



CONVERSE COUNTY

GAS AND OIL DEVELOPMENT PROJECT ENVIRONMENTAL IMPACT STATEMENT

Scoping Summary Report Final



U.S. Department of the Interior
Bureau of Land Management
BLM Casper Field Office

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The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

List of Acronyms

AGWA	Automated Geospatial Watershed Assessment
APD	Application for Permit to Drill
APLIC	Avian Power Line Interaction Committee
AQD	Air Quality Division
AQRV	air quality related value
AUM	Animal Unit Month
BLM	Bureau of Land Management
BMP	Best Management Practice
BTEX	benzene, ethyl benzene, toluene, xylene
CAA	Clean Air Act
CE	categorical exclusion
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
COA	conditions of approval
COWDF	commercial oilfield wastewater disposal facility
CWA	Clean Water Act
cy	cubic yard
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMT	Emergency Medical Technician
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
FLPMA	Federal Land Policy and Management Act of 1976
FO	Field Office
FOIA	Freedom of Information Act
GHG	Greenhouse Gas
HAP	Hazardous Air Pollutant
IM	Instruction Memorandum
IRT	Interagency Review Team
LRMP	Land and Resources Management Plan
m	meter
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
MS	Manual Section
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFMA	National Forest Management Act
NHPA	National Historic Preservation of 1966, Amended
NOI	Notice of Intent
NRHP	National Register of Historic Places

NSO	no surface occupancy
NTL	Notice to Lessee
NTT	National Technical Team
OG	Operator Group
Plan	2003 Converse County Land Use Plan
POD	Plan of Development
Project	Converse County Oil and Gas Project
PSA	Public Service Announcement
RFD	reasonably foreseeable development
RMP	Resource Management Plan
ROD	Record of Decision
SGCN	Species of Greatest Conservation Need
SPCC Plan	Spill Prevention, Control, and Countermeasure Plan
TBNG	Thunder Basin National Grassland
TCP	Traditional Cultural Property
TES	Threatened and Endangered Species
TMDL	Total Maximum Daily Load
UGRCE	Upper Green River Conservation Exchange
UIC	underground injection control
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USPS	U.S. Postal Service
VOC	Volatile Organic Compound
VRM	Visual Resource Management
WDEQ	Wyoming Department of Environmental Quality
WGFD	Wyoming Game and Fish Department
WOGCC	Wyoming Oil and Gas Conservation Commission

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1.0 Introduction

The Bureau of Land Management (BLM) is preparing an Environmental Impact Statement (EIS) for the proposed Converse County Oil and Gas Project (project). The BLM, as represented by the Casper Field Office (CFO), is the lead agency responsible for the preparation of the EIS. The U.S. Forest Service (USFS) is participating as a key cooperating agency and manages the Thunder Basin National Grassland portions of which may be impacted by the project.

Two primary principles of the National Environmental Policy Act (NEPA) are full disclosure of potential environmental effects and open public participation throughout the decision-making process. Through the public involvement process, the public is able to participate in the NEPA process. NEPA requirements for public involvement are set forth in Council on Environmental Quality (CEQ) regulations 40 Code of Federal Regulations (CFR) 1500–1508. Additional BLM guidance and direction for public involvement is provided in the BLM Land Use Planning Handbook (BLM Handbook H-1601-1) and the BLM NEPA Handbook (BLM Handbook H-1790-1).

This Scoping Summary Report provides an overview of the public scoping process and a summary of the scoping comments, issues, and concerns identified during public scoping. Although the BLM encourages commenting on the project throughout the preparation of the EIS, the range of issues summarized in this report is based on the comments received during the public scoping period.

1.1 Description of the Proposed Project

The proposed project is a full-field oil and natural gas development project proposed by an Operator Group (OG) comprised of Anadarko Petroleum Company, Chesapeake Energy Corporation, EOG Resources, Inc., RKI Exploration and Production, Samson Resources, and SM Energy, as well as representing the interests of other operators within the project area. The OG proposes to develop approximately 5,000 oil and natural gas wells on 1,500 new multi-well pads within the proposed project area over a 10-year period. The OG proposes to:

- Develop the project area using directional, vertical, horizontal and other drilling techniques;
- Develop infrastructure to support oil and gas production in the project area including: well pads, roads, pipelines, power lines, compressor and electrical substations, and ancillary facilities, such as water supply wells and water disposal facilities; and
- Request exceptions to multiple timing-limitation restrictions related to several wildlife species, in order to provide for year-round drilling.

The proposed project area is located in Converse County and encompasses approximately 1.5 million acres of land, of which approximately 88,000 surface acres (6 percent of project area) and approximately 965,000 subsurface mineral estate acres (64 percent of the project area) are public lands administered by the BLM while the USFS manages approximately 64,000 acres of surface lands (4 percent) within the project area. The remainder of the project area consists of lands owned by the State of Wyoming (7 percent) and private owners (83 percent).

Surface disturbance associated with the project proposal is estimated to include approximately 50,400 acres of initial surface disturbance for the construction of new roads, well pads, pipelines and associated facilities, of which approximately 20,300 acres could remain for the life of the project.

1.2 Purpose of Scoping

The purpose of the public scoping process is to identify issues and planning criteria that should be considered in the EIS and potential Resource Management Plan (RMP) amendment and to initiate public

participation in the planning process. The BLM follows the public involvement requirements according to the CEQ regulations set forth in 40 CFR 1501.7, which states, "there should be an early and open process for determining the scope of issues to be addressed and for identifying the process for determining the scope of issues to be addressed during the planning process." The scoping process is open to all interested agencies and the public. The intent is to solicit comments and identify the issues that help direct the approach and depth of the environmental studies and analysis needed to prepare the EIS and incorporate the views and concerns of federal, state, and local agencies, as well as the public regarding the scope of issues to be analyzed in the EIS. Other objectives of scoping include:

- Identifying and inviting agencies with jurisdiction or special expertise relevant to the project to participate in the preparation of the EIS as cooperating agencies;
- Identifying other environmental review and consultation requirements;
- Identifying the relevant and substantive issues that need to be addressed during the analyses and in the EIS;
- Determining the range of alternatives to be evaluated; and
- Developing the environmental analysis criteria and systematic planning process and allocating EIS assignments among agencies as appropriate.

1.3 Document Organization

This document contains summary descriptions of the:

- Scoping process, including scoping meetings, advertising leading up to the meetings, and opportunities for public comment during the scoping period (Chapter 2.0).
- Scoping content analysis process, including how individual letters and comments were coded and tabulated (Chapter 3.0).
- Comments organized by resource (Chapter 4.0).
- Issues raised by public comment (Chapter 5.0)
- Next steps in the EIS process(Chapter 6.0)

The report also includes a summary of all submittals received during the scoping period (**Appendix E**).

All comments were given equal consideration, regardless of method of transmittal.

2.0 Scoping Process

This section provides a description of the scoping process, the means by which the public and agencies were notified and given opportunities to comment on the project, and a brief summary of the meetings that were held.

2.1 Federal Register Notice of Intent

The scoping comment period began May 16, 2014, with the publication of the Notice of Intent (NOI) to prepare an EIS in the Federal Register (Vol. 78, No. 126, pages 39313 to 39314), a copy of which is in **Appendix A**. The NOI notified the public of the BLM's intent to prepare an EIS to support decision making for the proposed Converse County Oil and Gas Project and the beginning of a 45-day scoping period; and that authorization of this proposal may require amendments of the 2007 Casper RMP or the 2001 Thunder Basin National Grassland's (TBNG) Land and Resources Management Plan (LRMP) because resource impacts could possibly exceed those analyzed in the existing plans.

The BLM also posted the NOI on the project website (http://www.blm.gov/wy/st/en/info/NEPA/documents/cfo/Converse_County_Oil_and_Gas.html). The scoping comment period ended on June 30, 2014. Although the formal comment period has ended, the BLM encourages public involvement and will continue to accept comments received throughout the RMP/EIS process.

2.2 Public Notification of Scoping

Concurrent with the issuance of the Federal Register notice, the BLM issued a news release to local media on May 16, 2014, announcing the release of the NOI and posted the news release on the Casper Field Office (FO) website. On May 23, 2014, the BLM issued a second news release, identifying the venues and dates for the three public scoping meetings. Copies of the news releases are included in **Appendix B**.

On June 3, 2014, AECOM (the third-party EIS contractor), released a public service announcement (PSA) to six radio stations, nine newspapers, and four television stations (see **Appendix B** for a complete list of PSA media outlets).

The BLM conducted a news interview with KCWY13 on June 11, 2014, which was aired on the 5, 6 and 10 PM Channel 13 news. The BLM also posted flyers advertising the meetings in key locations around the communities of Casper, Douglas, Glenrock, and Rolling Hills, Wyoming.

On June 24, 2014, the BLM issued a third new release noting the scoping closure date of June 30, 2014 and encouraging interested individuals to review and comment on the project (see **Appendix B**).

The meeting flyer and the BLM meeting news releases were posted on the BLM project website.

2.3 Scoping Meetings

The BLM hosted three scoping meetings in June 2014 with an attendance totaling 123 people (**Table 2-1**). The meetings were an opportunity for the BLM to inform those in attendance about the project and the EIS process and to solicit input on the scope of the project and potential issues. An open-house/presentation format was used for the meetings. Each meeting was held from 5:30 PM to 7:30 PM.

Table 2-1 Scoping Meeting Summary

Date	Location	Attendance
June 10, 2014	Douglas, WY (Douglas Inn / Conference Center)	49
June 11, 2014	Casper, WY (Best Western Ramkota)	41
June 12, 2014	Glenrock, WY (Glenrock Recreation Center)	33

Attendees were greeted, asked to sign in, and given a meeting packet comprised of copies of the BLM display boards and a comment form. Attendees were informed about the open house meeting/ presentation format, the general flow of information (display boards) in the room, and ways to submit a completed comment form to the BLM. Black-and-white copies of the meeting presentation also were provided as requested; attendees were directed to the BLM project website for the color version of the presentation.

Informational display stations positioned around the meeting room identified roles and responsibilities of the lead and cooperating agencies that are participating in the EIS process; outlined the EIS process and timeline; explained the potential for land use plan amendment; provided a description of the project; identified a preliminary list of resource issues to be addressed in the EIS; and provided methods and deadlines for comment submittal, including an area where attendees could fill out and submit comment forms at the meeting. The OG also provided a station that provided information regarding existing development within the project area, proposed project overview information, and conceptual well pad layouts.

Midway through the meeting, the BLM presented a PowerPoint slideshow presenting information regarding the NEPA Process, the need for an EIS, the OG’s Proposed Plan of Development (POD), and potential resource issues. Representatives from the BLM, the OG, and the BLM’s third-party EIS consultant, AECOM, were present and available to explain project information and answer questions. The BLM received one comment submittal during the three open houses.



Copies of the scoping meeting materials are provided in **Appendix C**, including meeting sign-in sheets, display boards, and an example of the comment form. Public scoping meeting information, including meeting materials, was posted on the BLM website.

2.4 Opportunities for Public Comment

Members of the public were afforded several methods for providing comments:

- Comments could be recorded on comment forms at the scoping meetings. Comment forms were provided at a station where attendees could write and submit comments
- E-mails could be sent to a dedicated e-mail address: blm_wy_casper_wymail@blm.gov
- Public letters could be mailed to: Converse County Oil and Gas Project, BLM Casper FO, 2987 Prospector Drive, Casper, Wyoming 82604
- Public letters could be faxed to: 307-261-7587

3.0 Scoping Content Analysis

Upon receipt, all contact information for all submittals was entered into the comment database and project mailing list (unless there was a specific request for that information not to be included), along with the submittal method and entity/affiliation of each submittal. Each submittal was labeled with a numeric identifier, and was reviewed to capture both submittal-level and specific comment level information.

3.1 Submittal-level Coding

Each submittal was reviewed as a whole to specifically identify the following:

- Out of Scope submittals: those submittals that did not pertain to the project at all (for example, a submittal pertaining to another project or seeking employment);
- Non-substantive submittals: those submittals that were too general for any part of the letter to be coded to any resource issue (for example, a submittal with only a statement of support or opposition to the project); and
- Submittals requiring immediate attention, such as submittals containing requests for maps, GIS, or other data; official Freedom of Information Act (FOIA) requests; requests for comment period extension; threats; or other comments that needed to be brought to the attention of the BLM immediately.

