupy 20-30% of their historic range. Swift fox are ranked as imperiled in Wyoming (NatureServe 2002). Wyoming Game and Fish Department believe swift foxes are currently distributed throughout most of their historical range in Wyoming (Kahn et al. 1997).

Trapper sightings of swift fox in northern Campbell County have been reported to Wyoming Game and Fish Department. Swift fox distribution surveys were conducted in northern Campbell County in 1997 by researchers of the Wyoming Cooperative Fish and Wildlife Research Unit in Laramie. No swift foxes were detected in the areas sampled. If swift fox are present in northern Campbell County, their densities are likely low (Olson et al. 1997).

Potential swift fox habitat exists in and around the project area and the Spring Creek Geographic area. Swift fox *may be* present in or near the project area. No sightings of swift fox have been reported in or near the project area. No natal dens are known to exist in the Spring Creek Geographic area.

Environmental Consequences

There should be no change in the existing condition for swift foxes if they are present in or near the project area with the No Action Alternative.

There is almost no difference in effects to swift foxes with either Alternative 2 or Alternative 3. Oil development activities, access improvement and road building would result in a minor amount of habitat loss for swift foxes. Alternative 3 would have slightly more swift fox habitat affected than Alternative 2.

Swift fox are easily shot or trapped. Improved road access and road development associated with the project may increase disturbance and risk of mortality to swift fox, if they are present in or near the project area. No other direct or indirect effects to swift foxes are anticipated with the implementation of Alternative 2 or 3.

Conclusion and Determination

Swift fox have not been conclusively documented to occur within the Spring Creek Geographic Area of Thunder Basin National Grassland. They are believed to be present at very low densities. If swift fox are present in the Yates project area:

Alternative 1, no action, will have "No Impact" on swift fox or their habitat.

Alternative 2 "May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing".

Alternative 3 "May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing".

Ferruginous Hawk

The ferruginous hawk likes open country, primarily prairies, plains and badlands; sagebrush, saltbush-greasewood shrublands (The Nature Conservancy 1999b). Ferruginous hawks usually occupy rolling or rugged terrain. Ferruginous hawk nests are often located on the ground, but they also nest in trees, large shrubs and on utility structures. Productivity is closely tied to cycles of prey abundance (Deschant et al. 2001). Ferruginous hawks feed mostly on small mammals, especially ground squirrels, prairie dogs and jackrabbits (Cеровski et al., 2001).

Threats to the species include habitat loss from agricultural development, human disturbance early in the nesting season, and shooting and poisoning of prey species particularly prairie dogs (NatureServe 2002b).

The global trend for numbers of ferruginous hawks is stable. About 26% of the ferruginous hawk population breeds in the Northern Shortgrass Prairie Physiographic Region #39. Trend interpretation for this region indicates a significant increase in the population of ferruginous hawks. Trend interpretation for breeding ferruginous hawks in Bird Conservation Region #17, Badlands and Prairies, indicates a possible increase in the population (Panjabi 2001). State-wide population trend for ferruginous hawks in Wyoming is unknown. Ferruginous hawks have been recorded on the Soda Well breeding bird roadside route #46 (Cerovski et al. 2001).

Ferruginous hawks are considered one of the highest priority bird species associated with the grasslands habitat type in Wyoming (Cerovski et al., 2001). The project area provides suitable habitat for ferruginous hawks. A raptor nest was found within the project area, by the author in August 2001. See project area map (Figure 4 on page 9 of this document) for the nest tree location. The nest is located in one of several decadent box elder trees in the bottom of the West Fork Duck Creek drainage. See the nest tree in Figures 2 & 3 earlier in this document. White-wash and a few feathers were found on and around the tree. No raptor activity was observed in the area and it could not be determined what bird species occupied the nest at that time. A pair of Swainson's hawks was observed during project area surveys on May 2, 2002 (Lockman, personal communication). No raptor nesting activity took place in the box elder nest tree in the project area in 2002 or 2003.

No observations of ferruginous hawks have been made in or near the project area by US Forest Service biologists during site visits.

Environmental Consequences

There should be no change in the existing condition for ferruginous hawks in or near the project area with the No Action Alternative.

Petroleum development in breeding areas appears to have no negative impacts on the productivity of ferruginous hawks (Zelenak and Rotella 1997). The number of fledglings produced per nest in disturbed versus undisturbed areas of north central Montana did not differ, and no mortalities were directly attributed to oil-field activities (Van Horn 1993).

Mitigation Measures

There are no known nest locations of ferruginous hawks within 0.50 miles of the project area. The protection provided by the mitigation measure for Swainson's hawks is identical to that prescribed for the ferruginous hawk (TBNG LRMP). Therefore, no additional mitigation measures are needed.

Conclusion and Determination

The known nest in the Project Area is suspected to be used by Swainson's hawks. But it is a suitable nest site for ferruginous hawks as well. The same mitigation measure will apply.

Alternative 1, no action, will have "No Impact" on ferruginous hawks or their habitat.

Alternative 2 "May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing".

Alternative 3 "May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing".

Loggerhead Shrike

Loggerhead shrikes occupy open country with scattered trees and shrubs (NatureServe 2002). Found across Wyoming in basin-prairie shrublands, sagebrush grasslands, shrub-steppe, and woodland habitats (Cerovski et al. 2001). Loggerhead shrikes nest in shrubs or small trees and feed primarily on large insects, small birds, lizards, frogs and rodents. Most often hunts from a perch over areas of shorter grasses and impales food items on a thorny plant or barbed wire to be eaten later or fed to its young.

Threats to the species include habitat loss and conversion of native prairie shrublands to cultivated croplands and urbanization, pesticide control of insects and pesticide contamination (Cerovski et al. 2001).

The global trend for loggerhead shrikes is declining. In the Northern Shortgrass Prairie Physiographic Region #39, loggerhead shrike populations appear stable. Trend interpretation for breeding loggerhead shrikes in Bird Conservation Region #17, Badlands and Prairies, indicates a possible increase in the population (Panjabi 2001).

State-wide populations of loggerhead shrikes are secure in Wyoming (NatureServe 2001). Loggerhead shrikes have been recorded on the Soda Well breeding bird roadside route #46 (Cerovski et al. 2001).

Loggerhead shrike habitat is present in and around the Yates Oil well project area. Loggerhead shrikes have not been noted in or near the project area by US Forest Service biologists during site visits but it is likely that they use the area.

Environmental Consequences

There should be no change in the existing condition for loggerhead shrikes in or near the project area with the No Action Alternative.

A negligible amount of shrub and grass habitat would be lost compared to what is available in the Project Area under either Alternative 2 or 3. No effects are expected to this species.

Recommendations

Trees and shrubs used for nesting and perching should be protected from cattle grazing and rubbing.

Conclusion and Determination

Alternative 1, no action, will have “No Impact” on loggerhead shrikes or their habitat.

Alternative 2 will have “No Impact”.

Alternative 3 will have “No Impact”.

Long-billed Curlew

Long-billed curlews use expansive, open, level to rolling shortgrass or grazed mixed grass prairie generally within proximity of water. Short vegetation is used for nesting. Long-billed curlews nest on the ground, often near a rock, manure pile or other conspicuous object (NatureServe 2002). Long-billed curlews feed on a variety of insects. During migration it feeds along mudflats and shorelines for crayfish, crabs, snails, frogs and toads.

Threats to the species are due to habitat loss, fragmentation and degradation as grasslands and rangelands are converted to croplands, pastures and urban developments (The Nature Conservancy 2002d).

Population declines in the western U. S. are local, not widespread. Twenty-six percent of long-billed curlews breed in the Northern Shortgrass Prairie Physiographic Region #39. Long-billed curlew populations in the Northern Shortgrass Prairie Physiographic Region #39 are uncertain. Trend interpretation for breeding long-billed curlews in Bird Conservation Region #17, Badlands and Prairies, indicates a significant decline in the population (Panjabi 2001).

State-wide populations of long-billed curlews are vulnerable in Wyoming (NatureServe 2002). Long-billed curlews are recorded in northern Campbell County, Wyoming but have not been recorded on the Soda Well breeding bird roadside route #46 (Cerovski et al. 2001).

Long-billed curlew habitat exists in and near the Yates oil well project area. Long-billed curlews have not been noted in or near the project area by US Forest Service biologists during site visits.

Environmental Consequences

There should be no change in the existing condition for long-billed curlews in or near the project area with the No Action Alternative.

A negligible amount of shrub and grass habitat would be lost compared to what is available in the Project Area under either Alternative 2 or 3. No wet meadows would be disturbed. No effects are expected to this species.

Mitigation Measures

None recommended.

Conclusion and Determination

Alternative 1, no action, will have “No Impact” on long-billed curlews or their habitat.

Alternative 2 will have “No Impact”.

Alternative 3 will have “No Impact”.

Upland Sandpiper

Upland sandpipers use extensive, open tracts of short grassland habitat (The Nature Conservancy 1998b). Ground nests are concealed in patches of taller vegetation (6 inches to >12 inches) (Cerovski et al. 2001). Upland sandpipers feed almost exclusively on insects and occasionally on seeds and waste grain (NatureServe 2002).

Loss and fragmentation of habitat due to increased urbanization, changes in farming practices and natural forest succession pose the most serious threats to upland sandpiper populations (NatureServe 2002).

The global trend for upland sandpipers is increasing. Upland sandpiper populations in the Northern Shortgrass Prairie Physiographic Region #39 are possibly increasing. About twenty-four percent of the breeding population of upland sandpipers occurs in Bird Conservation Region #17, Badlands and Prairies. The trend for upland sandpipers in Region #17 is stable (Panjabi 2001).

Populations of upland sandpipers in Wyoming appear to be increasing (Sauer et al. 2002). Upland sandpipers are recorded in northern Campbell County, Wyoming as well as on the Soda Well breeding bird roadside route #46 (Cerovski et al. 2001).

Upland sandpiper habitat exists in and near the Yates oil well project area. A pair of upland sandpipers was seen along Forest Service Road 903, near the project area by the author on May 27, 2003.

Environmental Consequences

The disturbance of habitat (~2.7 to ~2.97 acres) for this species is expected to be minimal under Alternatives 2 & 3. This amount of habitat is small compared to available habitat near the Project Area. The disturbed areas may provide suitable habitat once they are reclaimed. The timing limitations imposed on construction activities to protect the Swainson's hawk nest during the breeding season will also protect this ground nesting species. Use of roads, especially vehicle activity on Forest Service Road #903 to and from a producing well, could cause the loss of eggs, young or adult upland sandpipers.

Wildfire occurred near the project area recently. This enhanced grass habitat in/near the project area for upland sandpipers. The use of sage killing herbicides (Spike) has also enhanced grass habitat conditions for prairie dogs in/near the project area.

Mitigation Measures

The current timing limitation for the Swainson's hawk should also provide protection for nesting sandpipers. No further mitigation recommended.

Conclusion and Determination

Alternative 1, no action, will have "No Impact" on upland sandpipers or their habitat.

Alternative 2 "May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing".

Alternative 3 "May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing".

Western Burrowing Owl

Burrowing owls are migrants. Optimal habitat for burrowing owls include open grasslands and prairies with short, sparse vegetation along with fresh unoccupied burrows for underground nesting and roosting (NatureServe 2002). Burrowing owls rarely excavate their own burrows, preferring to enlarge or modify existing burrows made by ground squirrels, badgers or prairie dogs (The Nature Conservancy 1998c). In the Great Plains and Wyoming, burrowing owls are strongly associated with prairie dog colonies. Burrowing owls reuse traditional nesting areas (Deschant et al.2001). Burrowing owls feed primarily on insects during the day, but will forage on small mammals and reptiles at night as well (Cerovski et al. 2001).

Threats to burrowing owls include habitat loss, fragmentation and degradation from widespread control and extermination of prairie dogs and ground squirrels as well as conversion of prairie, grasslands to irrigated agriculture and intensive development (The Nature Conservancy 2002e).

Dramatic declines and range contraction of burrowing owls has occurred throughout the West (The Nature Conservancy 1998c). Burrowing owl populations in the Northern Shortgrass Prairie Physiographic Region #39 are possibly declining. In Bird Conservation Region #17, Badlands and Prairies, the trend for burrowing owls is uncertain (Panjabi 2001).

The population trend of burrowing owls in Wyoming is unknown. In Wyoming in 1999, 103 previously reported sites were surveyed and only 18% were occupied by burrowing owls (Korfanta, et al., 2001). Burrowing owls are recorded in northern Campbell County, Wyoming, but not on the Soda Well breeding bird roadside route #46 (Cerovski et al. 2001).

Burrowing owl habitat exists within two miles of the proposed drilling site, at the same black-tailed prairie dog colony discussed earlier in this document. This prairie dog colony has been surveyed for prairie dogs and burrowing owls in 1976, 1980, 1984, 1986, 1988, 1997, 2001, and 2002. Burrowing owls have been reported to nest there in the past, but none were seen in 2002 (Lockman, personal communication).

Environmental Consequences

There should be no change in the existing habitat of burrowing owls at the black-tailed prairie dog town within two miles of the project area with the No Action Alternative.