Contact information was gathered for out of scope and non-substantive submittals, but the submittals were not processed further (i.e., were not coded to the individual comment level). All other submittals were considered to contain substantive comments and were processed further.

As shown in **Table 3-1**, The BLM received a total of 90 submittals. Most comments were submitted through hard copies mailed to the BLM via the U.S. Postal Service (USPS).

Table 3-1 Submittal Method Summary

Code	Submittal Method	Number of Submittals
E	Email	30
M	Comment submitted at meeting	1
L	USPS letter	59
F	Fax	0
O	Other	0

Table 3-2 shows the affiliation of each commenter. Individuals provided the largest number of comment documents during the scoping period. No comments were received from Native American tribes.

Appendix D provides a list of individual commenters and their affiliations.

Of the 90 comment documents received by the BLM, 63 were from commenters in Wyoming, 4 were from Colorado, 5 were from other states, and 16 were from unknown locations (i.e., they did not contain an address) (**Table 3-3**). The BLM considers all comments equally, regardless of geographic origin or affiliation.

Table 3-2 Submittal Summary by Affiliation

Code	Type	Number of Submittals
I	Individual	52
F	Federal agency	2
S	State Agency	3
L	County or local agency	1
O	Non-Government Organization (special interest)	8
B	Business	24
T	Native American Tribe	0

Table 3-3 Submittal Summary by Location

Type	Number of Submittals
Wyoming	63
Colorado	3
Other states	5
Unknown	19

3.2 Comment-level Coding

After all submittals were labeled with numeric identifiers and coded at the submittal level, each submittal was reviewed for the specific comments it contained. Each submittal contained one or more comments, and each comment was categorized and coded by primary resource issue or topic. Comments were assigned a general code corresponding to their respective resource issue or topic (for example, “WL” for wildlife), and a numeric sub-code specific to that resource to further group similar comments (as an example, comments regarding mule deer received were coded as “WL2”). This form of analysis is used to allow resource specialists to view public concerns by general resource issue as well as resource-specific topics. In some cases, comments were given secondary codes for a second primary resource, for example a comment about erosion and runoff affecting streams might be given codes (and sub-codes) for both soils and water resources. Most comments receiving a secondary code were those that identified a resource concern but also either requested more information about the proposed action, or suggested a measure to be incorporated into the proposed action or alternatives or considered as mitigation. For example, comments that requested that the EIS disclose information about the sources of water to be used in the Proposed Action or requested consideration of closed-loop drilling as a mitigation measure or design feature to reduce water use were coded to both Water Resources and Alternatives.

A total of 620 comments were identified and coded. Of this total, 118 comments also were coded to a second primary resource, for a total of 738 comments to be considered in the following resource summaries (**Table 3-4**). **Figure 3-1** graphically identifies the percentage of comments by general resource issue or topic.

Table 3-4 Comment Summary by Resource Issue

Resource Issue	Quantity
NEPA Process Issues (EIS Chapter 1)	
Purpose and Need	6
Process	66
Project Design (EIS Chapter 2)	
Alternatives	91
Reclamation	12
Impact Analysis (EIS Chapter 3 and 4)	
Air Quality	65
Cultural Resources	10
Geology/Paleontology	7
Hazardous Materials	24
Human Health and Safety	19
Land Use	13
Livestock Grazing	12
Recreation	10
Socioeconomics	59
Soils	5
Special Designations	4
Transportation	21
Vegetation, including TES species	11
Visual Resources	1
Water Resources	73
Wildlife including Threatened and Endangered Species (TES)	100
Cumulative Impacts	13
Mitigation	18
Other Analysis Issues	2
Land Use Plan Amendments (EIS Chapter 5)	
Opinion Only	
TOTAL	
	746

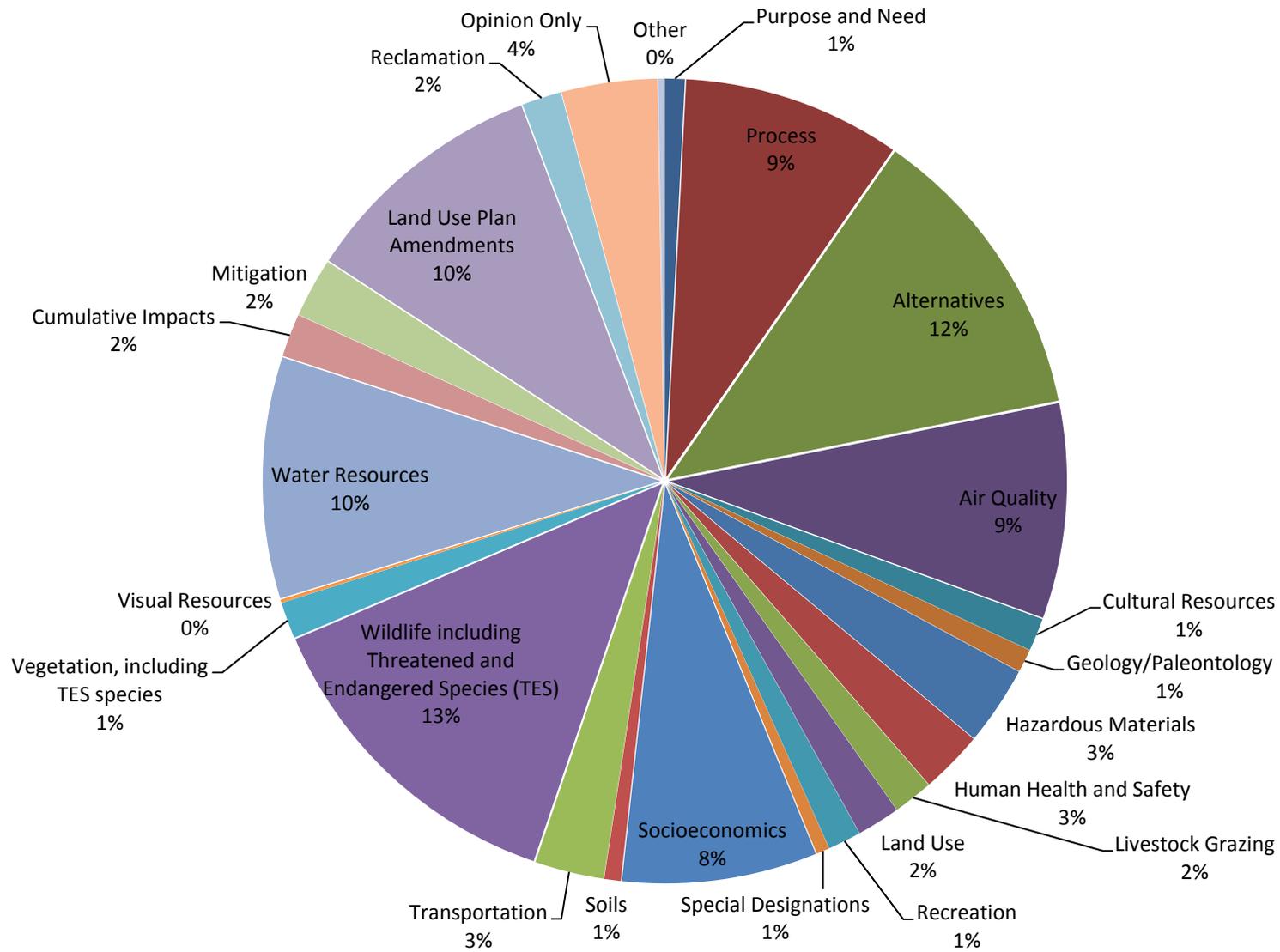


Figure 3-1 Percentage of Comments by General Resource Issue or Topic

4.0 Substantive Public Comment Summary

Substantive scoping comments fell into the following four broad categories: Process, Purpose and Need, Alternatives Development, and Impacts Analysis (including resource-specific concerns and cumulative impacts). Comments are summarized below in narrative form for each resource issue area (e.g., all comments specific to wildlife are included under the Wildlife category; all comments specific to visual resources are in the Visual Resources category, etc.). This section represents a summary of the formal comments received during public and agency scoping. A more detailed record of all formal comments arranged by both submission and by resource issue is included as **Appendix E**. The narrative summary is organized in the following order, which generally mirrors the structure of the EIS:

- Process (Chapter 1 and/or 6 of the EIS)
- Purpose and Need (Chapter 1 of the EIS)
- Alternatives (Chapter 2 of the EIS)
- Impact Analysis (Chapters 3 and 4 of the EIS; listed alphabetically by resource , followed by cumulative impacts, and general mitigation comments)
- Land Use Plan Amendments (Chapter 5 of the EIS)
- Non-substantive Comment Summary (opinion only or out of scope comments)

4.1 Process

Process comments focused on BLM regulatory authority for oil and gas development, the NEPA process, consultation and coordination, consideration of other planning processes, and post-NEPA processes.

4.1.1 BLM's Regulatory Authority for Regulating the Project Design

Comments noted the wide array of BLM and other federal regulations and policies that require the BLM to minimize the impacts of oil and gas development or to ensure that the environmental impacts of such development are greatly reduced:

- Federal Law including:
 - National Historic Preservation Act (NHPA)
 - Endangered Species Act (ESA)
 - Clean Water Act (CWA)
 - Clean Air Act (CAA)
 - Mineral Leasing Act (MLA)
 - Federal Land Policy and Management Act (FLPMA)
- Code of Federal Regulations (CFR), specifically 43 CFR 3101.1-2
- Onshore Oil and Gas Order Nos. 1 and 9
- BLM Oil and Gas Leasing regulations and guidance including tThe Standard Lease Form as well as Leasing, Permitting, and Easement Regulations, other BLM Regulations, and The Gold Book

Comments noted that ensuring these regulations and other authorities are fully abided by is necessary if the BLM is to meet its NEPA obligations relative to an EIS, and that accepting an operator's proposed plan does not meet these obligations; at a minimum more stringent provisions need to be considered in the EIS, and possibly adopted as conditions of approval (COAs) or best management practices (BMPs),

or stipulations for this project, in order to meet BLM's regulatory, statutory, and NEPA obligations. The comments further noted that the BLM has a wide range of options at its disposal to regulate the siting or design of facilities and the timing of operations, up to and including suspending oil and gas operations in the interest of conservation, prohibiting development if impacts are substantially different or greater than normal, specifying the rates of oil and gas development and production, and preventing "adverse impacts" by requiring "reasonable measures," which can be used to limit all types of environmental harm. Comments further stated that the BLM must at least consider means to reduce environmental impacts per BLM Informational Bulletin No. 2007-119 ("Existing Surface Management Authority for Oil and Gas Leases").

4.1.2 Scope of NEPA Analysis

Comments indicated that the NEPA analysis should disclose the full extent of proposed development, as well as the direct and indirect effects of all aspects of the project and the cumulative impacts of past, present, and reasonably foreseeable future actions regardless of who is responsible for those actions. Comments noted the EIS process should result in a schedule for issuing permits that is sustainable and manageable from all three viewpoints; BLM, County, and the OG.

4.1.2.1 Inclusion of Hydraulic Fracturing in the EIS

Comments stated that the EIS must disclose the impact of hydraulic fracturing and cannot leave an analysis of these impacts to the development stage, claiming that not enough is known to address impacts and/or that impacts will be addressed when drilling is proposed. Comments indicated that the courts have ruled that the basic thrust of NEPA is to require that agencies consider the range of possible environmental effects before resources are committed and the effects are fully known; reasonable forecasting and speculation is thus implicit in NEPA. Comments noted that the BLM recently attached a "Hydraulic Fracturing White Paper" as an appendix to recent lease sale environmental assessments (EAs), but indicated that the BLM cannot rely on the White Paper as fully meeting its NEPA obligations relative to hydraulic fracturing for this EIS, as its arguments (that impacts are unknown and will be considered if development is proposed) are exactly the claims which were rejected in the cited court case (*Center for Biological Diversity v. Bureau of Land Management*, 937 F. Supp. 2d 1140 [N.D. Cal. 2013]). Comments stated that where there is incomplete or unavailable information relative to significant adverse impacts, an EIS must seek to include the information in the EIS when such information is essential to a reasoned choice among alternatives and the costs of obtaining it are not exorbitant. If data cannot be obtained, the EIS (per CEQ regulations) must state what information is incomplete or unavailable, identify the relevance of that information to evaluating adverse impacts, provide a summary of existing scientific evidence relative to impacts, and include the agency's evaluation of such impacts based on theoretical approaches or research methods generally accepted by the scientific community.

4.1.2.2 Programmatic EIS Analysis and Subsequent NEPA Analysis

Comments questioned the ability of the BLM to analyze impacts in enough detail to provide a reasoned assessment of impacts when there are no specific well locations or other site-specific information. Comments stressed that many of the potentially significant impacts of this project are site-specific in nature as discussed below, and that the actual locations of wells, roads, overhead power lines, pipelines, compressor stations, and other facilities approved under this project will determine whether environmental impacts are significant or not, and the magnitude of significant impacts.

Comments stated that failure to disclose well site locations and road alignments, as well as other facilities, will make it impossible for the BLM to fully evaluate the significant impacts to the human environment that will certainly result from a fluid minerals project of this magnitude, and that the BLM must disclose and fully map actual locations for infrastructure in order to assess the direct and cumulative impacts of this project on sensitive lands and resources. Comments indicated that the BLM has given blanket approval for large numbers of oil and gas wells under an EIS without assessing site-specific impacts until Applications for Permit to Drill (APDs) are sought, at which time individual APDs are approved under EAs with Findings of No Significant Impacts, and that under this scenario, the

significant site-specific impacts of locating project facilities in sensitive areas never occurs, in violation of NEPA. Comments further stated that the BLM must not write a blank check for these 5,000 wells, because the significance of site-specific impacts to sage-grouse habitats and other sensitive lands and resources is now well-understood.

Comments requested that the analysis of all resources clarify how the potential impacts change when there is a shift from 5 to 6 wells per site to 12 to 16 wells per site.

Others cautioned that the BLM must not engage in the speculative analysis of potential impacts, but rather leave that for subsequent site-specific NEPA.

Comments noted that the Casper RMP and other BLM documents such as the hydraulic fracturing White Paper (see Section 4.1.2.1, above) are built around an assumption that there will be environmental review at the well-drilling (APD) level and if this project level NEPA review is eliminated through the use of categorical exclusions (CEs), a great deal of environmental impact will simply be ignored. If the EIS will not provide a site-specific analysis of environmental impacts because the BLM only will know what those impacts could be at the APD stage, then the BLM must ensure that NEPA analysis is provided at the well drilling stage, and not eliminate NEPA analysis through the use of the Energy Policy Act CEs (also see general Impact Analysis comments).

4.1.2.3 Connected Actions to Analyze in the EIS Process

Comments indicated that if the existing commercial oilfield wastewater disposal facility (COWDF) cannot process the project's proposed volume of produced water, then expansion of existing COWDFs or the construction and operation of a new COWDF should be included as part of the project and analyzed accordingly.

Comments also identified the potential for additional businesses to develop as a result of the project and indicated these should be researched thoroughly as potential connected actions that should be analyzed in the EIS.

Comments indicated that the EIS must include and analyze alternate methods for getting product to market.

Comments listed a number of oil and gas projects and stated that because CEQ regulations make provision for preparing EISs for broad actions by either geographic area or by similarity of action, these other oil and gas fields constitute either connected actions or similar actions and should clearly be analyzed in one NEPA document. Comments suggested this could be done either as part of the EIS or in another NEPA analysis that is done as part of the approval process for the project (also see Cumulative Impacts comments).

4.1.2.4 Consideration of Ongoing Development in the EIS Process

Many scoping comments indicated that ongoing and planned development must be allowed to continue while the EIS is being developed and that the BLM should continue to permit individual wells subject to site-specific NEPA analysis such as that is already prepared for the Spearhead Ranch, Highland Loop Road, and East Converse EAs. Some supporters of ongoing development cited Instruction Memorandum (IM) 2001-191, which states, "When a RMP is being amended or revised, BLM will continue to process site-specific permits, sundry notices, and related authorizations on existing leases in an expeditious manner while ensuring compliance with NEPA and other laws, regulations, and policies," and indicated that the BLM must follow these requirements during the current planning process. Those in support of ongoing development cited the large sums invested by Operators into leasing federal and private minerals; the time landowners have spent negotiating surface use agreements; and the need to reduce stress on local governments, schools, and social service programs through a predictable development schedule.

Other submittals indicated that the effects of unconventional drilling are uncertain and have yet to be analyzed through the Casper FO RMP or through a project-level EIS and therefore should be suspended until a more thorough EIS analysis of significant site-specific and cumulative impacts has been completed.

4.1.3 Consideration of Ongoing Planning Processes

4.1.3.1 Ongoing RMP Amendment Processes

Comments noted that the project is in conformance with the management prescribed in the 2007 RMP and Record of Decision (ROD) and the BLM is permitted to approve the project even though the RMP is in the process of being amended.

Comments further noted that the BLM has begun a review of its planning process to engage in landscape scale planning that defines boundaries for different types of decisions and indicated that any potential changes in BLM planning regulations and the BLM planning handbook should be tracked and incorporated into any amendments to the Casper RMP.

4.1.3.2 Ongoing BLM and State of Wyoming Rule-Making

Comments noted that the BLM will release its final regulations governing hydraulic fracturing on the public domain and mineral estate in September 2014 and that the BLM should ensure full compliance with this rule by implementing the mitigation measures that will be a component of these rules. Comments noted that the BLM recently held forums on forthcoming rulemaking and encouraged the BLM Casper FO to get those comments from the Secretary of the Interior's office and to consider them during development of the EIS.

Comments also noted that the State of Wyoming is working to review and update the Wyoming Oil and Gas Conservation Commission's (WOGCC) rules on flaring, setbacks, and bonding. The updated rules regarding setback distances are expected to be finalized in 2014, with flaring and bonding rule reviews likely to be taken up and finalized before the end of 2015. Comments further indicated that these WOGCC rules will likely be in place by the time this project is implemented, and should therefore be ready to comply with the revised rules.

4.1.4 Consultation and Coordination

4.1.4.1 Section 7 Consultation

The U.S. Fish and Wildlife Service (USFWS) provided a list of Endangered, Threatened, Proposed, and Candidate Species and their designated and proposed critical habitat that occur in or may be affected by actions in the proposed project area and requested, in accordance with Section 7(c) of the ESA, information as to the current status of each of these species within the proposed project area. The USFWS also requested notification of any decision made on this project (such as issuance of a permit or signing of a ROD or Decision Memo) in writing.

4.1.4.2 Section 106 Consultation

Alliance for Historic Wyoming (AHW) asked to be considered an interested party for all consultations under Section 106 of the NHPA, as amended.

Scoping comments expressed concern about the ability of the Section 106 process to adequately address impacts to heritage resources such as cowboy culture, open spaces, unobstructed views, clean air, and the ability to transport visitors back to another era— none of which are eligible for the National Register of Historic Places (NRHP) but which are essential elements of the “human environment” that the BLM is mandated by NEPA to consider in their analyses (also see Cultural Resources comments).

4.1.4.3 Coordination with Other Agencies and Stakeholders

Comments indicated that the EIS will need to consider the National Forest Management Act (NFMA) viability requirements for USFS lands and ensure that any alternative that is adopted complies with these requirements.

Comments stated that the range of alternatives for the EIS should be developed in coordination with Cooperating Agencies.

Commenters expressed a general view of unregulated growth and lack of communication between operators, landowners, mineral owners, and county, state, and federal government. It was suggested that a group composed of members of the BLM, WOGCC, and other agencies could be created to facilitate communications. Comments noted that the BLM and the WOGCC both have regulatory responsibilities of oil and gas activities, and suggested the BLM develop a Memorandum of Understanding (MOU) with the WOGCC to expand cooperation and define oversight during the EIS process in an effort to reduce duplication and increase coverage. Other comments indicated that the BLM should rely on the WOGCC to maintain consistent and appropriate environmental controls on the development project.

Comments also stated that the BLM and Applicants work closely and consistently with affected grazing permittees during the EIS process to inform all livestock grazing permittees who are directly or indirectly affected of the issues, decisions, and resulting actions regarding this proposal; work with permittees to address their concerns; and develop a plan to mitigate any identified conflicts (also see Livestock Grazing comments).

Commenters requested to be added to the mailing list and receive notices of future stages. Comments noted that land and mineral owners would like to have input as to the location of well pads if there is potential conflict regarding land use.

Comments noted that the U.S. Environmental Protection Agency, U.S. Department of Agriculture, and U.S. Department of Interior entered into a MOU Regarding Air Quality Analyses and Mitigation for Federal Oil and Gas Decisions through the NEPA Process on June 11, 2011, and will continue to work with the BLM using this tool for air quality evaluations. Comments commended the BLM for beginning a collaborative process early with the Interagency Review Team (IRT) to develop a protocol for the air analysis and indicated the reasonably foreseeable development (RFD) and emissions inventory information should be discussed during with the IRT team to determine the next steps for the air quality analysis, such as quantitative air quality modeling (also see Air Quality comments).

The USFWS also requested the opportunity to review the Spill Prevention, Control, and Countermeasures (SPCC) Plan as part of the EIS review process (also see Water Resources and Hazardous Materials comments).

4.1.5 Post-NEPA Permitting Issues, Including Inspections

Comments noted that only 45 percent of BLM wells have been inspected, and that the Government Accountability Office's report states that 57 percent of "high priority" wells needing inspections at the drilling stage were not inspected during this stage of development between 2009 and 2012. Comments noted that while Converse County had relatively few uninspected wells, adjacent Campbell, Natrona, and Johnson counties had very high numbers of uninspected wells. Comments questioned how the BLM and State would be able to handle inspection and enforcement of 5,000 new wells if they cannot inspect the wells they have permitted to date. Some respondents indicated that until the BLM is willing and able to inspect all high-risk wells in a timely and diligent manner, the agency should not allow any drilling on BLM land. Comments stated that the BLM must ensure in the Converse County EIS, and any related RMP amendment, that adequate provision is made for well inspections, including adequate numbers of personnel (the documented reason for the inadequate number of inspections). Commenters suggested

that if adequate staffing is not available to do timely inspections, the pace of development in the project area should be adjusted accordingly.

Comments requested that all APDs and well information be made available to the public for review and comment. Comments noted the ability for oil and gas companies to receive exceptions to rules at the expense of public health and safety, specifically through sundry notices. Comments regarding the subsequent APD and NEPA process also requested a description of the process related to APD approval, including the anticipated use of any CEs under NEPA. Comments indicated that the BLM should require all APDs that will be tiered to this EIS to be open to public notice and comment, and that if APDs will be approved without public notice and comment, the BLM should include a commitment in this EIS to receive additional public comment at least once a year as part of the adaptive management plan for the EIS. Comments further stated that the BLM should commit to having all APD files and records open to public inspection without FOIA requests and requested that the EIS include a transparency and public accountability plan to address these issues.

Comments questioned the implementation and maintenance of permitting, monitoring, and mitigation programs that result from the EIS and requested that they be adaptive to future changes.

4.2 Purpose and Need

Comments indicated that while the Applicant may ask federal agencies to consider year-round drilling, this statement should not be part of the Purpose and Need statement, since it would preclude development of reasonable alternatives containing seasonal restrictions.

Other comments in support of the project indicated that the Purpose and Need statement was appropriate, well developed, and consistent with the multiple-use mission of the agency.

No comments were received regarding the USFS Purpose and Need.

4.3 Alternatives

Comments concerning alternatives fell into four main categories: comments about the Proposed Action, comments about the range of alternatives to be examined in the EIS, comments about the No Action Alternative, and comments containing suggestions to incorporate into the project as either design features or mitigation. Comments are discussed in more detail in the following subsections.

4.3.1 Proposed Action/Plan of Development

Submittals asked for more information on project siting and material use to assist in the evaluation of impacts. Specific requests are noted below, by resource.

- Air Quality: dust control methods.
- Water Resource: amount of water that would be used by phase and potential sources by type (municipal, agricultural, surface water, and groundwater) as well as anticipated amounts of produced water and identification of disposal sites and/or the formation(s) that would be used for water disposal.
- Wildlife, Vegetation, and Cultural Resources: site-specific locations of wells, roads, overhead power lines, pipelines, compressor stations, and other facilities approved under this project.
- Transportation: Annual and daily traffic estimates, route identification, and timing of traffic on those routes.
- Socioeconomic: More information about the employment, housing, and project expeditors including, but not limited to: total number of workers by year, expected seasonality in work force,

average wage, average job duration, percent of local hires, percent of in-migrating workers expected to bring families; expected residence locations for the work force, location, and amount of company-supplied housing; and total portion non-labor expenditures that would be made locally, and an estimate of total or annual sales tax revenue.