There is no difference in effects to burrowing owls with either Alternative 2 or Alternative 3. Neither alternative proposes any action that would directly change habitat conditions for burrowing owls. Both action alternatives would improve road access into the project area. Improved road access associated with the project within two miles of burrowing owl habitat, at the black-tailed prairie dog town, may increase incidental mortality to prairie dogs (and possibly burrowing owls) by recreational shooting. Removal of prairie dogs from colonies is followed by rapid deterioration of burrows and encroachment of dense vegetation eventually rendering the habitat unsuitable for nesting burrowing owls (Dechant, et al., 2001). No other direct or indirect effects to burrowing owls are anticipated with the implementation of Alternative 2 or 3.

Mitigation Measures

There are no known burrowing owl nests within 0.25 miles of the project Area. No mitigation measures are recommended (TBNG LRMP).

Conclusion and Determination

Alternative 1, no action, will have "No Impact" on western burrowing owls or their habitat.

Alternative 2 "May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing".

Alternative 3 "May adversely impact individuals, but not likely to result in a loss of viability in the Planning Area, nor cause a trend toward federal listing".

Threatened and Endangered Species Consultation History

In accordance with the Section 7 of the Endangered Species Act, Federal agencies are required to request written concurrence from U. S. Fish and Wildlife Service (USFWS) with respect to the determination of potential effects on threatened, endangered or proposed species.

The project scoping document was sent to Michael M. Long, USFWS, Field Supervisor, at Cheyenne, WY on February 19, 2002. In accordance with Section 7 of the Endangered Species Act, Mr. Long responded to the scoping letter on March 20, 2002 with a list of four threatened, endangered or proposed species that may occur in the project area. These are listed in the table below.

The Biological Assessment and Evaluation for Revised Land and Resource Management Plans and Associated Oil and Gas Leasing Decisions prepared in December 2002 in support of the TBNG LRMP (USDA Forest Service 2002) identified four species that are protected under the Endangered Species Act and at risk of range-wide imperilment: Ute Ladies'-tresses, bald eagle, black-footed ferret, and mountain plover. Determinations of effect for the remaining three applicable species are "no effect" for Ute Ladies'-tresses, "May affect, not likely to adversely affect" for bald eagle, and "May affect, not likely to adversely affect" for black-footed ferret.

Listed and Proposed Species

Species	Status	Habitat
Black-footed Ferret <i>(Mustela nigripes)</i>	Endangered	Prairie Dog Colonies
Bald Eagle <i>(Haliaeetus leucocephalus)</i>	Threatened	Large trees adjacent to riparian areas with fish
Mountain Plover <i>(Charadrium montanus)</i>	Proposed	Flat, dry, sparsely-vegetated short-grass prairie and shrub steppe
Ute Ladies'-tresses <i>(Spiranthes diluvialis)</i>	Threatened	Seasonally moist soils and wet meadows of drainages below 7000 feet elevation

This project was reviewed by Bradley Rogers, USFWS who is part of the Level 1 Streamlining Team, in Casper, WY on February 19, 2003. The Level 1 Streamlining Team preliminarily determined that the project would have no effect on black-footed ferrets, bald eagles and Ute's Ladies'tresses. The streamlining team preliminarily determined that the project is not likely to jeopardize the continued existence of the mountain plover.

After the release of the Draft Mountain Plover Project Screen in July 2003, this project was informally conferenced with Bradley Rogers on July 16, 2003 with regard to access management.

On March 9, 2003 the USFWS determined that the mountain plover did not warrant listing and withdrew its proposal to list this species under ESA. Mountain plover is addressed as a USFS sensitive species in the Biological Evaluation for this project.

Species Assessments

Ute's Ladies'-tresses

Ute's Ladies'-tresses are not documented to occur in the project area or the Spring Creek Geographic Area (Wyoming Natural Diversity Database, 2002). Potential habitat for Ute's Ladies'-tresses exists along the West Fork of Duck Creek in the project area. The potential habitat for Ute's Ladies'-tresses in the project area was field reviewed the third week of June, 2002, by John Proctor, US Forest Service, Botanist. During the field review of the project area, John Proctor determined that the West Fork of Duck Creek did not have suitable habitat for Ute's Ladies' – tresses.

The Yates oil well project will have **no effect** on Ute's Ladies'-tresses or their habitat. No further discussion or analysis of Ute's Ladies'-tresses will occur in this document.

Bald Eagle

Bald eagles rarely breed on the Thunder Basin National Grassland. Numerous winter roost sites have been documented. The project area may receive infrequent use by migrating bald eagles. However, bald eagles have never been recorded near or within the project area. No known nesting or roosting areas for bald eagles occur within one mile of the project area.

None of the alternatives would have any direct, indirect, or cumulative effect on bald eagles or their habitat. The preferred Alternative 3 of the Yates oil well project will have **no effect** on bald eagles or their habitat. No further discussion or analysis of bald eagles or their habitat will occur in this document.

Black-footed Ferret

Black-footed ferrets are an obligate associate with prairie dogs and occupy the same habitat as prairie dogs. Black-footed ferrets are nocturnal and spend much of their time underground in prairie dog burrows. Black-footed ferrets prey on prairie dogs and utilize their burrows for shelter and denning. For complete information on the ecology and habitat of black-footed ferrets (Byer et al. 2000).

Habitat Requirements

It has been estimated that about 100-150 acres of an active prairie dog colony is required to support one ferret (NatureServe, 2001). A minimum prairie dog complex size of 7,490 to 12,840 acres would be needed to support a minimum viable population of 214 adult ferrets (Byer et al. 2000).

Threats to the Species

The main causes of decline in the ferret population included habitat loss, prairie dog and predator control programs, and diseases such as sylvatic plague and canine distemper.

Management Direction

Black-footed ferrets were listed as endangered in 1967 and are protected under the Endangered Species Act. The latest recovery plan was approved in 1988 and national recovery objectives were established. The recovery plan involves captive propagation and reintroductions into suitable habitat that encourages the widest possible distribution of reintroduced black-footed ferret populations (Federal Register, 1991).

On February 2, 2004, the USFWS issued a letter stating that surveys for black-footed ferret surveys are no longer required in black-tailed prairie dog towns statewide (WY) or in white-tailed prairie dog towns except those specifically noted.

The 2002 Thunder Basin National Grassland Land and Resource Management Plan provides management direction for black-footed ferrets. Grassland-wide standards and guideline direction for black-footed ferrets can be found on pages I-14-I-15. Oil and Gas Stipulations for black-footed ferrets are found on pages D-10-D-12.

Black-footed ferret reintroduction habitat has been established for Thunder Basin National Grassland. Management direction for Management Area 3.63 Black-footed ferret Reintroduction Habitat is found on pages 3-16 and 3-17 in the 2002 Thunder Basin National Grassland Land and Resource Management Plan.

Current Population Information

Black-footed ferrets have been extirpated from most of its large, former range. Biologists consider black-footed ferrets to be the most endangered mammal in the United States (US Fish and Wildlife Service, 1998). In 1987, the last known wild black-footed ferrets were taken from the wild in Wyoming. Despite extensive surveys, wild ferrets have never been confirmed on Thunder Basin National Grassland.

In 1991, an experimental, non-essential population of black-footed ferrets were reintroduced into Shirley Basin in Carbon County which is in southeast Wyoming. Arizona, Colorado, Montana, South Dakota and Utah also have experimental, nonessential populations of black-footed ferrets as a result of reintroduction efforts.

Existing Environment (Baseline)

Management Area 3.63 Black-footed ferret Reintroduction Habitat does not occur near or within the project area or the Spring Creek Geographic Area.

Four black-tailed prairie dog colonies exist on National Forest System Lands in the Spring Creek Geographic Area. A distance of less than 4 miles exists between these four colonies. The combined size of this four town complex is over 100 acres. One of the four black-tailed prairie dog towns in this complex, number 102-1, occurs within two miles of the proposed drilling site (See Figure 5).

Surveys were done for black-footed ferrets in two of the four prairie dog towns in the Spring Creek complex in 1984 and 1988. Prairie dog town number 102-1 was one of the two towns in the complex that was surveyed for black-footed ferrets. There is no evidence to suggest that black-footed ferrets occupy this particular prairie dog colony or any other prairie dog town in the Spring Creek Geographic Area or on Thunder Basin National Grassland. No black-footed ferrets have been found in any black-tailed prairie dog town on Thunder Basin National Grassland, despite extensive survey efforts over the past twenty-two years (Tim Byer, pers. comm.). No black-footed ferret reintroduction efforts are proposed in any prairie dog towns in the Spring Creek Geographic area.

The US Forest Service reported a recent decline of 57% in occupied black-tailed prairie dog habitat on National Grasslands (NatureServe, 2002). Thunder Basin National Grassland reported 18,340 acres in 146 active prairie dog colonies in 1998 (Byer et al. 2000). Sylvatic plague was discovered in black-tailed prairie dog colonies on and near Thunder Basin National Grassland in 2001. It has

been estimated that sylvatic plague reduced the amount of active prairie dog acres by about 14% across Thunder Basin National Grassland.

The original size of prairie dog town #102-1 was approximately 35 acres. About half of the town died from a recent outbreak of sylvatic plague, reducing the size of the colony and number of prairie dogs occupying the town (Cristi Lockman, pers. comm.). Plague has reduced the potential prey base for black-footed ferrets in potential black-footed ferret habitat in prairie dog colony 102-1. This is the first incidence of plague reported in prairie dog towns in the Spring Creek area (Tim Byer, pers. comm.). The other three prairie dog towns in the Spring Creek complex do not appear to be infected with plague.

One other prairie dog town occurs on private land, in the vicinity of the Spring Creek area. This town is also within four miles of the National Forest System land prairie dog towns and could be considered part of the same black-tailed prairie dog complex. Poisoning of prairie dog populations may be occurring on private holdings.

Shooting of prairie dogs may be occurring on private and public lands near the project area and in the Spring Creek Geographic area.

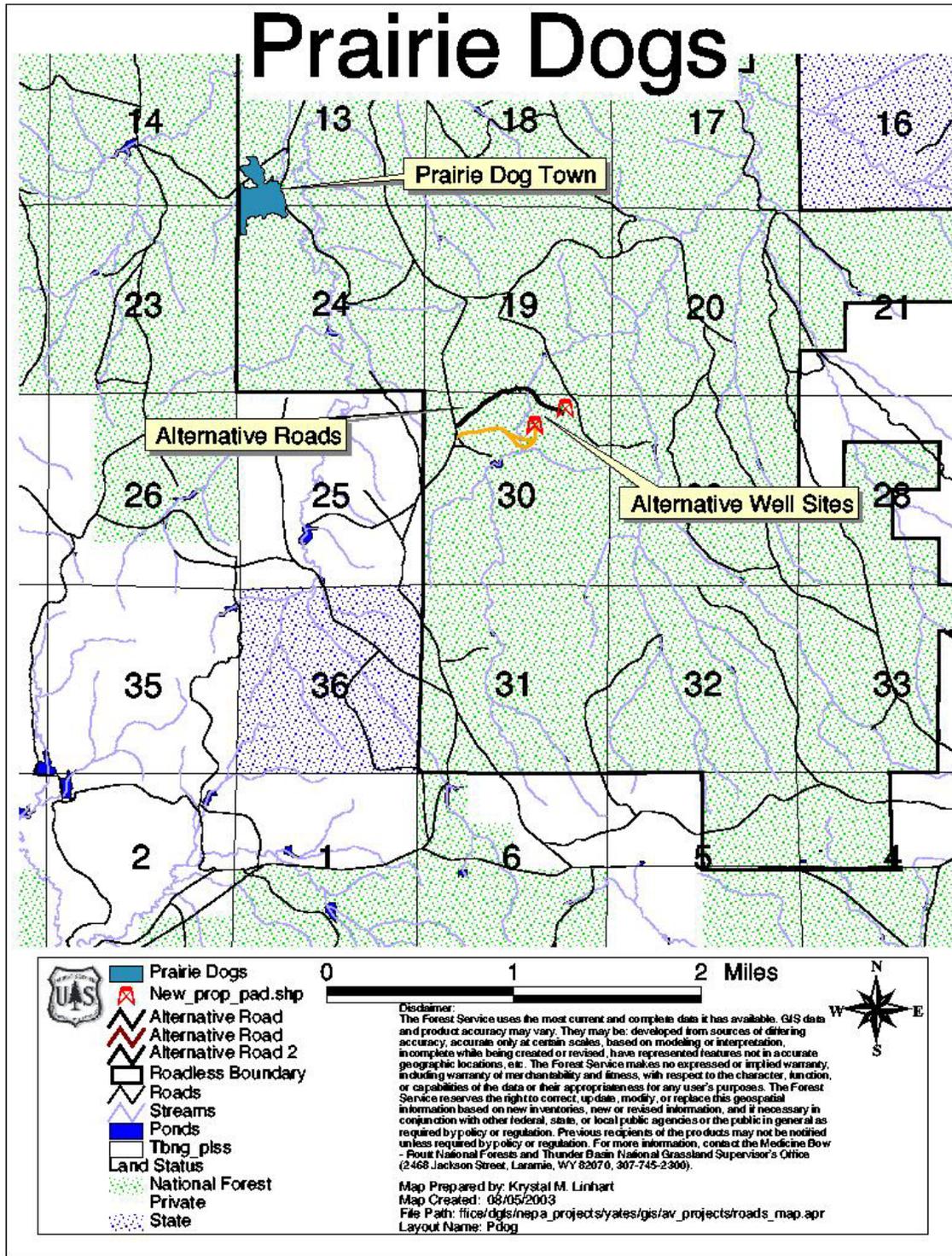


Figure 5. Map of prairie dog towns in vicinity of proposed Yates Duck Creek Federal Well #1. Effects of Proposed Activities

There should be no change in the existing condition of black-tailed prairie dog town #102-1 or potential, unoccupied black-footed ferret habitat within two miles of the project area as a result of the No Action Alternative.