- Hazardous Materials: Expected construction waste amounts per well; expected amounts of oil, produced water, and all chemicals used in hydraulic fracturing, drilling operations, and reclamation, including fracturing sand; expected transportation methods for hazardous material and product transport, including specific routes to and from the project area; and expected methods of hazardous material storage and disposal.

Comments further indicated that the following plans should be included within the EIS for public review and comment:

- Reclamation Plan
- Air Quality Monitoring Plan
- Water Resources Monitoring Plan
- Spill Prevention, Control, and Countermeasures (SPCC) Plan
- Cultural Resource Monitoring and Discovery Plan
- Transportation Plan

Comments questioned the accuracy of the acreage disturbance cited in the NOI, indicating that although the project descriptions indicates wellpads will be up to 12 acres in size, existing wellpads in the project area already approach or exceed 20 acres in size.

Comments recommended that protocols for project-level siting are developed that encourage co-location of new disturbance features with existing disturbance features to the extent practical to reduce habitat loss and fragmentation.

Comments also requested more information about how the project boundary was determined, including information about the number of leases and wells outside the boundary, and indicated that if drilling exists in these areas, it should be included in the EIS for analysis.

Comments proposed that the project's south boundary be extended to the interstate from west of Douglas to N/S boundary line west of Glenrock, as the current southern boundary map excludes development, particularly secondary development. Comments requested an explanation of how the BLM derived the scope of the Proposed Action, including the number of wells and well pads.

4.3.2 Range of Alternatives to be Examined in the EIS

Comments about the range of alternatives to be examined in the EIS focused on defining a "reasonable" range of alternatives that are consistent with valid and existing rights and meet Purpose and Need.

Comments suggested (via cited court cases) that the BLM must consider the purpose of the OG's proposal and the objectives identified in the EIS Purpose and Need Statement. Comments stated it is appropriate for the agency to give substantial weight to the goals and objectives of that private operator, (which in this case, is 1) to develop and maximize recovery of the hydrocarbon resources underlying their federal, state, and private fee mineral leases within the project area; and 2) to enable the OG's commercial production of federally, state, and privately owned mineral resources in conformance with the Casper RMP pursuant to their rights under existing oil and gas leases issued by the BLM, the State of Wyoming, and private land owners.

Scoping comments indicated that the BLM must ensure that it only analyzes alternatives that meet the purpose and need of the project and noted that reasonable alternatives include those which will accomplish the intended purpose, are technically and economically feasible, and yet have a lesser or no impact and noted that the CEQ has described reasonable alternatives as “those that are practical or feasible from the technical and economic standpoint and using common sense, rather than simply desirable.” Comments indicated that federal courts and the Interior Board of Land Appeals have made it clear that alternatives that do not accomplish the purpose of an action are not reasonable and need not be studied in detail by the agency, and that the BLM may therefore not analyze alternatives that are not consistent with the Converse County's purpose and need of developing hydrocarbon resources within the project area.

Comments suggested that the BLM may not affect the OG's ability to access minerals under existing leases and once the BLM issues leases, it cannot preclude development or impose additional lease stipulations. Citing a variety of court cases, commenters stated that once the BLM has issued a federal oil and gas lease without no surface occupancy (NSO) stipulations, and in the absence of a nondiscretionary statutory prohibition against development, the BLM cannot completely deny development on the leasehold.

Commenters suggested that overly stringent restrictions or COAs may render development uneconomic and that BLM must recognize that the hydrocarbon resources within the project area may not be developed if restrictions render development economically unfeasible. Comments also noted that recognizing that certain technologies may not be feasible throughout the project area.

Comments recommended digitizing current surface disturbance to provide a baseline density/disturbance analysis relative to density/disturbance thresholds (i.e., 5 percent and 1/640) as a means for guiding alternative development and also recommended that the project review Chesapeake Energy's POD for oil and gas in the Douglas core area.

The following sections describe the full or partial alternatives that were suggested in scoping comments. Comments suggested that the EIS include a detailed explanation of the rationale for the development of each alternative considered, including how the alternative satisfies the OG's purpose and need.

4.3.2.1 Phased Development Alternative

Comments requested the inclusion of a phased development alternative that is enforceable based on social and economic impact criteria and on reclamation goals and objectives. Supporters indicated that this alternative would minimize impacts to water, air, land, wildlife, and social and economic resources. Other comments also suggested that the BLM is not required to analyze alternatives that require phased development of oil and gas resources, citing a recent decision of the United States Court of Appeals for the Tenth Circuit that recently affirmed a BLM decision not to require a phased leasing resource management plan specifically because such an alternative would delay the production of energy resources and was not otherwise practical. Additional commenters objected to the incorporation of a phased alternative because it would require oil and gas developers to develop leases in only one portion of a geologic basin or area at a time, thereby limiting and precluding exploration and development activities.

4.3.2.2 Timing Stipulations Alternative

Comments also suggested if the Proposed Action includes waivers of timing limitations, then the EIS must analyze alternative(s) that retain timing limitations. Commenters suggested it is reasonable to apply comprehensive moratoria for project-related vehicle traffic and human activities (except in emergencies) in sensitive wildlife habitat such as sage-grouse seasonal habitats, big game crucial winter ranges or migration corridors, and within 2 miles of ferruginous hawk nests or 1 mile of other raptor nests, during their key season of use for the wildlife species in question and cited the Big Porcupine Coalbed Methane Project as an example of successful implementation.

4.3.2.3 **Balanced Alternative**

Comments also requested inclusion of an alternative that balances year-round drilling with enhanced protection for important habitats and offers environmental protections while fully recognizing the correlative rights provided by mineral lease agreements with not only the federal government but also the State of Wyoming and private mineral owners.

4.3.2.4 **Full Resource Protection Alternative**

Comments requested inclusion of a “resource protection” alternative that proposes full recovery of fluid mineral resources with the lowest possible impact on all aspects of the human environment including wildlife, air and water quality, human health and safety, and climate change. This alternative would minimize the amount of surface disturbance, cluster development in sensitive habitats, and apply all appropriate seasonal and distance stipulations for wildlife.

Comments suggested the BLM explore the use of additional well sites on pads, noting that other operators in Wyoming have already clustered as many as 72 wells on a single pad.

Comments also noted that the Normally Pressured Lance project proposes to drill the entire project with a maximum wellpad spacing of 4 pads per square mile outside sage grouse key habitats, and one wellpad per square mile inside Core Areas, with all well field equipment concentrated at a maximum of 11 sites throughout the project area, to minimize equipment, traffic and human activity at wellpads, and facilitate earlier road reclamation. Comments stated the fact that EnCana is proposing such an alternative makes such an alternative reasonable for this project.

Comments also indicated that if resource impacts become unacceptable, the BLM should impose a moratorium on new leasing and permitting and requested inclusion of an alternative that requires the cessation of activities if and when Clean Air Act violation(s) occur.

4.3.2.5 **Maximum Development Alternative**

Scoping comments also recommended that the BLM consider an alternative that would maximize the oil and gas play in Converse County, stating that 5,000 wells—one well pad for every 2.8 square miles in the county—is too low.

4.3.2.6 **Greenhouse Gas Reduction Alternative(s)**

Comments requested inclusion of alternative(s) designed to reduce or eliminate greenhouse gas emissions, such as:

- An alternative that requires carbon-neutral drilling, fracking, and production activities. This alternative would stipulate that drilling could only proceed if the operator eliminates potential carbon emissions or otherwise secures enforceable offsets that ensure no net increase in carbon emissions.
- An alternative requiring measures to directly mitigate methane emission impacts, including, but not limited to:
 - Centralized liquid gathering systems and liquid transport pipelines;
 - Reduced emission completions/recompletions (green completions);
 - Low-bleed/no-bleed pneumatic devices on all new wells;
 - Dehydrator emissions controls;
 - Solar-powered electric pumps in lieu of pneumatic chemical injection pumps;
 - Electric-powered glycol pumps at new production facilities where grid electricity is available (or solar-powered models);

- Replacement of high-bleed pneumatics with low-bleed/no-bleed or air-driven pneumatic devices on all existing wells;
 - Electric compression;
 - Liquids unloading (using plunger lifts or other deliquification technologies);
 - Improved compressor wet seal maintenance/replacement with dry seals;
 - Vapor recovery units on storage vessels; pipeline best management practices;
 - Mitigation of emissions from storage vessels; and
 - Leak detection and repair.
- An alternative that forbids the venting or flaring of methane or other products. Comments noted that venting of methane unnecessarily contributes to climate change and poses a health hazard to people and wildlife without any human benefit in the form of energy and denies local, state, and federal entities the mineral royalties to which they would otherwise be entitled.

4.3.2.7 Close Loop Drilling Alternative

Comments recommended that the BLM should consider at least one alternative that requires the use of closed-loop drilling, indicating that this would obviate the need for reserve pits, which expand the surface footprint of wellpads unnecessarily, and represent a health and safety hazard for avian and terrestrial wildlife.

4.3.3 Project Design Features to be Incorporated into the Proposed Action, Range of Alternatives or Mitigation Measures

Many submittals included suggestions of mitigation measures, design features, or BMPs that could be used to minimize resource impacts. These elements are discussed in the resource section for which they were suggested as a means of reducing impacts.

Comment submittals also included attachments of reports, comment on other projects, or white papers that discuss practices that can be required of oil and gas development projects, and requested that the BLM review these documents for potential inclusion in this project.

4.3.4 Project Reclamation

Comments identified reclamation as a key component of any project and stated that reclamation guidelines must be complete, realistic, and implemented in a timely manner. Comments indicated that reclamation methodology and application must be considered in the EIS analysis and be developed with consideration of ecological concerns such as soil salinity, erosion potential, Ecological Site Descriptions, and annual precipitation. Comments requested that the EIS include a detailed reclamation plan that:

- Ensures operators completely restore well sites and properly plug any abandon wells;
- Reclaims tank sites and roads both intermediately and finally upon well abandonment;
- Ensures weed control and vegetation restoration is completed at the earliest possible date;
- Contains an implementation time table and clear criteria for successful reclamation in the various habitat types that will be impacted;
- Requires reclamation standards and goals to be met before Applicants can proceed to another area;
- Describes enforcement measures to be taken by the BLM/USFS including how and when inspections would occur;
- States clearly the consequences of failure on the part of Companies; and

- Includes adequate bonding tied to the true cost of reclamation.

Comments noted that unreclaimed sites on private lands may impact property values, potential land uses, and result in costs to landowners for additional clean-up or other restoration activities. Comments included personal experiences with delayed reclamation on private lands and noted that reclamation activities themselves may expose landowners to additional contaminants via fly ash containing heavy metals.

4.3.5 No Action Alternative

Scoping comments also noted that the BLM may not analyze an alternative that would result in no additional development as a “no action” alternative; but rather, under a “no action” alternative, the BLM may only analyze continuation of the status quo and analyze development that could proceed under the current management of the Converse County Area if the BLM did not approve the OG’s proposal. Additionally, the BLM should clearly inform the public that election of the No Action Alternative would not meet the purpose and need of the Proposed Action, would be inconsistent with the BLM’s mandate to encourage natural gas production from federal lands, and would be contrary to the National Energy Policy and EO 13211, 66 Federal Register 28355.

Other scoping comments phrased their concern about the No Action Alternative and that the BLM may not analyze an alternative that would result in denial of the project.

Scoping comments also stated that the No Action Alternative cannot be the RFD scenario developed by the BLM. Comments noted the RFD scenario is defined by the BLM as a baseline scenario of activity assuming all potentially productive areas can be open under standard lease terms and conditions, except those areas designated as closed to leasing by law, regulation or EO (IM 2004-089) and is neither a Planning Decision nor the No Action Alternative in the NEPA document.

4.4 Impacts Analysis

Comments noted that the EIS analysis should be based on peer-reviewed science and that the BLM/USFS must identify the science supporting their decisions and planning regarding this project. Comments also provided additional reference materials for review by resource specialists during impact analysis.

4.4.1 Air Quality and Climate Change

Air quality comments focused on concern about exceeding National Ambient Air Quality Standards (NAAQS) particularly ozone, particulate matter; climate change; flaring; analysis methodologies, including modeling; mitigation and monitoring; and coordination between the BLM and the Wyoming Department of Environmental Quality (WDEQ) Air Quality Division (AQD).