There is no difference in effects to the black-tailed prairie dog town or potential black-footed ferret habitat with either Alternative 2 or the preferred Alternative 3. Construction activities within the project area would occur approximately two miles away from the closest black-tailed prairie dog colony number 102-1. Neither Alternative 2 or preferred Alternative 3 has any activities proposed that would directly or indirectly modify habitat conditions for black-tailed prairie dogs or black-footed ferrets near the project area.

Both Alternative 2 and Alternative 3 would improve access on Forest Road #903 into the project area. Improved road access, increased travel and other activities associated with this project would occur nearly two miles away from the nearest black-tailed prairie dog colony and potential black-footed ferret habitat.

None of the Thunder Basin Grassland-wide standards and guideline direction or Oil and Gas Stipulations for black-footed ferrets would be applicable to this project.

Cumulative Effects

No cumulative effects to black-footed ferrets are anticipated.

Reasonably Foreseeable Development

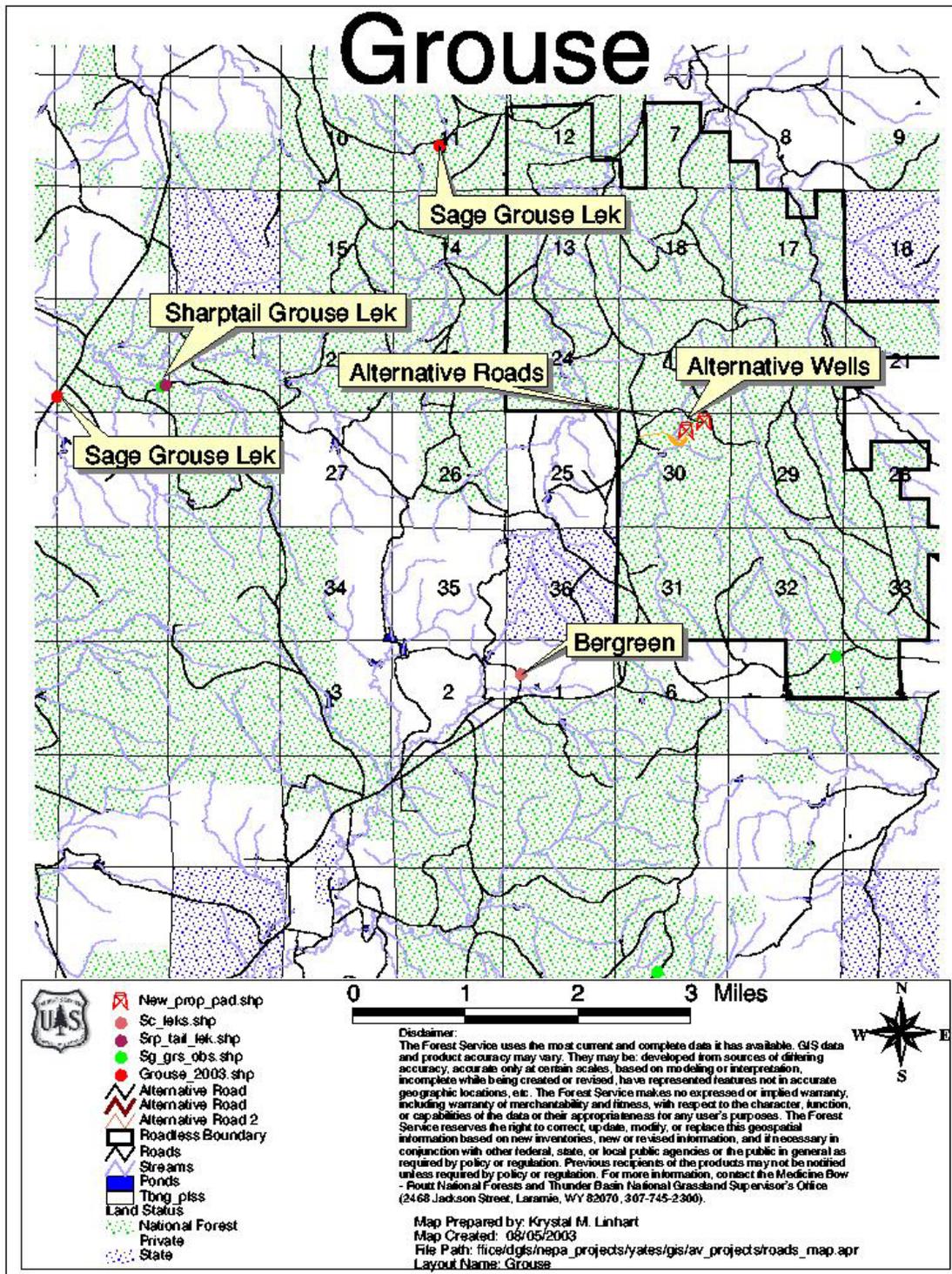
If oil is discovered at the preferred Alternative 3 well site, further oil field development could potentially occur on private, state or federal lands in the vicinity of the project area. More access and ground disturbing activities could occur within closer proximity to existing prairie dog towns which are potential black-footed ferret habitat in the Spring Creek Geographic Area. Recreational shooting of prairie dogs could also increase with increased and improved access in the vicinity of new developments. However, the likelihood of success of drilling a productive exploration well is about 10%. The likelihood of discovering a field with 2-3 well capability is 2-5%. (Fred Crockett, Casper BLM, pers. comm.) Therefore the likelihood of any additional effects from future development is highly speculative at this point in time and will depend on the outcome of this well.

Conclusion and Determination

No Action, Alternative 1, will have **no effect** on black-footed ferrets or their potential habitat.

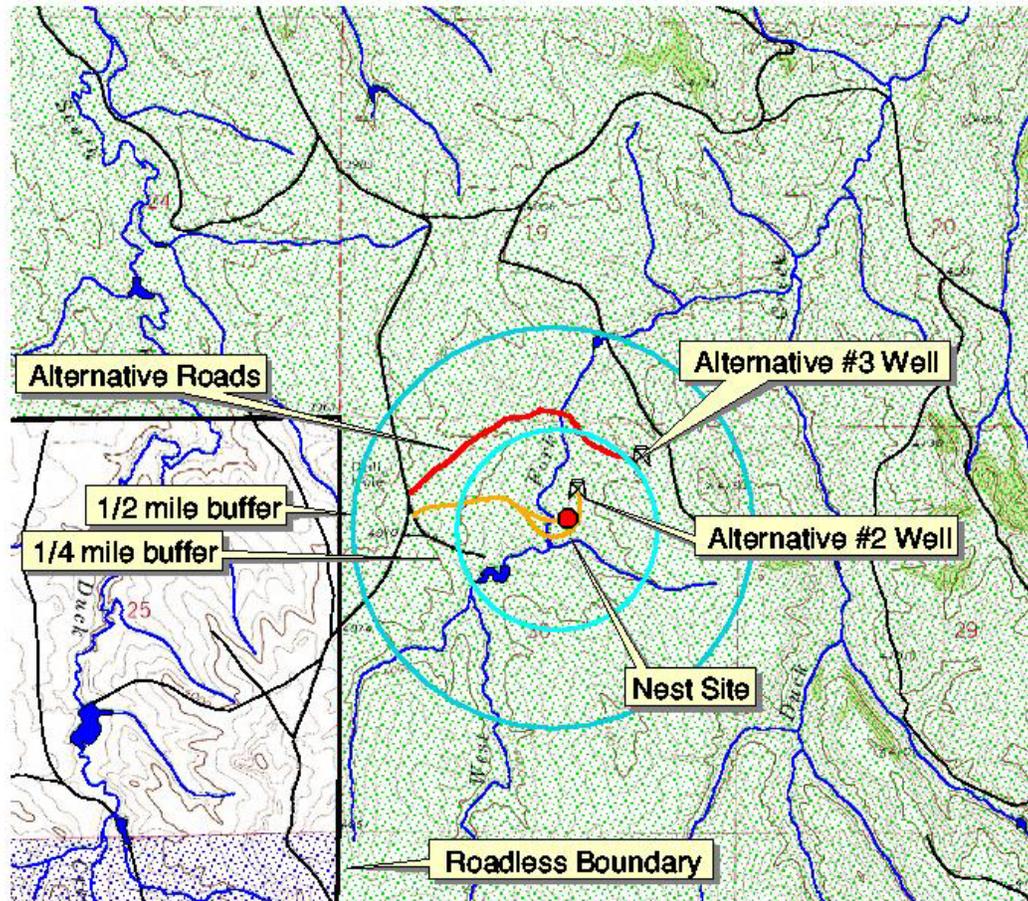
No black-footed ferrets are known to occupy any black-tailed prairie dog towns in the project area, the Spring Creek Geographic Area, or Thunder Basin National Grassland. Black-footed ferret reintroduction is not proposed near the project area or in the Spring Creek Geographic Area of Thunder Basin National Grassland. Disturbance to the habitat of black-tailed prairie dog town 102-1, within two miles of the project area, would not occur with the implementation of either Alternative 2 or 3. Alternative 2 would have **no effect** on black-footed ferrets or their potential habitat.

The preferred Alternative 3, will have **no effect** on black-footed ferrets or their potential habitat.



Map A. Map of sage grouse and sharp-tailed grouse leks in the vicinity of the proposed Yates Duck Creek Federal Well #1.

Nest Buffers



UAS

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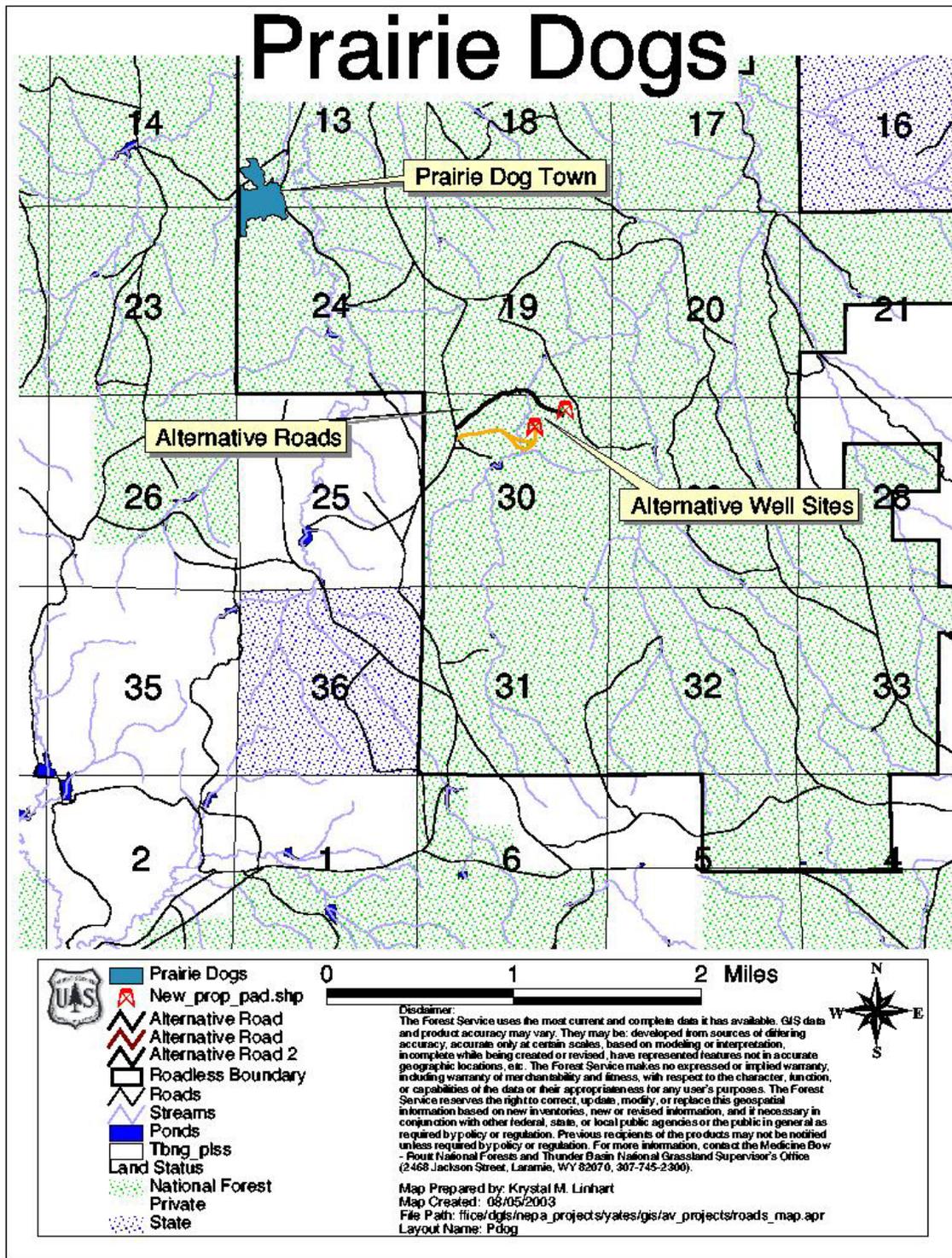
W N E S

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	Prop_new_route.shp
	Raptor Nest
	Alternative Road
	Proposed Road
	Roadless Boundary
Land Status	
	National Forest
	Private
	State

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 Map Created: 07/07/2003
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 Layout Name: Nest Buffers

Map B. Map of Swainson's hawk nest showing 1/4 mile and 1/2 mile buffers and proposed well site.