4.4.1.1 Compliance with Ambient Air Quality Standards

Comments noted that areas near the project area have been designated as federal nonattainment areas where the applicable standards have been violated in the past and expressed concern that air monitoring has shown exceedances of ozone and particulate matter standards, citing in particular PM₁₀ monitoring data collected near and south of Gillette, Wyoming, that has exceeded ambient air quality standards.

Comments expressed concern about dust control on county and private roads, and indicated that the dust currently generated from the ongoing use of a limestone product is excessive. Commenters noted that 1,890 miles of new roads and the construction of 1,500 new well pads would result in dust pollution that could have negative impacts on residents of Converse County from health, environmental, safety and expense perspectives and also can be carried away from the roadway into streams and rivers. Commenters noted that the POD does not describe any methods to control fugitive dust and further noted that any produced water to be used for dust abatement must be analyzed for contaminants.

Comments also suggested that the use of a processed river gravel road base of materials instead of limestone surfacing material.

Comments requested an analysis of each of the criteria pollutants (ozone, particulate matter [both PM₁₀ and PM_{2.5}], carbon monoxide, nitrogen oxides, sulfur dioxide and lead) in terms of the appropriate NAAQS, using the most recent air emissions inventories for the county and results of any site-specific monitoring, and development of appropriate mitigation as needed.

4.4.1.2 CAA Class I and Sensitive Class II Areas

Comments indicated that the project could potentially impact CAA Class I Areas, which are afforded special protection for air quality related values (AQRVs), including visibility. Comments stated that the EIS must examine impacts to AQRVs in Class I areas and sensitive Class II areas and identify measures to manage significant impacts. Comments stated the analysis should disclose the Prevention of Significant Deterioration increment at potentially impacted Class I and sensitive Class II Areas.

4.4.1.3 Climate Change

Comments stated the BLM should consider how climate change will impact BLM-related activities such as reclamation of lands disturbed for energy development, wildfire management on BLM lands, and revenues from a dwindling domestic coal industry. Comments indicated that per draft CEQ guidance and EO 13514, the BLM should include an analysis and disclosure of greenhouse gas (GHG) emissions and climate change associated with the RFD for the planning area, potential climate change impacts from the emissions, reasonable alternatives and/or practicable mitigation to reduce project-related GHG emissions, and a discussion of any appropriate climate change adaptation issues.

Comments recommended the following steps to enable the BLM to determine whether it may be appropriate to consider reasonable alternatives to adapt to anticipated climate change.

- Estimate the anticipated GHG emissions associated with the proposed project in CO₂-equivalent terms and translate into equivalencies that are more easily understood by the public.
- Assess and identify measures to reduce GHG emissions associated with the proposed project, including alternatives and/or potential requirements to mitigate emissions.
- Describe any existing regional, tribal, or state climate change plans or goals that cover the project area.
- Include a summary discussion of ongoing and projected regional climate change relevant to the project area in the “affected environment” section of the EIS, based on U.S. Global Change Research Program assessments. This would enable the EIS to identify potential impacts that may be exacerbated by climate change (e.g., reclamation could become more difficult with climate change, or the impacts of water consumption could increase).

Comments indicated that the BLM must ensure that it addresses their global warming impacts based on the best available science and noted that the USEPA has identified methane as having a global warming potential far greater than CO₂. Noting that over 30 percent of methane emissions came from production sources, comments requested the BLM assess total carbon impacts associated with methane emissions on both a 20-year and 100-year scale. Comments also noted that indirect emissions of methane and/or carbon dioxide are likely to result from truck traffic, compressor station operations, refining, and the ultimate combustion of oil and gas downstream of processing and refining facilities.

Comments requested that the BLM conduct a cost-benefit analysis that gives consideration to the social cost of carbon estimates, defined as “an estimate of the economic damages associated with a small increase in CO₂ emissions, conventionally one metric ton, in a given year.”

4.4.1.4 Flaring

Comments cited reports concerning the loss of natural gas to flaring and venting (between 3 and 6 percent off all natural gas produced onshore on federal lands) and expressed concern about the concomitant health risks, as well as loss of royalties.

Comments expressed concern that current flaring rules are not enforced and may not be sufficient to protect the air quality during and after drilling 5,000 wells. Comments requested that the BLM should require measures limiting flaring of wells during testing periods or other times. Comments suggested that production test flare should be limited to 72 hours.

Comments noted that pursuant to President Obama's "Climate Action Plan Strategy to Reduce Methane Emissions," the BLM has been charged with proposing regulations to reduce the loss of natural gas through venting or flaring by later this year and will be modifying Onshore Order No.9 and/or Notice to Lessee (NTL) NTL- 4A., which governs royalties on natural gas that is vented or flared as well as "avoidably lost." Comments anticipated that the proposed rule will be published in the Federal Register this fall— before the ROD for the Project—and the BLM should ensure the ROD fully complies with the new regulations governing venting, flaring, and waste of methane from Federal oil and gas leases, including payment of royalties on any flared or vented gas. Comments also suggested the incorporation of new regulations as mitigations or BMPs if the rules are not yet finalized, as the BLM has done with the recently completed Tres Rios project in Colorado.

Comments further noted the USEPA and the Department of Energy also will be engaging in efforts to reduce methane emissions, including the Quadrennial Energy Review, which will evaluate methane abatement opportunities from the processing, transmission, storage, and distribution segments of the natural gas supply chain. Comments stated that the BLM should be fully cognizant of these efforts as they develop the EIS and seek to complement them.

Comment noted that the project includes midstream infrastructure such as pipelines; gas compression and gas processing plants will be constructed and suggested that these would provide an alternative to flaring and indicated that both options should be examined in the analysis.

4.4.1.5 Coordination with WDEQ AQD

Comments stated that the regulation of air quality is and should continue to be the responsibility of the WDEQ AQD under their current regulatory framework, while others request that the BLM ensure full compliance with the NTL- 4A, which replaced Onshore Order No. 9.

Noting that WDEQ AQD dictates the application of Best Available Control Technology (BACT) for all new or modified sources, comments noted that Converse County is located in an area with the least stringent BACT requirements, and requested clarification on how the EIS and AQD regulations will relate to one another, and if EIS make any recommendations to change AQD BACT requirements.

4.4.1.6 Air Quality Modeling

Comments included the need to comply with the MOU entered into by the BLM, USFS, and USEPA requiring air quality modeling if the project: 1) would cause a substantial increase in emissions, 2) would materially contribute to potential adverse cumulative air quality impacts, and/or 3) would be in close proximity to a Class I area or an area where compliance with NAAQS is threatened.

Commenters indicated that air quality modeling must consider the accumulation of all air pollutant sources from production, processing, storage, or transportation of oil or gas, including but not limited to, flaring, venting, releases of dry matter from well sites (such as fracturing sand and barite), mobile emission sources such as drilling rigs, evaporation from the pits, all the new gravel pits, new industry to support the development (such as gas plants), wastewater disposal, compressor stations, and additional vehicle traffic, as well as forecasting emissions associated with potential leaks.

Comments stated that ozone, nitrogen dioxide, and particulate matter must be included in the model analysis. Comments also requested disclosure of projected ambient concentrations of hazardous air pollutants (HAPs), including acetaldehyde, ethylene glycol, formaldehydes, methanol, n-hexane, and benzene, ethyl benzene, toluene, and xylene (BTEX), and any other compounds that the BLM identifies as potential hazardous air pollutants in the planning area.

Comments noted that the USEPA is proposing to lower the level of the NAAQS from 0.075 parts per million (ppm) over an 8-hour period to between 0.060 and 0.070 ppm. Comments stated that the BLM must assess potentially significant health impacts on the basis of whether ozone levels will be maintained at or below 0.060 ppm.

Comments suggested the use of dispersion modeling to address nitrogen dioxide impacts (as was done on the Fishlake National Forest Oil and Gas Leasing EIS). Comments suggested that the 3-State Air Quality Study be used for the modeling platform rather than the 3SAQS 2008 platform and that current and Reasonably Foreseeable Development be modeled and recommended Interagency Review Team review of the proposed approach.

Comments also requested an analysis of the use of natural gas power drilling rigs and electric vs. gas powered engines.

4.4.1.7 Suggested Mitigations or Design Features

Comments stated that the BLM also should consider mitigation measures in the event that adverse impacts to air quality or AQRVs on affected lands are predicted, as well as to reduce methane emissions per federal guidance. Specific suggestions included:

- Development of a GHG alternative (also see Alternatives comments);
- Limitations on the pace of development (also see Alternatives comments);
- Reducing flaring times to the extent practical;
- Non-flaring options (gas collection and transportation to a third-party, and/or new gas compression stations and gas processing plants);
- Use of natural gas power drilling rigs and electric motors in lieu of gas fired engines;
- Dust suppression measures for unpaved roads and construction areas;
- BMPs or other control technologies; and
- Air quality monitoring (see below).

Comments also stated that methane emissions must be reduced to the extent practical directed the BLM to the Quadrennial Energy Review, which will evaluate methane abatement opportunities from the processing, transmission, storage, and distribution segments of the natural gas supply chain.

4.4.1.8 Air Quality Monitoring

Comments indicated that the BLM must require air monitoring both on and offsite to determine compliance with the National and Wyoming Ambient Air Quality Standards and that the monitoring must include HAPs and volatile organic compounds (VOCs), including BTEX. Comments requested that the BLM work in conjunction with WDEQ and USEPA to develop an extensive air quality monitoring program as part of this EIS. Comments indicated that a monitoring plan must identify the emission reduction measures that that would be taken if air modeling shows that the air quality in Converse County will be at unacceptable levels. Comments pointed to Wyoming's Jonah Field as examples of measures that could be taken to reduce ozone. Comment also indicated that the Plan would need to include a system to notify resident of unacceptable air quality days.

4.4.2 Cultural Resources

Comments expressed concern about impacts to important historical and cultural sites (as well as Native American Traditional Cultural Properties [TCPs]) within the project area and requested that the BLM identify all sites including, but not limited to, Paleoindian archaeological sites and Expansion Era trails, homesteads, or features, to ensure that these sites and their settings are not degraded by project-related activities.

Comments indicated that significance of impact cannot be analyzed without detailed disclosure of the locations of all impacts to be approved under this project. Comments requested that the BLM require lands proposed for surface disturbance to be field-cleared by separate experts in archaeology and paleontology, prior to the onset of surface-disturbing activities. Comments reminded the BLM that their first obligation in regards to historic resources is avoidance of these resources and, only when that is not possible, minimization and then, finally, mitigation, and with the increased use of directional drilling, the actual siting of a well pad can be adjusted to ensure that historic properties are avoided upfront, diminishing the need for mitigation on the back end.

Comments encouraged the BLM to make extensive and effective outreach to affected tribes as early as possible noting that while Tribal Historic Preservation Officers and tribal elders may identify prehistoric and cultural features beyond those identified by State Historic Preservation Officers, the tribes may have not had the recent opportunity to do extensive ground surveys. Comments indicated that that EO 13007 places a heavy responsibility on federal agencies to cast a wide net among the affected tribes to ensure that all potential sacred sites are identified and that only through this kind of on-the-ground examination can they adequately contribute to the process of protecting their sacred sites in accordance with EO 13007.

Comments specifically identified the common corridor of the Oregon-California-Mormon-Pony Express National Historic Trails and the Bozeman Trail corridor as major cultural resources that may be affected by this project. Comments suggested that the ruts of Oregon Trail that parallel Highway 95 as it ascends Top of the World ridge and in other nearby areas should be evaluated before they are lost. Comments indicated the BLM often draws an artificial area of potential effect (APE) across historic trails that results in a degradation of the essential contiguous nature of these linear resources, and encouraged the BLM to take a larger view of national historic trails and recognize degradation to individual segments results in an incremental degradation of the entire trail resource. Comments also indicated that the historic and cultural landscape surrounding historic trail systems are not being adequately analyzed (also see Special Designation comments).