Map C. Map of prairie dog towns in vicinity of proposed Yates Duck Creek Federal Well #1.



raptor nest with Alt #2 and Alt #3 wells sites in back ground

No sensitive plants occur on Thunder Basin National Grassland. Nine of the sixteen sensitive terrestrial species listed above for Thunder Basin National Grassland do not have habitat present or are not known to occur near the Yates Petroleum oil well project area. This proposal will have **no impact** on black-backed woodpeckers, black terns, fox sparrows, Lewis' woodpeckers, northern goshawks, pygmy nuthatches, yellow-billed cuckoos, tawny crescent butterflies and fringe-tailed myotis. No further discussion of these nine species will occur in this document. Sensitive aquatic species, that may be affected by this proposal, are evaluated by different authors under separate cover.

3.5 Recreation

3.5.1 Affected Environment

The analysis area for Recreation Resources for this project involves that area as defined in Chapter 1, **Analysis Area**, along with the western edge of the IRA, and more specifically from a viewshed perspective as witnessed at each alternative access road and well site.

Recreation in the area consists mainly of Big Game hunting. Most of these activities are associated with 4X4 and All Terrain Vehicle (ATV) motorized access. Legal public motorized access onto the road system within the western part of the IRA is over a network of low standard NFS roads off of the Rocky Point Road (Campbell County Road 85), which is to the west of the IRA. The main road access point that most of the general public uses is NFS road 903A which exits the Heald Road (Campbell County Road 49) at the southern part of the IRA. This low standard, maintenance level 2, road passes about ¼ mile through NFS lands which then intersects with NFS road 903. This road

then passes through State and private lands before again entering NFS lands. The private landowner has not prohibited general public access through this private in-holding. There is no legal public motorized access to the NFS road system in the eastern part of the IRA area.

There are no system trails in the area. Off-road motorized vehicular travel is restricted under the current Plan, 2001 Revision. The revised plan requires motorized vehicle users to keep vehicle use on existing roads and trail.

Other recreation uses in the area that occur throughout the year include: dispersed camping, ATV riding, small game hunting, viewing scenery and wildlife, horseback riding, hiking, and prairie dog shooting. Most of the users of this area are dependant upon motorized vehicle access. Very little, if any recreation use is without motorized travel, although a percentage of the actual recreation users desire non-motorized experiences. On a more national perspective, there are many members of the public, as well as organized conservation groups, that strongly support the existence of Roadless Areas on NFS lands.

Recreation Uses

Due to its close proximity to Gillette, Wyoming, the Spring Creek Unit on the TBNG receives the heaviest recreation uses of any area on this grassland. The most concentrated and year-round uses occur on the western part of the Spring Creek Unit, where it adjoins a large area of BLM land.

The heaviest use season is the fall Big Game hunting season. Local and out of state hunters begin arriving in September for the bow season for deer and antelope, and a concentrated very high use period occurs in October of each year for the deer and antelope rifle seasons. Many of the locals will drive to and from this area each day, rather than stay and disperse camp.

Many of the current users of the area are motorized vehicle dependant for their access and travel through the area. Most of these users would not be very affected by the development of the road and oil and gas producing facilities. Many such roads and facilities currently exist throughout the Spring Creek Unit.

National Wilderness System Lands (NWSL)

There are no designated National Wilderness System lands within or in proximity of the project area. Duck Creek was evaluated during the 2001 Revision effort along with other areas having potential for Wilderness Designation. FEIS Alternative 3, the selected Alternative, made no recommendations for Wilderness areas.

Inventoried Roadless Areas (IRAs)

The Duck Creek IRA is within a mixed grass prairie ecosystem. The western portion of this area consists of an open and rolling landscape of grasses and sagebrush with incised drainages between the low-lying ridges. These drainages are mostly intermittent. Small stock water impoundments are located within most of these drainages and occasional windmills are located throughout the area to further facilitate livestock management, which has historically been the predominant commodity use in the area. The eastern part of this area consists of a more deeply incised drainage system known locally as "breaks". This deeper drainage system results in steeper and higher walls and escarpments rising up from the drainage bottoms. The landscape here is more "butte-like" and rugged than the eastern part of the roadless area, and the dominant vegetation throughout is relatively short growth Ponderosa Pine. The landscape in this area appears quite natural, although a fair amount of off-highway motorized recreation occurs, having created several two-track trails. Thirty-four ponds and 14 water points, including windmills, are found within the area on USFS jurisdictional lands. One water pipeline with four water tanks exist in the area, as do several power lines and some oil and gas pipelines. The vegetative integrity in this area is excellent, although some exotic plants and noxious weeds have established themselves

The private lands bordering the IRA consist of ranches held since the early 1900's. The major resource for the landowners is cattle grazing. Very little crop agriculture exists because of the lack of irrigation water.

Unique Features / Biological Diversity

Unique features include those special geological, biological, cultural, or scenic features that may be located within the area. Although this discussion might fit into the Wildlife or Range section of this Chapter, it is inserted here because of the 'Special Biological Diversity' component for which the Duck Creek area was identified in the O&G ROD. It was for these same reasons that Duck Creek was inventoried for 'roadless' values and further proposed for Wilderness designation.

Oil and Gas Leasing on the Thunder Basin National Grassland (OGLTBNG) FEIS (from which the O&G ROD was written). Alternative 7, p. 11-17 **Areas with Special Values** – Alternative 7 applies NSO stipulation to four areas with special values and limited or undeveloped road access. These four are: Duck Creek, ...“Within the larger surrounding area, these four areas are unique in terms of 1)vegetation; 2)the types of biological communities; 3) the excellent condition of biological communities; 4)the relationship of these communities to one another; 5) the kinds of species present, 6) the relationships among the species; and 7) beauty of the land.

Natural Integrity

Natural integrity is the extent to which long-term ecological processes are intact and operating. Impacts to natural integrity are measured by the presence and magnitude of human-induced change to an area. Such impacts include physical developments (e.g. roads, fences, cabins), recreation developments, domestic livestock grazing, and mineral developments. Apparent naturalness (appearance) means that the environment looks natural to most people using the area. Even though some of the long-term ecological processes of an area may have been interrupted, the landscape of the area generally appears to be affected by the forces of nature.

There are no Forest Service designated motorized trails in the Duck Creek IRA and off-road use is prohibited. Illegal off-road use does occur however, as evidenced by vehicle tracks diverging from the existing and well traveled two-track roads.

Opportunities for Solitude and Remoteness

Solitude is a personal, subjective value defined as isolation from the sights, sound and presence of others, and human developments. Solitude can be impacted by numbers of people and parties encountered on a trail or in a camping area, human-generated noise, or improved access. Remoteness is a perceived condition of being secluded, inaccessible, and out-of-the-way. The physical factors that can create remote settings include topography, vegetative screening, changes in legal public access, and the distance from human impacts such as roads and mineral operations (sight and sound). Opportunities exist for hiking across isolated areas of Duck Creek IRA, although man-made intrusions are visible within the proposed project area because of the lack of ground cover.

Opportunities for solitude and serenity are still high within the Duck Creek IRA. The Duck Creek IRA provides for this experience where human activity is the least pronounced, away from existing roads and other human created 'improvements'. Even with the illegal, off-road use and trail creation, Duck Creek offers a high quality, semi-primitive non-motorized recreational experience. The proposed project site lies within ¾ mile of private land and within the same from a State parcel. The scenic integrity of the area could be compromised by visual intrusions that could be constructed or installed on those parcels but visible from within the IRA.

Primitive Recreation Opportunities

A primitive recreation experience includes the opportunity to experience solitude, a sense of remoteness, closeness to nature, serenity, and spirit of adventure in an environment that offers a high degree of challenge and risk. Impacts related to primitive recreation experiences are usually expressed in changes to the physical setting, activities occurring in the area, and changes to the social experiences of others.

The combination of high mountain ridges and valley provide choice recreational settings for hunting, hiking, backpacking, and nature appreciation. As discussed previously, the activities at the proposed project site could reduced a sense of solitude and remoteness in the localized area; however, the opportunities for primitive recreation remain moderate.

Recreation Opportunity Spectrum

Recreation Opportunity Spectrum (ROS) provides a framework for stratifying and defining classes of outdoor recreation environments, activities, and experience opportunities. The settings, activities, and opportunities for obtaining experiences have been arranged into six classes along a continuum or spectrum. The classes are as follows: Primitive, Semi-Primitive Non-Motorized, Semi-Primitive Motorized, Roaded Natural, Rural, and Urban.

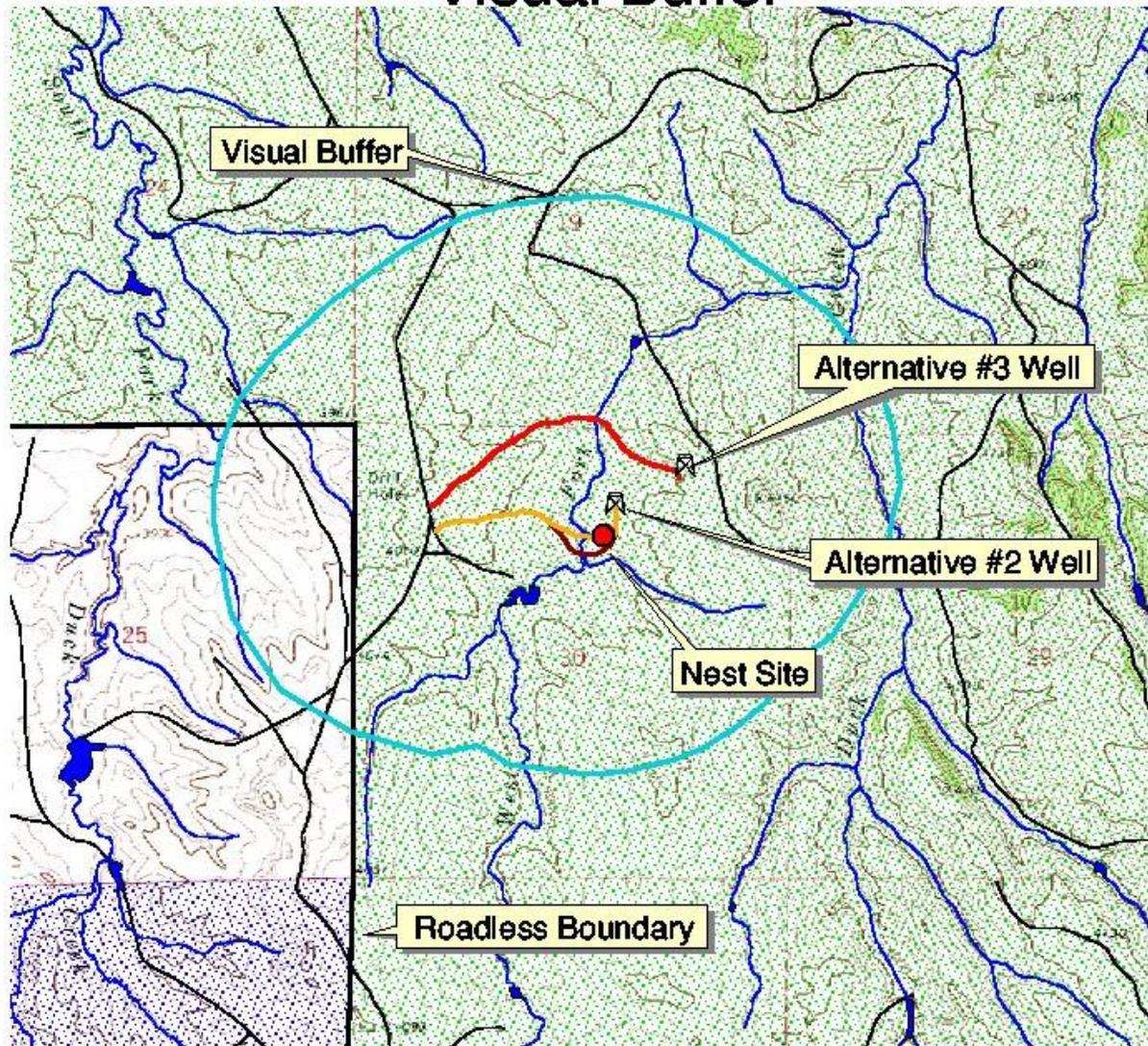
The ROS class designation for the project area is Semi-Primitive Motorized, which allows motorized travel on open designated routes. Very good gravel roads or two-track roads providing motorized recreation opportunities surround this Semi-Primitive Motorized area. Semi-Primitive Motorized areas are characterized by predominantly natural appearing environment of moderate to large size. Concentration of users is low, but there is often evidence of other users. Areas are managed in such a way that minimum on-site controls and restrictions may be present but are subtle. Motorized access is allowed but typically not accessible by sedans, trailers, RVs, or motor homes. Although the ROS class assigned to the project area is Semi-Primitive Motorized, much of area offers a Semi-Primitive Non-Motorized experience due to the inclusion of the Duck Creek IRA.

Manageability and Boundaries

Manageability and Boundaries relates to the ability of the Forest Service to manage the area to meet size criteria (5,000 acres) and the other features discussed above. Changes in the shape of an area influence how it can be managed. The location of other proposed projects outside the area are also factors to be considered.