Comments stated that the BLM has not adequately evaluated impacts to Rural Historic Landscapes; non-native TCPs that are integral to local communities; undefined and unexamined historic and cultural landscapes such as “cowboy culture,” open spaces, unobstructed views, clean air, and the ability to transport visitors back to another era—some of which are not eligible for the NRHP but which are still essential elements of the “human environment” that the BLM is mandated by NEPA to consider in their analyses. Comments stated that the NEPA analysis must examine the impacts that the proposed project would have on heritage tourism, including the potential social and economic losses if these areas are sacrificed, noting the state’s dependence on tourism (second only to energy production) and questioned whether BLM’s deferral to the Section 106 process appropriately addresses this requirement (also see Process and Socioeconomics comments).

Comments applauded the BLM’s efforts to require cultural resource awareness and sensitivity training and encouraged the BLM to ensure that operators on this project are sufficiently trained to work around cultural and historic resources. AHW offered assistance in explaining the importance of these resources to the contractors and equipment operators.

Comments emphasized the importance of developing a comprehensive monitoring and cultural resource discovery plan for the project and indicated the plan must be available for review by the public as well as

those who have requested interested party status under Section 106. Comments indicated the plan would help to ensure compliance with the Native American Graves Protection and Repatriation Act, which is especially important in Wyoming because there is no comprehensive state statute regarding the discovery of human remains. AHW asked to be considered an interested party for all Section 106 consultations.

4.4.3 Geology and Minerals, Including Paleontology

Comments expressed concern about reserve pit contaminants such concentrated water-soluble metals, salts, and other chemicals mobilizing into adjacent soils and groundwater, citing reports documenting migration of leachate 400 feet from reserve pits (also see Hazardous Materials and Groundwater comments).

Comments requested disclosure of the type of depositional setting for each sedimentary formation (to assess the ability of the geology to naturally “confine” or separate fluids from production zones and fluids in underground sources of drinking water), including geologic maps with structural information, basin or production reports on the type of mechanisms that control hydrocarbon production zones, or hydrogeologic reports or test results that would provide information on groundwater movement (velocity, vertical and horizontal) permeability or hydraulic conductivity. Comments further noted that structural features such as faults and fractures can play an important role in providing pathways for gas and liquid migration from one formation or zone to another and recommended that the EIS provide available information on the complexity of the geology and hydrogeology for the project area, as well as a summary of the potential for natural or enhanced migration of fluids (gas and liquid) via geologic faults and fractures.

Comments expressed concern about potential for hydraulic fracturing hits due to well spacing and multiple wells on a single well pad and indicated that the EIS disclose the impacts of fracturing hits and propose measures that will prevent the occurrence.

Comments expressed concern about destruction of fossils and indicated the project area should be classified using the Probable Fossil Yield classification system, and important sites disclosed in the EIS.

4.4.4 Hazardous Materials

Comments indicated that the BLM should require immediate and ongoing disclosure of all chemicals used in hydraulic fracturing, drilling operations, and reclamation to the public; stating that full chemical disclosure from cradle to grave is needed to protect the health of humans, livestock, vegetation, and wildlife.

Comments requested that the POD and EIS identify:

- Expected construction waste amounts per well;
- Expected amounts of oil, produced water, and all chemicals used in hydraulic fracturing, drilling operations and reclamation, including fracturing sand;
- Expected method of transportation (i.e., truck traffic, rail traffic, pipelines, or other means of transportation) and specific routes to the project area;
- Expected methods of storage; and
- Mitigation measures for reducing exposure to workers and the public.

Comments also indicated that the EIS must analyze impacts to current uses of transportation routes and analyze potential impacts to the environment for spills, train derailments, and other reasonably foreseeable events. Comments also indicated that the EIS should examine alternate methods for getting product to market (also see Transportation and Process comments).

While noting that disposal of drilling fluid during the well development process is regulated by the WDEQ, comments expressed concern about private property being turned into dump sites by operators and/or mineral owners. Comments noted that current WOGCC regulations allow for the testing, solidifying, and burial of the water and oil based mud cuttings on the landowner's property, and although some operators chose to dispose of cuttings at authorized disposal facilities rather than solidification and burial, most operators bury their cuttings on the drill site. Comments also indicated that when companies use fly ash to solidify the cuttings or use a kiln to sterilize contaminants, VOCs are released into the air and on the ground. Comments stressed that there are properly permitted disposal options available to operators, as well as proposals for new landfill facilities and indicated that the BLM should require operators to employ pitless drill locations and to dispose of waste products, including all cuttings materials, in permitted facilities.

Comments regarding reserve pit contaminants (e.g., concentrated water-soluble metals, salts, and other chemicals) noted these can be mobilized into adjacent soils and groundwater especially if pit liners are torn and expressed concern that caustic soda, rig wash, diesel fuel, waste oil from machinery, and other refuse could be placed in reserve pits either deliberately or inadvertently. Comments cited reports documenting migration of leachate 400 feet from reserve pits, groundwater contamination 50 feet below buried reserve pits, and documented creation of benzene, lead, arsenic, and fluoride from improper waste disposal.

Comments indicated that the EIS should disclose the following related to the use of existing COWDFs for produced water disposal:

- Determination if existing COWDFs within the project area would be able to accommodate the additional produced water (also see Water Resources comments);
- Identification of COWDF's regulatory status and discuss any outstanding liabilities or violations; and
- Expansion of existing COWDFs or the construction and operation of a new COWDF for produced water disposal if the existing COWDF cannot process the additional volume of produced water (also see Connected Action comments).

Comments expressed concern about evaporation ponds (also see Wildlife comments) and indicated closure options must address disposal of remaining salts, which may contain inorganic contaminants such as arsenic, barium, boron, cadmium, copper, lead, selenium, and zinc. Comments also noted any produced water used for dust abatement must be analyzed prior to use and suggested the analysis measure: radionuclides, trace elements, metals, salinity, and basic water chemistry (pH, cations, anions).

Comment requested EIS disclosure on the extent, expected levels, and process for addressing naturally occurring radioactive material; as well as the mitigation measures and safety precautions would be in place to reduce the potential for a saltwater spill.

Comments requested mitigation measures to reduce any accidents or spills occurring from the storage, use, or transportation of these chemicals. The USFWS requested an opportunity to review the SPCC Plan and indicated that they should be contacted should a reportable spill occur or any migratory bird mortality be discovered.

4.4.5 Human Health and Safety, Including Noise

Comments asked that the BLM provide measures to prevent spills, releases, flaring, and well blow-outs. Relating personal and anecdotal experience with health issues in association with oil and gas development, comments requested that the EIS disclose the potential for public health issues and develop mitigations to address those issues. Citing the lack of transparent disclosures on the part of operators, WOGCC, and local officials regarding the human health and safety risks during previous

spills, flaring, and well blow-outs incidents, comments stressed that the public has the right to know when their safety has been comprised and recommended agencies increase public disclosure of spills and cleanup activities, identify wells that exceed flaring or have other violations, and impose fines commensurate with the violation that would serve as a deterrent to future violations.

Comments stated that the current 350-foot setback as allowed by WOGCC is too close to homes, noting that industry can receive a variance for that setback. Comments expressed concern that some ranches and neighborhoods have only one access road and expressed concern that escape routes could be closed off and contaminate exposure unavoidable in the event of a blow-out.

Comments described experiencing shallow earthquakes and loud sonic sounds associated with drilling and asked that the EIS disclose impacts to water wells, home foundations, and stress for people and livestock from these occurrences. Comments also expressed concern with the noise associated with drilling and production activities, and requested an analysis of noise pollution on surrounding areas, and appropriate mitigation.

Comments expressed concern that the project would increase demands on emergency and health care services and noted that area hospitals, Emergency Medical Technicians (EMTs), and firefighters are not trained or equipped for fires, rig accidents, truck wrecks, or exposures to VOCs and other contaminants. Comments suggested that well pads are often not publicly identified, making it hard to report any emergencies and indicated that the BLM must require adequate public identification at the entrance to the well, so that emergency vehicles may find the well in a timely manner (also see Socioeconomics comments).

Comments also requested an analysis of worker health and safety issues. Comments expressed concern about uranium use during hydraulic fracturing, noting that Converse County has three times the national average for background radiation, and requested information about the expected impact to human health and safety, as well as to wildlife or livestock. Comments also expressed concern about the impact of hydraulic fracturing chemicals on human health and requested mitigation measures for reducing fracturing sand exposure to workers and the public to minimize the risk of silicosis.

4.4.6 Land Use

Comments indicated that the split estate situation found throughout most of the county raises concerns regarding how the development would be permitted and how private property rights would be protected. Comments expressed concern that oil and gas activities could limit or otherwise affect existing land uses, the rights of land owners to use their property for specific purposes, or property values. Private landowners related personal experiences (and included photos) to impacts to private property from oil and gas operations including, but not limited to, reductions in air quality, crop damage, weeds, trash, erosion, and exposures of agricultural products to contaminants. Landowners also noted that development of access roads on private lands can result in unauthorized public access issues.

Comments requested a thorough analysis of the potential effects and benefits of the private property rights and values. Comments indicated that impacts to small residential landowners are different than the effects to large ranch operations and that these differences must be considered in the analysis. Comments urged the BLM to consider the well-being of local residents who are forced to live in close proximity to a drilling rig. These respondents suggested that there should be a mandatory minimum distance from established home sites of 0.5 mile, or further depending on whether it is downwind, noting that this could make a difference in whether that rancher can tolerate the intrusion long enough to stay in business during the construction and development phases.

Comments expressed concern with the BLMs access to private lands for biological or other surveys in areas that extend past the federal mineral leases and indicated that because of these requirements, an oil company wishing to develop a few hundred acres of federal minerals can impact thousands of acres of private surface. Comments stated that surveys should be confined to the surface directly above the

actual mineral lease and that the BLM should never attempt to control or limit access across fee lands. Comments also stated that negotiation and payment of fair access fees is more desirable than condemnation or “bonding on.”

Comments suggested there is potential for a haphazard pattern of development throughout the county, because there are no specific County-wide zoning regulations to guide the addition of new production facilities and additional residential areas. It also was noted that although there is no zoning outside of municipal boundaries, the Planning and Zoning Commission does oversee development in the County has specific requirements regarding the development of subdivisions, septic systems, rights-of-way, and other facilities and land uses. Comments encouraged thoughtful development in an organized fashion and suggested that proposed location of POD-related growths should be disclosed in this EIS and should meet the land use expectations within the County under the existing zoning conditions.

Comments noted that the 2003 Converse County Land Use Plan (Plan) addresses cooperation with other governmental agencies and suggested that the EIS process should provide for continued coordination as outlined in the Plan. Comments further noted that the Plan requires all land management agencies to consider adjacent private lands, watersheds, ecosystems, and area management including the social, historical, and economic conditions, as well as customs and culture, of their management areas in project planning and suggested that the Plan’s objectives for soils, water, mineral resources, recreation, transportation and roads be considered in evaluating the impacts in the EIS.

Comments noted that the Douglas Master Plan was adopted on June 23, 2014, and suggested the EIS consider consistency with this document.

4.4.7 Livestock Grazing/Agriculture

Comments noted the importance of livestock grazing and agriculture to the Converse County economy and stated that FLPMA’s multiple use mandate required an analysis of impacts to livestock grazing at the same degree of study as other resources. Comments requested that the EIS disclose both the positive effects of livestock grazing upon the environment and use of managed grazing as a tool to achieve environmental objectives, and the limits on the ability of livestock grazing to achieve these positive effects as a result of the project.

Comments expressed concern that noise, traffic, construction, and other activities could affect the health and production of livestock or limit accessibility to certain areas, and that water supplies diverted to oil and gas operations may cause losses in agricultural production. Comments requested that the EIS examine the effects of the project on agriculture and livestock grazing over the short and long term, including, but not limited to:

- The value of one Animal Unit Month (AUM);
- Cost of reductions in AUMs or animal numbers to permittees;
- Cost of failed reclamation and cost of changes in the vegetative composition or seral stage of the forage in the project area;
- Impact of the spread of noxious weeds on regional livestock operations;
- Risk of animal disease or declines in animal health from oil and gas operations; and
- Loss of values such as the preservation of open spaces, the scenic views and visual beauty of the area, and the traditional image of the historic rural landscapes of Wyoming and the West to permittees, members of the community, and visitors.

Comments requested the inclusion of measures to minimize the spread of noxious and invasive weed species (also see Vegetation comments) and suggested the use of compensatory mitigation, including movement of livestock to other allotments, construction of range improvement and/or development of

additional water wells on public or private land, voluntary paid non-use of allotments, and purchase or lease of additional grazing land to replace lands no longer available to grazing.