The majority of the Duck Creek IRA has satisfactory manageability characteristics. Despite the illegal, off-road use mentioned above, the area still offers a high quality semi-primitive, non-motorize recreation experience due to its diverse topography.

Yates Federal Well #1 Visual Buffer



- Well Pad
- Alternative #3 Road
- Raptor Nest
- Alternative #2 Road
- Decom. Road
- Roadless Boundary
- Land Status**
- National Forest
- Private
- State

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 Map Created: 07/07/2003
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 Layout Name: Road Buffers

3.5.2 Environmental Consequences

Consequences Common to all Alternatives

Recreation activities and use would probably continue in the area regardless of the selected alternative. Based on nationwide trends, recreation use in the area would increase over time. The existing roads/trails would continue to be used and possibly more illegal trail creation would continue.

Alternative 1, No Action

Selection of this alternative would not preclude additional uses taking place, either legal or illegal. If the USFS did not authorize the SUPO and BLM did not authorize the associated APD for the proposed project, the scenic integrity of the area would remain essentially the same. Visual quality of the area would likely continue until other authorized uses are issued. User created roads would still exist within the Duck Creek IRA and illegal, off-road use would probably continue. Hunting pressure would probably remain constant as would opportunities for solitude and isolation.

Choosing the 'no action' alternative for this project would not preclude other user permits being entertained or being authorized. The lessee could submit additional APDs for drilling and production within the same lease hold and other lease holders could do the same for adjoining leases within the Duck Creek IRA.

Alternative 2, Proposed Action

Because the proposed well site would sit on a middle terrace visible in most directions, visual impact to the landscape would increase especially within a ½ mile radius of the site. The drilling phase would likely be visible from all directions as the drill rig and associated equipment would extend higher than the surrounding ridges. This proposal would degrade the view shed, characteristics, and setting of approximately 800 acres, or 6%, of the Yates Duck Creek IRA, therefore this action is well within Forest Service established criteria for a significant effect to occur from the proposed activity to this roadless area resource. During drilling operations, audible intrusion would be present at greater than ½ mile radius. If the well goes to production, the derrick and ancillary facilities would be painted a color to blend with the surrounding environment which would lend the production operation less visible, though it could still be seen at some distance. Audible intrusion would be limited to 70 dBA at 90 meters as required in the lease stipulations, therefore production sounds would be limited to approximately 300 feet from the site.

Improvement of existing road, and construction of new road would cause visual intrusion into the landscape now crossed by compacted, unimproved two trail trails. During the drilling phase, the road would be improved and constructed to a 14 foot wide flat-bladed natural surface. If the well goes into production, it would be upgraded to meet design standards for anticipated traffic and would be a highly visible ribbon across the landscape. If the well does not go into production and is plugged and abandoned, the road would be ripped, seeded and fully reclaimed to USFS specifications. Use of the main access roads, the Heald road and FSR903 would also increase the traffic flow by +- 20 vehicles a day, of all sizes, during drilling and 1 large tank truck per week during production phase. A portion of the existing road would be fully rehabilitated, causing a temporary visual intrusion of ripping the surface and reseeding. Use of a seed mixture might create a visual 'green ribbon' across the landscape until the corridor naturalizes into the surrounding landscape.

Recreational activities such as hunting would continue and possibly increase due to the improved road access into Section 30. The improved road and new road construction would pass close to the existing stock water pond which might offer the hunter easier access to big game.

If the well goes into production, the improvement of an existing road and construction of a new road into the Duck Creek IRA will have a significant effect on the roadless characteristics of this area. This determination can be inferred from direction contained in Forest Service Handbook (FSH) 1909.15 – Environmental Policy and Procedures Handbook, Chapters 20 and 30.

Because this alternative proposes to waive or make an ‘exception’ to two Controlled Surface Use stipulations imposed on lease WYW141191, the following is determined: Making an exception to the two stipulations would constitute an issue of non-compliance with the O&G ROD, “To protect special landscape scale biological diversity, my decision provides a level of protection for each of these areas more restrictive than required by the Forest Plan, including ...; CSU on Downs..., Miller Hills..., and Duck Creek ... and another SCU on Rochell Hills.....”. O&G ROD, page ROD-8. Divergence from this direction could compromise ‘existing biological diversity’ of the Duck Creek area.

The addition of an oil well, along with the associated drilling activity and the surface disturbance needed to facilitate the operation would cause a loss of the solitude and serenity of the western portion of the IRA.

Alternative 3, Northern Access Route and Well Site

Because this well would be located within a small basin surrounded on three sides by higher ridges, the production phase (oil derrick and tanks) of the proposal would be visible only from the south. From that aspect, it would be visible for ½ mile or greater. This would not include the access road, which could be visible from a greater distance.

The drilling phase would likely be visible from all directions as the drill rig and associated equipment may extend higher than the surrounding ridges. As in Alternative 2 above, this proposal would degrade the view shed, characteristics, and setting of approximately 800 acres, or 6%, of the Yates Duck Creek IRA, therefore this action is well within Forest Service established criteria for a significant effect to occur from the proposed activity to this roadless area resource. During drilling operations, audible intrusion would be present at greater than ½ mile radius. If the well goes to production, the derrick and ancillary facilities would be painted a color to blend with the surrounding environment which would lend the production operation less visible, though it could still be seen at some distance. Audible intrusion would be limited to 70 dBA at 90 meters as required in the lease stipulations, therefore production sounds would be limited to approximately 300 feet from the site. The addition of an oil well, along with the associated drilling activity and the surface disturbance needed to facilitate the operation will cause a loss of the solitude and serenity of the western portion of the IRA.

Use of the main access roads, the Heald road and FSR903 would also increase the traffic flow by +- 20 vehicles a day, of all sizes, during drilling and 1 large tank truck per week during production phase.

Because this third alternative would not waive or grant an exception to the Controlled Surface Use stipulations, there would be no compromise to the semi-primitive character and biological diversity of the Duck Creek area as regards to the stipulation attached to the lease.



Existing, well-compacted, two-track within Section 30

3.6 Range Resources

3.6.1 Affected Environment

The proposal lies within pasture #1 of the Heald Allotment #109 (4,827 acres), which is administered by the Spring Creek Grazing Association, and permitted by the Douglas Ranger District. This allotment allows for 1437 Animal Use Months, (AUMs), mostly **cow/calf** and bulls. Actual use figures for this allotment are required to be at least 90% of the full allocated AUMs in order to retain the permit or non-use is taken on the allotment, in accordance Forest Service Handbook 2209. The permittee is obligated to maintaining the fences and shares the cost of the materials with the USFS. The Heald allotment is entirely within the Duck Creek IRA and covers 39% of the IRA. The allotment encompasses both USFS and private lands, all within the IRA boundary. Forage consists mainly of mixed grasses and forbs.

Recorded fire data from 1975-2001 shows Spring Creek having a reported fire occurrence of approximately 2 fires per year with an average of 330 acres burned per year. Of the seventeen-recorded fires for that time period, twelve were lighting caused, two were from equipment use, one from debris burning and two listed as miscellaneous. The largest was the Heald Fire 4,566 acres in August 1975. Only fires that burned some or all of their acreage on National Grassland are represented in this data.

3.6.2 Environmental Consequences

Alternative 1 No Action

This alternative would not change the vegetation in the area. It would also have no effect on the livestock grazing or animal distribution in the area nor would it impact management of the grazing permit. Livestock grazing is affected by gates being left open and vandalism to existing fences. These actions happen occasionally and would not be affected by selection of this alternative.

Alternative 2 Proposed Action

The proposed action would remove some of the vegetation for road improvement, construction of new road and construction of the well site. There would be a loss of 2.7 acres of vegetative cover, which would constitute a loss of .005% of the effectiveness of the pasture. Disturbance to the surface and the possibility of the high traffic load bringing weed seeds from outside of the area could cause an increase in noxious weeds in the area, however with the mitigations attached as Standard COAs, infestation would be minimal and would be controlled by the operator.

Alternative 3 Northern Route and Well Site

As stated in Alternative 2, this alternative would remove some of the vegetation for road improvement, construction of new road and construction of the well site. There would be a loss of 2.97 acres of vegetative cover, which would constitute a loss of .006% of the effectiveness of the pasture. Disturbance to the surface and the possibility of the high traffic load bringing weed seeds from outside of the area could cause an increase in noxious weeds in the area, however with the mitigations attached as Standard COAs, infestation would be minimal and would be controlled by the operator. In addition, this route would remove some woody material located in the drainage crossed by the access road. The loss would be minimal.

3.7 Heritage Resources

Under Federal law, (National Historic Preservation Act of 1966 and the Archeological Resources Protection Act of 1979), the USDA is mandated to protect significant archaeological and historic sites, or cultural resources, located on NFS lands or affected by USFS actions.

3.7.1 Affected Environment

Known historic properties in this area range from prehistoric sites up to several thousand of years old thru turn-of-the-century ranching. Prehistoric sites that may be eligible would most likely be on ridge-tops where soil has accumulated or along stream-courses where intact layers of cultural deposition may occur.

Prehistoric land use is expected along the drainages as well as ridges that provide travel routes in the area. Previous surveys in the project vicinity have produced a slightly lower than expected density of archaeological sites.

Historic land use is expected in this area with early use centered in the area on livestock driveway along the Little Powder River. From turn-of-the-century most use has evolved in homesteading and subsequent cattle and sheep grazing. The proposed project lies in a homesteaded parcel repurchased from the owner under the Bankhead Jones Farm Tenant Act in the late 1930s. None of the few roads in the area show on early maps and USGS surveys.

There are presently two documented Traditional Cultural Properties on the TBNG. They are located *nearly fifty miles* to the south and east of the protect area. However the Powder River (8

miles to the west) was an important winter village area and there are reported stone feature sites in the general vicinity *but no known stone feature sites are within sight distance of the proposed project*. The *Spring Creek* area is important to many plains American Indian traditional practitioners.

Based on knowledge at the current time, there are no known eligible historic properties in areas of high risk from this project's activities. However, there may be Native American sacred sites and ceremonial sites that could be affected by the change in the character of the landscape in the area.

3.7.2 Environmental Consequences

Alternative 1 No Action

No improvements to the existing access road and no new road construction would take place if this alternative were selected. In addition, no well pad site would be constructed, therefore no new disturbance to the project area would be authorized and no loss of heritage resources would occur. This would not preclude other uses, either legal or illegal, from taking place. This would also not preclude other permitted uses being applied for and authorized. If other uses authorized appropriate Heritage Resource evaluations would occur and those resources, if located would be protected as required by Federal Law.

Alternative 2 Proposed Action

No sites eligible for the National Register of Historic Places are in or near the project. In accordance with the 2001 revised regulations found in 36 CFR 800.4(d)(1) for Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) the determination for the Proposed Action is "no historic properties affected".

In addition, surveys were conducted for Paleontological Resources within the area that would be disturbed for road access and the well pad. The area is considered Class 3 for fossil resources, however no resources were located during the field examination. The lessee is required by terms of the lease to "immediately bring to the attention of the (Forest Service) and BLM any ...paleontological resources or any other objects of scientific interest discovered as a result of surface operations under this lease and shall leave such discoveries intact until directed to proceed by Forest Service and BLM". It is therefore determined that no further analysis is needed for protection of paleontological resources.

Potential indirect impacts from the proposed action, (including other actions which might take place as a consequence of this proposal (e.g. artifact collection, site vandalism, and erosion) on the unsurveyed portion of the project area are not expected to increase

Alternative 3 Northern Route and Well Pad

The analysis for Alternative 3 is the same as for Alternative 2. No sites eligible for the National Register of Historic Places are in or near the project. In accordance with the 2001 revised regulations found in 36 CFR 800.4(d)(1) for Section 106 of the National Historic Preservation Act (16 U.S.C. 470f) the determination for the Proposed Action is "no historic properties affected".

In addition, surveys were conducted for Paleontological Resources within the area that would be disturbed for road access and the well pad. The area is considered Class 3 for fossil resources, however no resources were located during the field examination. The lessee is required by terms of the lease to "immediately bring to the attention of the (Forest Service) and BLM any ...paleontological resources or any other objects of scientific interest discovered as a result of surface operations under this lease and shall leave such discoveries intact until directed to proceed

by Forest Service and BLM". It is therefore determined that no further analysis is needed for protection of paleontological resources.

Potential indirect impacts from the proposed action, (including other actions which might take place as a consequence of this proposal (e.g. artifact collection, site vandalism, and erosion), are not expected to increase.

Conclusion

Currently, based on Forest Service and State records, files searches, survey and field monitoring, there is no potential of adverse impacts or adverse cumulative effects with the implementation of either of the Action Alternatives. **Mitigation**, such as avoiding sensitive areas or extensive site data recovery, may be required if impacts to NRHP eligible sites are documented in impact areas.

3.8 Economics

3.8.1 Affected Environment

The project area is located within Campbell County, which is not considered a metropolitan area. There are two incorporated municipalities that could be considered within the area of influence of the project: Gillette, and Wright. Gillette is the County seat and the largest incorporated city in Campbell County. Wright is located in southern Campbell County. In 1996, the population of Campbell County was 31,951 and ranked 5th in the State. The 1997 population of Campbell County was estimated at 21,087. The populations of Gillette and Wright are estimated at 91% and 6%, respectively.

During 2000, high levels of exploration and production activity in the project area focused on coalbed methane development. Conventional production of coal, oil and gas remain the dominant economic industry for Campbell County, however. Although conventional oil and gas activity levels may not be as high as they have been at other times during the past, the area continues to experience some ongoing activity due to relatively high potential, relatively low risk and prices that are somewhat higher and more stable than they have been in recent years. For this project, only a summary account of the economic influence of one oil well is described due to the fact that the influence is minimal in an area where the substantial activity of oil and gas sustains several communities and off-shoot industries.

There are 74 developed oil and gas fields within the TBNG. Oil and gas revenues from the TBNG provided \$2.5 million in receipts during fiscal year 1997. The reader may also refer to the following internet site for economic data on Campbell County, Wyoming.¹ The average oil well on TBNG produced about 4.6 barrels per day. For additional economic information on the oil and gas industry for the TBNG, please refer to Chapter 3, TBNG Revision, 2002

3.8.2 Environmental Consequences

For All Alternatives. Because the influence of one oil well within this industry is marginal, less than .009 of the TBNG receipts (4.6bpd/\$15b/300days), and no economic or social issues were identified during the scoping process, no further economic impact discussion is needed. For a

¹ <http://www.fs.fed.us/r1/planning.econ.easy/library/cnty-wy-campbell/cnty-campbell.html>

general discussion on economic dependency and diversity, please refer to Chapter 3 of the Thunder Basin National Grassland Plan Revision.

The purpose of this next section is to describe the environmental consequences as a whole and to project those consequences, along with other activities occurring or anticipated in the area, into the future. The following subjects are addressed by each resource having a consequence. If no effects or losses are determined for a specific resource, it has not been carried forward to this section.

3.9 Cumulative Effects

3.9.1 Lands, Minerals and Non-Recreational Uses

All of the projected land use needs for this single well are displayed in the project description. There are no anticipated cumulative effects to the mineral resources of a single producing well.

3.9.2 Watershed, Hydrology, Aquatics, Fisheries and Soils

Cumulative effects considered for this and all alternatives include the following: A seismic testing line (Reliable Seismic) is proposed to run just west of the proposed well location, running toward the southeast, so additional oil exploration in the watershed is foreseeable. The analysis area is included in the Heald grazing allotment (#109). The allotment is grazed by cow/calf pairs on a pasture rotation system. Riparian condition is considered good. Cattle do not congregate in the West Fork Duck Creek bottoms, so ample woody material is present (snowberry). Recreation impacts, particularly from OHV use, are escalating quickly in the Spring Creek Unit, but the Yates/Duck Creek area is not seeing the impacts that are occurring in other more heavily used areas.

Cumulative impacts to water quality could result from existing activities including grazing, recreation, the proposed action, other oil and gas seismic exploration proposed in the area, or future development of the oil reservoir. However, there are no known water quality concerns as a result of existing activities in the area, and the proposed action and other proposed seismic exploration in the area are estimated to have little or no direct or indirect effects on water quality. Therefore, cumulative effects of past, current and proposed activities, are not expected to have any appreciable effects on water quality. The cumulative effects of field development on water quality should be analyzed in a future environmental analysis if additional wells are proposed.

Erosion & Sedimentation: *Direct effects* include the potential for short term, localized sediment delivery at and downstream of the new access road and new culvert across West Fork Duck Creek. Over 10 feet of road fill and a 54 inch culvert is proposed at the West Fork Duck Creek crossing. This material could be introduced into the active stream channel if construction work coincides with wet or stormy weather. Seeding of cut and fill slopes in the vicinity of West Fork Duck Creek is recommended to minimize erosion from the access road (see Mitigation below).

Indirect sedimentation effects may occur as a result of eroded material from roads or well pad facilities being transported to ephemeral streams, but effects are estimated to be negligible due to the location of proposed activities away from West Fork Duck Creek (see Water Quality section above) and proposed mitigation measures (see Mitigation below).

Cumulative effects to sedimentation could result from existing activities such as grazing and recreation in the area, the proposed action, other oil and gas seismic exploration proposed in the area, or future development of the oil reservoir. There are minor erosion problems on some existing roads, which would be corrected as a result of the road improvements in the proposed action. No other sedimentation concerns are known as a result of existing activities in the area. The proposed action and other proposed seismic exploration in the area are estimated to have little or no direct or indirect effects on sedimentation. Therefore, cumulative effects of past, current and proposed activities, are not expected to have any appreciable effects on sedimentation. The cumulative effects of field development on sedimentation will be analyzed in a future environmental analysis if additional wells are proposed. Due to the limited existing activities and the upland location of the proposed activities, the affected ephemeral streams are believed to be well within sediment thresholds established by the Forest Plan. Further sediment modeling is not warranted to validate this determination.

Aquatic Habitat and Populations: *Direct effects* to aquatic habitat or populations are not expected from access and development of the well. Direct effects to individual leopard frogs are possible as a result of mortality due to operation of heavy equipment used to reclaim a portion of NFSR 903C near occupied reservoir habitat. Reclamation of NFSR 903C would eliminate road access near occupied habitat and therefore reduce the potential for mortality to leopard frogs from vehicles traveling near occupied habitat.

Indirect effects to aquatic habitat and/or populations could occur as a result of chemical or physical water quality degradation from sediment input or soil and water contamination from crude oil or drilling mud spills. The closest downstream reservoir providing aquatic habitat is over 0.5 mile from the proposed well pad location and access road. Chemical and physical water quality degradation is expected to be minimal and therefore indirect effects to aquatic habitat or populations are also expected to be negligible.

Cumulative effects to aquatic habitat or populations could result from existing activities such as grazing and recreation in the area, the proposed action, other oil and gas seismic exploration proposed in the area, or future development of the oil reservoir. Development of stock watering facilities has provided some of the only aquatic habitat in the analysis area, and so has had a cumulatively beneficial effect for amphibians in the area. There are no known aquatic habitat or population concerns as a result of existing activities in the area. The proposed action, and other proposed seismic exploration in the area, are estimated to have little or no direct or indirect effects on aquatic habitats or populations. Therefore, cumulative effects of past, current and proposed activities, are not expected to have any appreciable effects on aquatic habitat or populations. The cumulative effects of field development on aquatic habitat or populations will be analyzed in a future environmental analysis if additional wells are proposed.

Soils

Existing past and present disturbance activities within the watersheds include roads, oil and gas production, grazing, fires and recreation.

Cumulative soil erosion has been documented intensively in related research. Intensive studies were completed in northern California forested lands (within different climatic and environmental condition from the Medicine Bow/Routt N.F.) on estimating erosion from logging and forest roads. Although distant from these local conditions the studies do lead to some simple conclusions about erosion on management activities. The studies concluded that suggest that because only a relative few (logging or road) sites accounted for most of the erosion, the identifying (and thus avoiding /mitigating these site) would be a key to reducing erosion on a cumulative basis. The Yates Duck Creek project, if implemented, would avoid mass wasting by not disturbing these areas.

New road construction, both temporary and permanent, can be considered cumulative in nature, especially if roads are not properly drained, or are placed in unstable locations. If ‘best management practices’(BMPs) were applied in any newly constructed roads, then cumulative impacts on soil productivity would be minimized. Roads constructed show greatly reduced erosion and sedimentation rates within 5 years after being built. BMPs help to insure that erosion from cutting units or roads are excessive.

Mitigations:

- 1. Vegetative cover will be established or maintained on disturbed areas (native surface roads, oil pad, road cutbacks, etc.).
- 2. All roads and pad constructed for this project will be closed and rehab when no longer needed.

3.9.3 Fish and Wildlife

Antelope and Mule Deer

If oil is discovered in the project area, further oil field development in the vicinity of the project area would be anticipated. More improved access and ground disturbing activities would occur. Hunter access would increase on public lands in the roadless area.

Other activities such as grazing are expected to remain similar to current levels.

Greater Sage Grouse (Sage Grouse)

A thorough discussion of the potential cumulative effects to sage grouse in the Powder River Basin is included in the Powder River Basin Oil and Gas EIS (pgs. 4-271 through 4-273) (USDI BLM 2003). The activities considered in that analysis include conventional oil and gas exploration and development, agriculture, urban and rural housing development, coal mining, livestock grazing, construction of roads and railroads, and gravel mining.

Cattle grazing occurs in and around the project area. Horse grazing occurs on private land south of the project area. Nest trampling and disturbance of nesting sage grouse hens may occur in years when spring and early summer grazing occurs in the cattle allotment. Application of “Spike” herbicide followed by a wildfire has reduced the density of sagebrush for sage grouse and other sagebrush obligate species. There is some conventional oil development a few miles to the west of the project area. However due to the relatively remote and “roadless” nature of the area, cumulative impacts to sage grouse appear minimal. Natural weather variations such as drought and severe winters likely have the greatest impacts. No coal mining, railroads, or rural development occur or are planned in the analysis area.

Plains Sharp-tailed Grouse (Sharp-tailed Grouse)

A thorough discussion of the potential cumulative effects to sharp-tailed grouse in the Powder River Basin is included in the Powder River Basin Oil and Gas EIS (pgs. 4-225 through 4-226) (USDI BLM 2003). The activities considered in that analysis include conventional oil and gas exploration and development, agriculture, urban and rural housing development, and power line construction.

There is some conventional oil development a few miles to the west of the project area. However due to the relatively remote and “roadless” nature of the area, cumulative impacts to sharp-tailed grouse appear minimal. Natural weather variations such as drought and severe winters likely have the greatest impacts on population levels.

Swainsons hawk

Livestock grazing is permitted in the Spring Creek Geographic Area and the proposed project area. The probable Swainson’s hawk nest tree and other trees in the drainage of the West Fork of Duck

Creek within the project area have been damaged by cattle rubbing and soil compaction around the root systems of the box elder trees. This damage could result in the eventual death of the nest tree and surrounding trees. Livestock grazing could also be adversely affecting recruitment of young trees.

Lark Bunting

Livestock grazing and use of pesticides has occurred in the past and is likely to continue. However, livestock grazing and pesticide use has not resulted in conditions adverse to the habitat requirements of this species as discussed above. The project area contains a mix of low grass, bare ground, and taller grass/shrub habitats. There are no intensive agricultural operations in the vicinity of the project area. Livestock grazing could disturb or destroy occasional nests or young.

Grasshopper Sparrow

Livestock grazing and use of pesticides has occurred in the past and is likely to continue. However, livestock grazing and pesticide use has not resulted in conditions adverse to the habitat requirements of this species as discussed above. The project area contains a mix of low grass, bare ground, and taller grass/shrub habitats. There are no intensive agricultural operations in the vicinity of the project area. Livestock grazing could disturb or destroy occasional nests or young.

Short-Eared Owl

Livestock grazing and use of pesticides has occurred in the past and is likely to continue. However, livestock grazing and pesticide use has not resulted in conditions adverse to the habitat requirements of this species as discussed above. The project area contains a mix of low grass, bare ground, and taller grass/shrub habitats. There are no intensive agricultural operations in the vicinity of the project area. Livestock grazing could disturb or destroy occasional nests or young.

McGown's Longspur

Livestock grazing and use of pesticides has occurred in the past and is likely to continue. However, livestock grazing and pesticide use has not resulted in conditions adverse to the habitat requirements of this species as discussed above. The project area contains a mix of low grass, bare ground, and taller grass/shrub habitats. There are no intensive agricultural operations in the vicinity of the project area. Livestock grazing could disturb or destroy occasional nests or young.

Chestnut-collared Longspur

Livestock grazing and use of pesticides has occurred in the past and is likely to continue. However, livestock grazing and pesticide use has not resulted in conditions adverse to the habitat requirements of this species as discussed above. The project area contains a mix of low grass, bare ground, and taller grass/shrub habitats. There are no intensive agricultural operations in the vicinity of the project area. Livestock grazing could disturb or destroy occasional nests or young.

Brewers Sparrow

Livestock grazing and use of pesticides has occurred in the past and is likely to continue. However, livestock grazing and pesticide use has not resulted in conditions adverse to the habitat requirements of this species as discussed above. The project area contains a mix of low grass, bare ground, and taller grass/shrub habitats. There are no intensive agricultural operations in the vicinity of the project area.

Sage Sparrow

Livestock grazing and use of pesticides has occurred in the past and is likely to continue. However, livestock grazing and pesticide use has not resulted in conditions adverse to the habitat requirements of this species as discussed above. The project area contains a mix of low grass, bare ground, and taller grass/shrub habitats. There are no intensive agricultural operations in the vicinity of the project area. Livestock grazing could disturb or destroy occasional nests or young.

Northern Harrier

Livestock grazing and use of pesticides has occurred in the past and is likely to continue. However, livestock grazing and pesticide use has not resulted in conditions adverse to the habitat requirements of this species as discussed above. The project area contains a mix of low grass, bare ground, and taller grass/shrub habitats. There are no intensive agricultural operations in the vicinity of the project area.

Mountain Plover

If oil is discovered at the preferred Alternative 3 well site, further oil field development and impacts to mountain plovers and their habitat could potentially occur on private, state and federal lands in the vicinity of the project area. Livestock grazing and use of pesticides has occurred in the past and is likely to continue. However, livestock grazing and pesticide use have not resulted in conditions adverse to the habitat requirements of this species as discussed above. The project area contains a small amount of habitat for this species primarily in prairie dog towns and in areas of human disturbance (roads, etc.). Livestock grazing and use of roads could disturb or destroy unidentified nests or young.