Comment also recommended that the BLM and Applicants work closely and consistently with affected grazing permittees to inform all livestock grazing permittees of the issues, decisions, and resulting actions regarding this proposal and develop a plan to mitigate any identified conflicts.

4.4.8 Recreation

Comments noted that Converse County offers a variety of outdoor recreational opportunities, including Ayres Natural Bridge Park, portions of the Medicine Bow National Forest and TBNG, recreational opportunities along the North Platte River, as well as opportunities through the WGFD-administered Private Lands Public Wildlife Access Program. Comments expressed concern that these areas may be affected by the project due to its extensive geographic reach or that road closures at certain times of the day or certain times of the year, heavy traffic volumes or active construction work in a specific location could limit the ability of residents and visitors to access certain areas for recreation. Comments noted that the project area supports yearlong and winter habitat for elk, mule deer, and pronghorn and recommend the EIS analyze impacts to hunting access and related issues. Comments also noted that changes in recreational activity could have an economic impact if the project resulted in fewer visitor or hunting days in the County and or caused people to travel to other areas for recreational purposes (also see Socioeconomics comments).

Comments indicated that the EIS should disclose if the project would change outdoor recreational experiences, including 1) whether certain types of outdoor recreational activities might be limited or eliminated in certain areas due to exploration, drilling or production activities, either temporarily or permanently; and 2) whether the quality of the recreational experience would be affected by project activities such as roads, noise, dust, traffic, visual impacts, and other characteristics that may reduce the quality of the experience or result in recreational users reducing their recreational activity or seeking other locations in which to recreate.

Comments specifically identified Creek Butte, Miller Hills, and Red Hills as important recreational lands and indicated that industrial incursions should not be permitted in these areas to protect the wild nature of these rare remaining roadless fragments of native High Plains grassland.

Comments also indicated that an increase in the number of non-public roads have created more trespass issues in recent years (maintained non-public roads can be easily mistaken for public roads when not properly signed) and oil field-related poaching and requested that specific measures included in the preferred alternative that would minimize trespass and poaching concerns.

4.4.9 Socioeconomic Resources

Scoping comments stated that oil and gas development has facilitated economic growth in the area and indicated that the EIS must include an analysis of the beneficial economic effects of the project that includes historical perspective of land use in the project area, provides a baseline to assess current economic conditions, identifies how future development scenarios would affect the local and regional economy, discloses the beneficial economic impacts that will result from the project, including:

- New job opportunities;
- Revenues that the federal government, State of Wyoming, and Converse County would receive from royalties and taxes on production;
- Beneficial impacts to public services from tax revenues generated by oil and gas operations, such as public school districts; and

- Beneficial impacts from the project on the local and regional economy from the project's demand for additional goods and services, which results in the creation of additional jobs, additional sales of materials, and increased tax revenue from sales taxes.

Comments also indicated that the EIS must identify how overly restrictive management of the project may lead to decreased development, which would negatively impact the local and regional economy through decreased royalty revenue, decreased tax revenue, and the creation of fewer jobs.

Other comments, while acknowledging beneficial impacts, expressed concerns about adverse impacts to social and economic conditions and identified a number of specific social and economic issues for consideration in the EIS. These issues are further described in the subsections below.

Comments also indicated that many of these socioeconomic issues and concerns are the result of, or are exacerbated by, a “boom and bust” cycle of operations. Comments requested that the EIS identify the range of well drilling and other activity anticipated each of the 10 years. Comments also requested that the EIS consider options to smooth the “peaks and troughs,” suggesting that phased development and phased timing of operations may help to optimize the benefits and minimize the social and economic impacts of increased oil and gas activity.

Comments indicated that the EIS should consider not only these direct socioeconomic impacts to Converse County but also to neighboring Natrona County and Campbell County.

4.4.9.1 Employment and Demographics

Comment acknowledged that the new job opportunities will likely come with wages higher than the County average, creating positive economic effects, which will reverberate through the economy. However, comments also noted that employment is typically fragmented among companies/activities, and that the socioeconomic effects of development would be quite different if workers are hired from the existing work force versus migrating to the area for employment. Comments requested additional information about the potential labor force for the project, including:

- The average annual wage of the workers;
- Average duration of jobs by specific skill type, leading to some sense of the average duration of the work force;
- Expected temporary and permanent growth rate within Converse County;
- Number and percent of workers at any one time that would be local hires (i.e., within commuting distance); and
- Additional information about in-migrating workers, specifically the percentage that would bring wives and families with them.

4.4.9.2 Impacts to other Economic Sectors

Comments identified the following overarching issues regarding other economic sectors: competition for workers, upward pressure on wages, availability of materials and supplies, and price levels. Comments expressed the need for economic diversity in Converse County and indicated that the project must allow for the continued growth of other industries within the county.

Comments noted that the unemployment rates in Converse County have historically been relatively low, indicating a tight labor market and expressed concern that the oil and gas development may have the unintended effect of crowding out other industries through pressure on wages, increased costs for other inputs, potential labor shortages, and lack of housing. Comments identified tourism (including outdoor recreation and hunting) as the second biggest economic sector (behind oil and gas development), noting

that many local businesses provide services and supplies that support this industry and expressing concern that:

- This industry relies on lower cost labor and the project might result in competition for workers, upward pressure on wages, availability of materials and supplies, and price levels.
- Development effects such as increased traffic volumes, over-crowding, higher costs of services, lack of available hotel rooms, temporary or permanent area or road closures or increases in crime could affect these businesses or tourism in general.
- Recreation opportunities may be adversely impacted due to impacts to heritage resources such as cowboy culture, open spaces, unobstructed views, clean air, and the ability to transport visitors back to another era, ultimately affecting tourism in general (also see Cultural Resources comments).

4.4.9.3 Impacts to Housing and Commuting

Comments identified housing availability, housing prices, and other housing-related costs as issues to be addressed in the EIS, and suggested that the increased demand for housing units as a result of the project is likely to put upward pressure on the prices of rental units (already higher than the statewide average), as well as homes for purchase.

Comments cited a tight rental market, as demonstrated through census and Wyoming rental vacancy survey data, and noted that county and municipal planning requires an understanding of where workers will be living. Comments requested complete, accurate, and up-to date information to respond to increased demands, including:

- Existing availability of housing by the specific types expected to be needed by the in-coming workers (i.e., apartments, mobile homes, hotel rooms, etc.);
- Description of how worker residences would likely be distributed, and if this distribution would change during the course of the development; and
- More details about company housing market involvement, including whether man camps or other temporary housing facilities would be developed for these workers and if so, where facilities would be located and how many people will they house.

Comments suggested that any rapid rise in housing costs would affect both existing residents and transient workers and could disproportionately affect the elderly, low- or fixed-income residents and other groups unable to absorb an increase in property taxes and other housing costs.

4.4.9.4 Impacts to Property Values

Noting the high levels of split estate ownership within the project area, comments expressed concern about impacts to property values due to traffic levels, equipment noise, smoke or dust, visual impacts, or an influx of transient workers. Others suggested that housing shortages (see above) could result in upward pressure on the prices of rental units as well as homes for purchase, ultimately increasing property values in some residential areas.

Comments indicated that the project should minimize any activities or developments that would have the potential to reduce property values, specifically around residential and other properties located within and on the edges of more developed areas, including Douglas, Glenrock and Rolling Hills, suggesting setbacks of 0.5 mile or more (also see Land Use comments).

4.4.9.5 Impacts to Domestic Water, Wastewater Treatment, and Related Infrastructure

Comments expressed concern that the project may require some expansion in smaller communities within the county. Comments noted costs for expanding services; constructing additional infrastructure;

upgrading facilities or building new facilities; or acquiring additional water rights to serve customers can be quite high and must occur before the new residents arrive. Comments requested that the EIS provide information about the expected temporary and permanent growth rate related to the development of the oil and gas wells within Converse County, and asked if the revenues from petroleum development would come to the local governments responsible for investing in infrastructure in time for communities to make the necessary investments.

4.4.9.6 Impacts to Social Services (Emergency and Protection Services such as Law Enforcement, Medical Facilities and Emergency Management, and Schools)

Comments expressed concern that the increase in population would not only increase the demands placed on local police departments, the County Sheriff's Office, municipal and rural fire departments, hospitals, and other medical facilities (resulting in the need to hire additional staff, have existing staff work longer hours, or triage calls), but also increase the difficulty in hiring qualified staff to ease those demands because of the high salaries of the oil and gas industry, high housing prices or cost of living, the increased demands of the job, or other social factors.

Comments expressed concern about potential higher crime rate due to an increase in population, noting that Converse County has experienced a doubling of violent crimes in the last 2 years. Comments also expressed concern that the transient population and cyclical nature of the project may result in increased welfare support or other social services. Comments stated that some operators do not pay or file the paperwork to do so for Worker Compensation, resulting in additional demands on social services.

Comments also noted that area hospitals, EMTs, and firefighters are not trained or equipped for fires, rig accidents, truck wrecks, or exposures to VOCs and other contaminants. Comments suggested that many well pads are not marked or publicly identified, which makes it hard to report any emergencies (also see Human Health and Safety comments).

Comments noted that Converse County School District #1 and School District #2 together include 14 schools, ranging in size from 3 students to over 500 students and that budget considerations include enrollment during a specified period of the year. Commenters expressed concern that transient students may not be counted in the official funding count, resulting in an underfunding of districts. Comments also indicated that the addition of these students would result in larger class sizes, the need for additional staff, and possibly less focus on existing students if transient students are behind other students in studies. Comments also expressed concern that the project also would increase the difficulty in hiring qualified staff because of the high salaries of the oil and gas industry, high housing prices or cost of living, the increased demands of the job, or other social issues.

4.4.9.7 Sales Tax and Other Revenues

Comments noted that purchases made within Converse County, including local municipalities, be subject to local sales tax and asked that the EIS provide information regarding the types of materials, supplies, or other items likely to be purchased from businesses or other establishments within Converse County and the total portion non-labor expenditures that would be made within the County. Comments asked that the EIS provide an estimate of total or annual sales tax revenue to the County and also asked for confirmation that all local expenditures be subject to local sales taxes.

Comments also stated that flaring results in the waste of a public resource and requested disclosure of the anticipated revenue losses if flaring is authorized.

4.4.9.8 Other Social Issues

Comments noted that rapid influx of new people into an area and increased levels of development can create changes in the social conditions for existing residents. Commenters requested that the EIS identify and discuss the scope and degree of social impacts that existing Converse County residents might experience from the Development, including, but not limited to:

- Potential impacts to “Quality of life” (health, wealth, and well-being and other issues) from dust, lights, traffic, flaring, contaminants, and other aspects of development;
- Changes to overall “Community commitment,” due to increases in transient populations;
- Changes to the historic/traditional uses of the area and what that means to the community; and
- Potential for neighbor-to-neighbor issues to be disruptive to the social well-being of the county due to the lack of large tract ownership in Converse County.

4.4.9.9 Environmental Justice

Comments suggested that increases in housing costs could disproportionately affect low-income populations unable to absorb an increase in property taxes and other housing costs.

4.4.9.10 Suggested Mitigations or Design Features

Suggested options for resolving the issues discussed above included the following:

- Phased development to optimize the benefits and minimize the social and economic impacts of increased oil and gas activity (also see above and Alternatives comments);
- Buffers around residential areas to protect property values (also see Land Use comments);
- Coordination between the BLM, state, counties, and cities so that some of the royalties go to offsetting infrastructure costs;
- Coordination between the Operators, state, BLM, and other federal agencies to help provide low interest loans for building trailer parks and apartments that would have a long-term use beyond the project;
- Drug-free work places, more company policing of employees, and coordination between the Operators, BLM, and county to provide for a new judicial center with larger jail;
- Requirements that all companies hiring subcontractors demonstrate they have applied to work in Wyoming and know state employment laws;
- Adequate public identification at well entrances so that emergency vehicles may find wells in a timely manner; and
- Information dissemination regarding anticipated employment and population demographics so that school districts can anticipate growth.

4.4.10 Soil Resources

Commenters noted that erodible soils may represent a source of pollutants in the area and that increased sediment from surface disturbance may degrade water quality. Comments requested a map and description of topography and soils, specifically steep slopes and fragile or erodible soils, especially near surface waters and intermittent/ephemeral channels. Comments recommended that the Draft EIS include a quantitative analysis of erosion and sediment loading for each alternative. Comments recommend that the BLM consider using Automated Geospatial Watershed Assessment (AGWA) tool or another appropriate model that would be applicable to this project to compare and predict surface runoff, water yield, and sediment yield within the project area (also see Water Resources comments).