Black-tailed Prairie Dog

One other prairie dog town occurs on private land, in the vicinity of the Spring Creek area. This town is also within four miles of the National Forest System land prairie dog towns and could be considered part of the same black-tailed prairie dog complex mentioned earlier. Poisoning and other activities detrimental to prairie dog populations may be occurring on private holdings.

Recently, sylvatic plague has reduced the size of the colony and number of prairie dogs occupying the town within 2 miles of the project area.

Wildfire occurred near the project area recently. This enhanced grass habitat in/near the project area for black-tailed prairie dogs. The use of sage killing herbicides (Spike) has also enhanced grass habitat conditions for prairie dogs in/near the project area.

Roadless designation likely reduces recreational shooting of prairie dogs (Byer et al. 2000). If oil discovered in the project area, further oil field development in the vicinity of the project area would be anticipated. More improved access and ground disturbing activities could occur within closer proximity to the existing black-tailed prairie dog town. Recreational shooting of prairie dogs could continue to increase along with increased and improved access.

Swift Fox

Recently, sylvatic plague has reduced the size of the colony and number of prairie dogs occupying the town within 2 miles of the project area. This has reduced the prey base for swift fox in the vicinity of the project area. A decline in sharp-tailed grouse and sage grouse numbers in Northern Campbell County has also reduced the prey base for swift fox in the vicinity of the project area.

Predator control on private lands adjoining the project area and the Spring Creek Geographic area may result in incidental swift fox mortality.

If oil is discovered in the project area, further oil field development in the vicinity of the project area would be anticipated. More improved access and ground disturbing activities could elevate incidental mortality risks to swift fox.

Ferruginous Hawk

Livestock grazing is permitted in the Spring Creek Geographic Area and the proposed project area. Grazing is beneficial to ferruginous hawks by reducing vegetative cover and making prey more

visible and vulnerable (The Nature Conservancy 2002b). Potential ferruginous hawk nest trees in the drainage of the West Fork of Duck Creek have been damaged by cattle rubbing and soil compaction around the root systems of the box elder trees. This damage may result in the ultimate death of the trees and the loss of a suitable nesting site. Livestock grazing could also be affecting recruitment of young trees.

Loggerhead Shrike

Livestock grazing is permitted in the Spring Creek Geographic Area and the proposed project area. Grazing can provide preferred habitat by shortening vegetation which makes prey easier to detect for loggerhead shrikes (Dechant, et al., 2001). Potential loggerhead shrike nest and perch trees in the drainage of the West Fork of Duck Creek have been damaged by cattle rubbing and soil compaction around the root systems of the box elder trees. This damage could result in the ultimate loss of these trees. Livestock grazing could also be affecting recruitment of young trees.

Long-billed Curlew

Livestock grazing is permitted in the Spring Creek Geographic Area and the proposed project area. Although livestock grazing can result in nest loss due to trampling and disturbance to nesting birds, grazing can be beneficial to long-billed curlews if it provides short vegetation, particularly during pre-nesting.

Upland Sandpiper

If oil is discovered at the preferred Alternative 3 well site, further oil field development and impacts to mountain plovers and their habitat could potentially occur on private, state and federal lands in the vicinity of the project area. Livestock grazing and use of pesticides has occurred in the past and is likely to continue. However, livestock grazing and pesticide use have not resulted in conditions adverse to the habitat requirements of this species as discussed above. The project area contains a small amount of habitat for this species primarily in prairie dog towns and in areas of human disturbance (roads, etc.). Livestock grazing and use of roads could disturb or destroy unidentified nests or young. Although livestock grazing can result in nest loss due to trampling and disturbance to nesting birds, grazing at moderate levels can provide diverse grass heights and densities for upland sandpipers (Deschant et al. 2001).

Western Burrowing Owl

Burrowing owls are more likely to continue using larger, well-populated prairie dog towns. Burrowing owls experience less predation and higher nesting success in larger prairie dog towns with higher densities of prairie dogs (Deschant et al. 2001). Recently, sylvatic plague has reduced the size of the colony and number of prairie dogs occupying the town within 2 miles of the project area. Reduced numbers of prairie dogs has reduced the amount of habitat available for nesting by burrowing owls near the project area.

Roadless designation likely reduces recreational shooting of prairie dogs (Byer et al. 2000). If oil is discovered in the project area, further oil field development in the vicinity of the project area would be anticipated. More improved access and ground disturbing activities could occur within closer proximity to the existing black-tailed prairie dog town and burrowing owl habitat. Recreational shooting of prairie dogs could continue to increase along with increased and improved access.

3.9.4 Recreation

As stated in the Minerals paragraph of this section, there is potential for a maximum of 8 new wells per section being installed, both within and outside of the Duck Creek Inventoried Roadless Area. Because the status of the IRA cannot deny pre-existing leases rights, additional impacts to the recreational experience of the IRA would be compromised. Because the IRA is 'inventoried' only and has not gone through formal designation for special status, no action would be taken on the part

of the USFS. The IRA would continue to deteriorate in its present value for visual, audible and scenic quality.

3.10 Reasonably Foreseeable Development (RFD)

3.10.1 Lands, Minerals and Non-Recreational Uses

If either the Alternative 2 or Alternative 3 wells are drilled and become productive, it is assumed that additional wells will be proposed since the area is managed for oil and gas production and has moderate to high potential. The operator would likely submit additional APD's, all within the Duck Creek IRA, because this particular lease is located entirely within the IRA. Well spacing for this industry is determined by WOGCC, however typical spacing for oil in this area would be at 80 acres. If this proposed well is economically successful, potentially 7 additional wells could be proposed in Section 30, with an average of 8 wells per section for all other sections. If a full field development occurs within this or other leases, it is assumed that additional roads and facilities would be required.

If this one well should go into production and lease holders consider full field production in the area, there may very well be a commitments of resources that could be significant. If field development is proposed, that decision will be based on appropriate NEPA analysis and impacts will be disclosed as required. This project is not considered a connected action to the possibility of full field development, however, because the well is exploratory and though it may initiate additional applications for drilling, is not a conclusive prediction of future actions.

It is reasonable to project that sporadic seismograph requests and operations will continue to occur in the area for the next 10 years, based on past activities perhaps - as much as 20 miles of line in the next 10 years within the Spring Creek Division.

It is reasonable to foresee the discovery of new oil / gas fields in the Spring Creek Division. While it is highly speculative, it is likely three new oil fields will be discovered in the next 10 years, based on oil and gas potential within the area, 3-D seismograph activity, and the current Duck Creek and York Hills plays. Again from the RFD (TBNGOGEIS, C-3), if a field is discovered it is likely to be from 3 to 17 wells and far more likely to be 4 wells per filed than 17 wells.

If either of the 'action' alternatives is selected and the exploratory well produces in viable quantities, it is assumed that full field development would occur. The lease held by Yates Petroleum is 1,113 acres in size. If 40/80 acre spacing is approved, approx 13 wells could be installed within the next 10-15 years. It is safe to assume an average of 2 miles of road for each well. It is further a safe assumption that each well would be serviced at least once per week by a service truck and the oil would be transported to a facility located off of the lease and/or surface pipelines would be installed to allow for easier transport of the product.

3.11 Irreversible and Irretrievable Commitment of Resources

3.11.1 Lands, Minerals and Non-Recreational Uses

While there would be no permanent irreversible or irretrievable impacts to the resources by any of the alternatives analyzed in this document, there would be a loss of mineral resources as stated earlier. Mineral resources are considered a non-renewable resource and it is expected that the resource can and will be depleted at some point in the future unless alternative sources for fuel are developed. The oil produced as a result of drilling the proposed exploratory well would be an irreversible and irretrievable commitment of the mineral resources. The mineral production from

any subsequent well/s / field development which occur as a result of any discovery coming from the exploratory well would also be consumed. Fossil fuels used during the drilling and production phases of this proposal would result in irreversible commitments. Flaring or venting, if it occurs during the testing of the well would be an irreversible use of a resource. This would result in a loss of mineral resource, namely fossil fuel, to future generations if extracted and/or fully exhausted from the reservoir.

3.11.2 Watershed, Hydrology, Aquatics, Fisheries and Soils

Potential irretrievable and irreversible commitment of the soil resource is not a concern with this project because no action would be taken that would affect the soil resources of the area.

3.11.3 Heritage

Any disturbance to unidentified cultural or paleontological resources could result in an irreversible commitment, however research values could be recovered prior to any physical loss.

3.12 Short-term Uses and Long-Term Productivity

NEPA requires consideration of “the relationship between short-term uses of man’s environment and the maintenance and enhancement of long-term productivity” (40 CFR 1502.16). As declared by the Congress, this includes using all practicable means and measures, including financial and technical assistance, in a manner calculated to foster and promote the general welfare, to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans (NEPA Section 101).

There are no identified Short-Term Uses nor any Long Term Productivity concerns associated with this proposal other than the loss of the mineral resources from the reservoir.

3.13 Forest Plan Consistency

3.13.1 Recreation and Visual Resources, including the Inventoried Roadless Area Duck Creek IRA – Special Values

Alternatives 1 and 3 would be consistent with the 1994 Leasing ROD, Lease WYW141191, and Management Area Direction, Standards and Guidelines contained in the TBNG 2001 Revision.

Alternative 2 would not be consistent with the 1994 Leasing ROD, Lease WYW141191, and Management Area Direction, Standards and Guidelines contained in the TBNG 2001 Revision in regards to:

- 1) the CSU attached to the lease at the time of the sale
- 2) a ¼ mile buffer (or line of site) from the raptor nest

However, the proposal is not required to be consistent with the 2001 Revision, only the Management Plan direction at the time of lease, which stated 300 feet from a raptor nest. Alternative 2 would be consistent with that direction.

The NFMA requires the Forest to follow a holistic/multiple resource management practice during project design. Chapter III, page 3 of the Forest Plan sets a goal related to Heritage Resource Management (HRM): “Locate historical and archeological sites; evaluate them for significance; and preserve, protect, and/or interpret for public information a representative sample of sites associated with and typifying the economic and social history of eastern Wyoming”

Once the appropriate cultural resource inventories were completed and the State Historic Preservation Officer was consulted, it was determined that the Douglas Ranger District is in compliance with Forest Plan directives and other applicable heritage resources laws and agreements regarding the action alternatives.

3.14 Other Required Disclosures

NEPA at 40 CFR 1502.25(a) directs “to the fullest extent possible, agencies shall prepare draft environmental impact statements concurrently with and integrated with ...other environmental review laws and executive orders.”

Clean Water Act

The project is not expected to have adverse impacts to water quality, coldwater biota, recreation, or other beneficial uses. A Storm water Discharge permit, from the State of Wyoming department of Environmental Quality for construction activities would likely be necessary to comply with the Federal Water Pollution Control Act. Recommended mitigation measures address this issue, and if followed, the proposed activities would be consistent with the Clean water Act.

Consistency with Wetlands/Floodplains Executive Orders

The Yates project is expected to have no direct, indirect, or cumulative effects on floodplains and is therefore consistent with Executive Order 11988 for the protection of floodplains. Recommended mitigation measures are intended to further reduce risks to potential wetlands. The overall project is consistent with Executive Order 11990.

Endangered Species Act

The Endangered Species Act of 1973 (16 USC 1531-1536, 1538-1540) requires federal agencies to conserve threatened and endangered species and the ecosystems they depend on. Forest Service policy is to protect the habitat of federally listed proposed, candidate, threatened or endangered species from adverse modification or destruction, as well as protect individual organisms from harm or harassment. (FSM 2670). Forest Service Manual 2670.4 also requires that a Biological Assessment (BA) be completed as part of the National Environmental Policy Act (NEPA) decision making process to review proposed activities in sufficient detail to determine how an action would effect any species which is listed under the Endangered Species Act. Determinations for T&E species are contained in section 3.4 of this Chapter.

Noxious Weed Control Implementation

Noxious weed management will be treated in accordance with the Medicine Bow-Routt and Thunder Basin National Grassland Noxious Weed Control Implementation (03/29/00). Noxious weeds were not considered to be an issue for this project since appropriate mitigation is listed in the Range analysis section of this document and any disturbance for this project would comply with the Noxious Weed Implementation Plan.

National Forest Management Act

The National Forest Management Act of 1976 (16 USC 1600-1602, 1604, 1606, 1608-1614) prevents watershed condition from being irreversibly damaged and protects streams and wetlands from detrimental impacts. Land productivity must be preserved. Fish habitat must support a minimum number of reproductive individuals and be well distributed to allow interaction between populations. Forest Service policy is to protect habitat of species listed in Forest Service Region 2 (Rocky Mountain), as sensitive species, from adverse modification or destruction, as well as protect individual organisms from harm or harassment (FSM 2670.3). Biological evaluations shall be

prepared for each project authorized, funded, or conducted on National Forest land to determine possible effects the proposed activity may have on sensitive species (FSM 2672.43). The biological evaluation (BE) processes (FSM 2672.43) are intended to conduct and document activities necessary to ensure proposed management actions will not likely jeopardize the continued existence or cause adverse modification of habitat for sensitive species. Biological Assessments and Evaluations for aquatic and other wildlife species are contained in the Project Record for this Draft EIS.

Forest Service policy requires habitat maintenance for all existing native and desired non-native plants, fish, and wildlife species, and that these species be managed to maintain viable populations (FSM 2601.2). Land and water management activities will integrate plant, fish, and wildlife habitat needs with other resources and programs. Where appropriate, mitigate habitat losses, consistent with Forest Plan goals and objectives developed in the Forest planning process (FSM 2601.2). Appropriate mitigation measures to ensure protection of the above-mentioned species are contained in Chapter 2.

3.15 ROADS ANALYSIS

Roads analysis is an integrated ecological, social, and economic approach to transportation planning which addresses both existing and potential future roads located on NFS lands. The Roads Analysis is not a NEPA document, but rather a site-specific NFMA analysis done for the project area and surrounding watershed. NFMA analysis defines the existing and desired conditions for management of the forest road system. It also identifies opportunities to move towards the desired conditions. This analysis provides a framework to identify road related concerns and management opportunities that can be incorporated into subsequent projects being evaluated through the NEPA process.

The roads analysis was completed for this project specifically, follows the process outlined in the document 'Roads Analysis: Informing decisions about Managing the National Forest Transportation System' (USFS, 1999a).

The Roads Analysis document, because it is considered the result of an internal study, is not included in this NEPA document. It is, however, made a part of the Project Record and can be viewed at the Medicine Bow-Routt Supervisor's Office.

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 Ecological Services, US Fish and Wildlife Service
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Fort Peck Assiniboine & Sioux Tribes
Lower Brule Sioux Tribes
Northern Arapaho Tribe
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Crow Tribal Council
Northern Arapaho Tribal Council
Northern Cheyenne Tribal Council
Cheyenne River Lakota Tribal Council
Standing Rock Lakota Tribal Council
Three Related Tribes Business Council
Shoshone Business Council
Northern Cheyenne Council

Others

Basin Coal Company
Big Horn Audubon Society
Biodiversity Associates
CANDO
The Chicago Greens
Dakota, Minnesota and Eastern Railroad Company, (DM&E Railroad)
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Independent Production Co
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Johnson Realty
Kennecott Energy
Kinder Morgan
Lone Tree Bible Ranch
Manx Oil Corporation
Medicine Wheel Alliance
Medicine Wheel Coalition
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National Wildlife Federation
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Prima Oil and Gas Company
Powder River Coal Company
Powder River Resource Council
Powder River Basin Resource Council
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Sierra Club, Wyoming Chapter
Spring Creek Grazing Ass.
Thunder Basin Grazing Association
Thunder Basin Grassland Prairie Eco.
Thunder Basin Resource Council
Triton Coal Company
Western Gas Resources
Wildlife Management Institute
The Wilderness Society
Wind River Multi-Use Advocates
Wyoming Farm Bureau
Wyoming Outdoor Council
Wyoming Professional Assoc. Archaeologists
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REFERENCES

- Beauvais, G. P, and Rebeka S. Smith. 1999. Occurrence of Breeding Mountain Plovers (*Charadrius montanus*) in the Wyoming Basins Ecoregion. Wyoming Natural Diversity Database, University of Wyoming, Laramie, WY. 27 pp.
- Bennett, J. 2001. Wyoming Plant and Animal Species of Special Concern. Species Summary, Mountain Plover (*Charadrius montanus*) Wyoming Natural Diversity Database, Laramie, Wyoming.
- Byer, Tim. Wildlife Biologist. U.S.DA Forest Service. Medicine Bow-Routt National Forests and Thunder Basin National Grassland. Personal Communication, April and November, 2002.
- Byer, Tim., Kurt Hansen, Darla Lenz, Clint McCarthy, Geri Morris, Susan Rinehart, Kathy Rodrigues, Greg Schenbeck, John Sidle, Dan Svingen. 2000. Biological Assessment and Evaluation for Revised Land and Resource Management Plans and Associated Oil and Gas Leasing Decisions. 355 pp.
- Cerovski A., M. Georges, T. Byer, K. Duffy, and D. Felley, editors. 2001. Wyoming Bird Conservation Plan, Version 1.0. Wyoming Partners In Flight. Wyoming Game and Fish Department, Lander, WY
- Connelly, John W., Michael A. Schroeder, Alan R. Sands, and Clait E. Braun. 2000. Guidelines to manage sage grouse populations and their habitats. Wildlife Society Bulletin, 28(4): 967-985.
- Dechant, J. A., M. L. Sondreal, D. H. Johnson, L. D. Igle, C. M. Goldade, P. A. Rabie, and B. R. Euliss. 2001. Effects of Management Practices on Grassland Birds: Northern Prairie Wildlife Research Center, Jamestown, ND. Northern Prairie Wildlife Research Center Home Page. <http://www.npwrc.usgs.gov/resource/literatr/grasbird/> (Version 17FEB2000)
- Fertig, W. and G. Beauvais. 1999. Wyoming Plant and Animal Species of Special Concern. Wyoming Natural Diversity Database, Laramie, Wyoming. Unpublished report.
- Greer, Richard. Wyoming Cooperative Fishery and Wildlife Research Unit. Wyoming Game and Fish Department. Habitat Extension Services. Sage Grouse Habitat Requirements and Development. Habitat Extension Bulletin No. 31.
- Hoffman, R. W. 2001. Northwest Colorado Columbian sharp-tailed grouse conservation plan. Northwest Colorado Columbian sharp-tailed grouse Work Group and Colorado Division of Wildlife, Ft. Collins, CO.

Hoogland, John L., 1996. American Society of Mammalogists. Mammalian Species No. 535, pp. 1-10, 3 figs. *Cynomys ludovicianus*. December 27 1996. Available: www.science.smith.edu/departments/biology/VHAYSEN/msi/msiaccounts.html

Kahn, Rick, Lloyd Fox, Peggy Horner, Brian Giddings, Christiane Roy, editors. September 1997. Conservation Assessment and Conservation Strategy for Swift Fox in the United States. 55 pp.

Korfanta, Nicole M., Loren W. Ayers, Stanley H. Anderson, and, David B. McDonald. A Preliminary Assessment of Burrowing Owl Population Status in Wyoming. J. Raptor Res. 35(4): 337-343.

Lockman, Cristi, Wildlife Biologist. U.S.D.A. Forest Service. Medicine Bow-Routt National Forests and Thunder Basin National Grassland. Personal Communication, September, 2002.

Lockman, Cristi. Wildlife Biologist. USDA Forest Service, Douglas Ranger Station. Personal Communication, October 2, 2002

Lockman, Cristi. Wildlife Biologist. U.S.D.A. Forest Service. Medicine Bow-Routt National Forests and Thunder Basin National Grassland. Personal Communication, November, 2002.

NatureServe Explorer: An online encyclopedia of life [web application]. 2002. Version Arlington, Virginia, USA: NatureServe. Available: <http://www.natureserve.org/explorer>. (Accessed: May 16, September 17, 19, 25, October 1, 29, November 1, 5, 2002).

Oakleaf, Bob, Tom Maechtle and Martin Grenier. 2002. Evaluations of Inventory and Monitoring Techniques for Black-tailed Prairie Dogs in Wyoming. Completion Report *in* Threatened, Endangered, and NonGame Bird and Mammal Investigations. Nongame Program Biological Services Section. Wyoming Game and Fish Department. pp. 90-97.

Oedekoven Olin O. 2001. Wildlife Biologist, Wyoming Game and Fish Department. 2001 Sage Grouse Job Completion Report. Sheridan Region. Regional Summary for the Period of 6/1/00 to 5/31/01. Wyoming Project No. W-27-R. 75 pp.

Oedekoven Olin O. Wildlife Biologist, Wyoming Game and Fish Department. Personal Communication, October 3, 2002.

Oedekoven Olin. Wyoming Game and Fish Department. 2000a. Wyoming Project No.:W-27-R. 2000 Job Completion Report. North Black Hills Antelope Herd Unit #339. Period Covered 6-1-00 to 5/31/01

Oedekoven Olin. Wyoming Game and Fish Department. 2000b. Wyoming Project No.:W-27-R.2000 Job Completion Report. Powder River Mule Deer Herd Unit # 319. Period Covered 6-1-00 to 5/31/01.

Olson, Travis L., J. Scott Deini, Frederick G. Lindzey. November 1997. Swift Fox

Survey Evaluation, Productivity and Survivorship in Southeast Wyoming. 30 pp.

Panjabi Arvind, Database Manager. Partners In Flight Species Assessment Database. 2002. Physiographic Area Assessment Scores (Version 1.1) – Breeding. Available: <http://www.rmbo.org/pif/pifdb.html>

Panjabi Arvind, Database Manager. Partners In Flight Species Assessment Database. Panjabi Arvind, Database Manager. Partners In Flight Species Assessment Database. 2002. Bird Conservation Region Assessment Scores (Version 1.1) – Breeding. Available: <http://www.rmbo.org/pif/pifdb.html>

Parrish, Tierny L., Stanley H. Anderson, and William F. Oelklaus. Mountain Plover Habitat Selection in the Powder River Basin, Wyoming. *Prairie Naturalist* 25(3): September 1993. p. 219-226.

Partners In Flight. 2003. Available at: <http://www.partnersinflight.org/>

Rogers, Bradley, Wildlife Biologist. U.S.D.I. Fish and Wildlife Service. Cheyenne, WY. Personal Communication, July 17, 2003.

Sauer J. R., J. E. Hines, and J. Fallon. 2001. The North American Breeding Bird Survey. Results and Analysis 1966-2000. Version 2001.2, USGS Patuxent Wildlife Research Center, Laurel, MD.

Sauer J. R., J. E. Hines, and J. Fallon. 2003. The North American Breeding Bird Survey. Results and Analysis 1966-2000. Version 2001.2, USGS Patuxent Wildlife Research Center, Laurel, MD.

Sauer J. R., J. E. Hines, G. Gough, I. Thomas, and B. G. Peterjohn. 1997. The North American Breeding Bird Survey Results and Analysis. Version 96.4. Patuxent Wildlife Research Center, Laurel, MD.

The Nature Conservancy. 1998a. Species Management Abstract. Loggerhead Shrike (*Lanius ludovicianus*) 15 pp.

The Nature Conservancy. 1998b. Species Management Abstract. Upland Sandpiper (*Bartramia longicauda*). 15 pp.

The Nature Conservancy. 1998c. Species Management Abstract. Western Burrowing Owl (*Athene cunicularia hypugaea*). 18 pp.

The Nature Conservancy. 1999a. Species Management Abstract. Brewer's Sparrow (*Spizella breweri*).

The Nature Conservancy. 1999b. Species Management Abstract. Ferruginous Hawk (*Buteo regalis*) 13 pp.

The Nature Conservancy. 1999c. Species Management Abstract. McCown's Longspur

(*Calcarius mccownii*).

The Nature Conservancy. 1999d. Species Management Abstracts. Lark Bunting (*Calamospiza melanocorys*).

The Nature Conservancy. 1999e. Species Management Abstracts. Sage Grouse (*Centrocercus urophasianus*).

The Nature Conservancy. 2000. Wings of the Americas. Wings Info Resources. Species Information and Management Abstracts. Sharp-tailed Grouse (*Tympanuchus phasianellus*).

The Nature Conservancy. 2002a. Grassland Birds. Unlucky 13. Lark Bunting.

The Nature Conservancy. 2002b. Grassland Birds. Unlucky 13. Ferruginous Hawk.

The Nature Conservancy. 2002c. Grassland Birds. Unlucky 13. McCown's Longspur.

The Nature Conservancy. 2002d. The Unlucky 13: Birds: Long-billed Curlew.

The Nature Conservancy. 2002e. Unlucky 13: Birds: Burrowing Owl.

U. S. Fish and Wildlife Service. 1999. The Mountain-Prairie Region. Proposal to List The Mountain Plover as a Threatened Species Fact Sheet. 3 pp.

U.S. National Bird Conservation Initiative Committee. 2000. North American Bird Conservation Initiative, Bringing It All Together.

USDA Forest Service. 1994. Record of Decision for the Thunder Basin National Grassland and Medicine Bow National Forest Oil and Gas Leasing Environmental Impact Statement. USDA Forest Service, Laramie, WY.

USDA Forest Service. 2001. Land and Resource Management Plan. Thunder Basin National Grassland. Medicine Bow-Routt National Forest, Laramie, WY

USDA Forest Service, Washington Office. 2000. Landbird Conservation Program. Washington, D.C.

USDA Forest Service. 2001b. Final Environmental Impact Statement for the Northern Great Plains. Management Plans Revision. Rocky Mountain Regional Office, Lakewood, CO.

USDI Bureau of Land Management. 2003. Final Environmental Impact Statement and Proposed Plan Amendment for the Powder River Basin Oil And Gas Project. (WY-070-02-065). USDI Bureau of Land Management, Wyoming State Office, Cheyenne, WY.

Van Horn, R. C. 1993. A summary of reproductive success and mortality in a disturbed Ferruginous Hawk (*Buteo regalis*) population in northcentral Montana. Journal of Raptor

Research 27:94.

Wyoming Game and fish commission. 2003. Greater Sage Grouse Conservation Plan. Available at: http://gf.state.wy.us/wildlife/wildlife_management/sagegrouse.asp

Wyoming Partners in Flight. 2003. Wyoming bird conservation Plan. Version 2.0. Compiled by Sharon H. Nicholoff. Available at: <http://www.blm.gov/wildlife/plan/WY/menu.htm>

Zelenak, J. R., and J. J. Rotella. 1997. Nest success and productivity of Ferruginous Hawks in northern Montana. *Canadian Journal of Zoology* 75:1035-1041.

CHAPTER 3 YATES PETROLEUM FEDERAL WELL #1

Draft Environmental Impact Statement

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