Comments indicated that saltwater spills have caused significant issues in other areas of oil and gas development and noted that most of the issues have occurred near saltwater pipelines and areas around Class II injection wells. Comments asked that the EIS disclose the soils susceptibility to salinity and identify the mitigation measures and safety precautions will be in place to reduce the potential for a saltwater spill.

Comments noted that Converse County Land Use Plan specifies coordination between landowners and developers/contractors during disturbances to ensure proper soil conservation measures are followed, and that the Converse County Conservation District has guidelines or standards for salvaging and replacing topsoil and preventing contamination through mixing of soils. Comments suggested both of these planning documents should be considered in evaluating impacts to soils in the EIS (also see Land Use comments).

4.4.11 Special Designations, including Historic Trails

Comments recommended the BLM consider opportunities such as COAs or other mechanisms to prevent surface occupancy and activities within ACECs where important water resources may be impacted.

As discussed under Cultural Resources, comments raised concerns about impacts to the Oregon-California-Mormon-Pony Express National Historic Trails as well as the Bozeman Trail corridor and encouraged the BLM to both analyze impacts to the entire landscape surrounding the trail and consider measures that would protect key trail segments.

4.4.12 Transportation

Comments presented concerns regarding the associated costs involved with increased traffic volume, road maintenance, and traffic noise.

4.4.12.1 Traffic Routes and Increased Traffic Volume

Comments expressed concern about the high traffic level identified in the POD (over 3,000 vehicle trips per well, or over 1.6 million vehicle trips per year), and indicated this traffic level would increase congestion; drive times for agricultural trips, commuting workers, and business deliveries; and ultimately affect local businesses. Comments asked for additional information regarding the timing and routes used of project traffic volume, including:

- Specific information about transportation routes for water, oil, produced water, and other chemicals, including the numbers of trips and specific routes for truck traffic, rail traffic, pipelines, and other means of transportation.
- Annual road traffic estimates, to understand the volume and potential impacts to the road surface and safety to drivers related to weather conditions.
- Daily road traffic estimates, to understand the volume, timing, and potential safety hazards to the normal traffic flow.
- Timing of increased roadway traffic, and what existing routes are expected to see the increased traffic volume.
- Any areas that receive excessive road use under the current timing stipulations that a year-round drilling schedule might alleviate.

Comments also requested analysis of how current uses of those roads, rail lines, or other means of transport would be impacted by project travel and indicated that the EIS must include alternate methods for getting product to market.

Comments requested analysis of the impacts of traffic on wildlife species and habitats through vehicular collisions, habitat fragmentation, and oil field-related poaching (also see Wildlife and Recreation comments). Comments also indicated that an increase in the number of non-public roads have created more trespass issues in recent years (maintained non-public roads can be easily mistaken for public roads when not properly signed). Comments recommended development of traffic plan with approved routes, speed limits, and other mitigation measures, including those that minimize risks of trespass and/or wildlife poaching.

4.4.12.2 Transportation Safety

Comments presented concerns regarding traffic safety and increases in accident rates due to increased traffic volume, drivers that may be unfamiliar with the area, excessive vehicle speeds, visibility issues due to dust emissions on dirt roads or driving at dusk or dawn, dangers from passing vehicles on narrow roads, and hazards created from increased traffic causing deterioration to roadways. It was requested that all access points to County Roadways should be reviewed and approved by Converse County Road and Bridge Department prior to installation.

Comment requested that the EIS disclose transportation safety issues related to the transport of chemicals and other contaminants, including risk of spills, train derailments, and other reasonably foreseeable events (also see Hazardous Materials comments).

4.4.12.3 Roadway Maintenance/Rehabilitation Costs

Comments identified the short- and long-term costs associated with the proposed project's use of existing roads. Comments noted that typical roadways are designed to last between 20 and 25 years or longer but that the majority of the roadways within the county are designed as low volume or local access roads and a significant amount of roadway and associated infrastructure may need to be upgraded to accommodate the type and volume of traffic anticipated. Comments expressed concern about deterioration from increased vehicle traffic and heavy equipment to existing roads and bridges/structures that are not designed or constructed to accommodate heavy loads or oversize vehicles with resulting increases in accidents, short- and long-term maintenance costs, pavement deterioration, and increase in bridge and/or structure replacement. Comments also noted that while operators would pay the capital costs of building new roads to their well pads and other facilities, there would still be maintenance or reclamation costs after industry leaves.

A recommendation was received suggesting that mechanisms be put in place that would give the County the authority and ability to control how and where rigs and equipment are moved from point to point, giving the County direct control to mitigate impacts to roadway infrastructure. Comments also suggested charging a repair and maintenance toll to oil and gas companies on roads identified as having high use for the project.

4.4.12.4 Traffic Noise

Comments expressed concern with vehicle traffic noise, which may be generated by construction and production traffic with the developed wells.

4.4.13 Vegetation

4.4.13.1 General Concerns

Comments requested that the EIS analysis disclose the number of acres of specific habitat types that will be impacted by the proposed project. Comments specifically expressed concern about impacts to sagebrush habitat from direct disturbance, increased fragmentation, spread of invasive plant species, and alteration in the distribution of predators, and noted the large numbers of plants and animals that depend on the sagebrush ecosystem for some portion of their life history requirements. Comments requested analysis of effects to the integrity, connectivity, and quality of the sagebrush ecosystem, and indicated that habitat losses should be analyzed as a long-term disturbance, despite interim reclamation, because it would take decades for this type of habitat to re-establish and become functional.

Comments requested appropriate mitigations to avoid and/or minimize these impacts, and suggested the use of oak mats or prefabricated mats for well pads and roads to minimize habitat alteration.

4.4.13.2 Threatened and Endangered Plant Species

The USFWS identified Ute ladies'-tresses as a threatened and endangered species within the project area and indicated that two to three years of surveys conducted by knowledgeable botanists trained in conducting rare plant surveys would be necessary to determine presence or absence of Ute ladies'-tresses.

Comments stated that if the Proposed Action leads to consumptive use of water or affects water quality in the Platte River System, there may be impacts to the western prairie fringed orchid (threatened), which inhabits the downstream reaches of this river system.

4.4.13.3 Noxious and Invasive Weeds

Comments expressed concern about the potential for increased spread of noxious and invasive weed species from new roads, pads, and pipelines, and further noted that the spread of noxious weeds can have significant impacts on regional livestock operations. Comments requested that mitigation measures be included to minimize the spread of noxious and invasive weed species and recommended that the EIS include a weed prevention and control plan. Comments specifically identified noxious weeds, cheatgrass, and bulbous bluegrass as invasives of high priority.

4.4.13.4 Wetlands, Riparian Areas and Floodplains

Comments expressed concern about direct impacts to wetlands as well as changes in hydrology that may result in stream structure failure and additional sediment loading in wetlands and riparian areas. Comments requested that the EIS present inventories and maps of existing wetlands and waters of the U.S. within the project area, including waters that are regulated under Section 404 of the CWA and wetlands and waters that are protected under EO 11990 (Protection of Wetlands). Comments further recommended the EIS include information on acreages and channel lengths, habitat types, values, and functions of these waters. Comments also requested disclosure of potential indirect impacts to wetlands and riparian areas that could occur due to impacts on stream structure and channel stability; streambed substrate, including spawning habitats; and stream bank vegetation, riparian habitats, and aquatic biota (also see Water Resources and Aquatic Wildlife comments).

Comments recommend that the EIS include methods to protect wetlands, riparian areas and floodplains including:

- NSO within the 100-year floodplain;
- NSO within the footprint of wetland and riparian areas;
- 500 feet construction setback from wetland and riparian areas;
- Delineation and marking of perennial seeps, springs and wetlands on maps and on the ground prior to project level development to ensure identification of these resources to facilitate their protection; and
- Use of silt fences, detention ponds and other storm water control measures to protect water quality.

4.4.14 Visual Resources

Comments concerning impacts to visual resources expressed concern about impacts to the general landscape and rural character of the area, and identified Laramie Mountains as an area of concern.

4.4.15 Water Resources

Comments expressed concern about impacts to surface water and groundwater resource issues from hydraulic fracturing, drilling operations, drilling and production pits, chemical storage, spills, leaks, and

other activities associated with oil drilling and production. Comments also focused on sources and amounts of water that would be required for use in oil and gas operations and potential impacts of that water use, as well as and amounts of produced water, options and potential locations for disposal (i.e., underground injection control [UIC] wells, evaporation ponds, and surface discharges); and potential impacts of produced water management. Comments are further broken down into surface water and groundwater concerns.

4.4.15.1 Surface Water

Comments expressed concern that well pads may change water runoff patterns and that water runoff may contain contaminants from equipment, hydrocarbons, and chemicals used in the drilling and hydraulic fracturing processes and indicated runoff could introduce sediments as well as salts, selenium, heavy metals, nutrients, and other pollutants into surface waters.

Comments indicated that the project must be designed to ensure that sediment does not reach ephemeral, intermediate, and perennial waterways and indicated that pits should not be allowed because of the dangers of flooding.

Comments recommend that the EIS analyze potential impacts to surface waters related to erosion and sedimentation from land disturbance and stream crossings, as well as potential impacts associated with oil and gas well development, including drilling and production and potential spills and leaks from evaporation ponds and pipelines. Comments requested the inclusion of the following elements into the EIS analysis.

- Current water quality conditions for surface waterbodies within the project area, including intermittent, perennial, and ephemeral streams, rivers, lakes, reservoirs, and surface water drinking water sources.
- Comparison of existing conditions to existing water quality standards or other reference conditions and presenting associated water quality status and trends.
- A map of waterbodies within and/or downstream of the project area that includes perennial, intermittent and ephemeral waterbodies; waterbody segments classified by the WDEQ as water quality impaired or threatened under the CWA Section 303(d); waterbodies considered not impaired by WDEQ; and waterbodies that have not yet been assessed by the WDEQ for impairment status.
- A table based on WDEQ's most current Integrated 305(b) and 303(d) report to identify the designated uses of the waterbodies and the specific pollutants of concern, where applicable.
- A map of municipal watersheds and designated source water protection zones.
- A quantitative analysis of erosion and sediment loading for each alternative using the AGWA tool or another appropriate model that would be applicable to this project to compare and predict surface runoff, water yield, and sediment yield within the project area. Results of the model simulations will be used to assist the BLM in the preparation of the EIS and to aid in the determination of best management practices and future monitoring and mitigations of water resources.
- Analysis of potential impacts to impaired waterbodies within and/or downstream of the planning area and development of mitigation in coordination with WDEQ to avoid causing or contributing to the exceedence of water quality standard and/or Total Maximum Daily Load (TMDL).
- Allocations for point and nonpoint sources.
- Potential impacts on the water withdrawals (e.g., reductions in stream flow, impacts on aquatic life, wetlands, springs and other aquatic resources).

Comments also recommended that if new loads or changes in the relationships between point and nonpoint source loads are created, the BLM should work with WDEQ to revise TMDL documents and develop new allocation scenarios to ensure the project does not cause or contribute to exceeding water quality standards. Where TMDL analyses for impaired waterbodies within, or downstream of, the planning area still need to be developed, comments recommended that proposed activities in the drainages of CWA impaired or threatened waterbodies be either carefully limited to prevent any worsening of the impairment or avoided where such impacts cannot be prevented.

4.4.15.2 Groundwater

Comments expressed concern for impacts to groundwater quality and quality from leaks and spills; production and disposal of produced water or processing waters; use of pits, UIC wells and evaporation ponds; production wellbore integrity; pipeline use; and impacts associated with restimulation, maintenance and abandonment of existing wells.

Comments also expressed concern about the availability of water supplies for domestic wells, municipal groundwater wells, stock wells, fire-fighting, and wildlife and requested protections for shallow drinking wells to ensure they would not be contaminated by migrating gases from hydraulic fracturing.

Comments indicated that reserve pit contaminants such as concentrated water-soluble metals, salts, and other chemicals can be mobilized into adjacent groundwater, citing reports documenting groundwater contamination 50 feet below buried reserve pits (also see Hazardous Materials comments).

Comments indicated that the project proposes a high number of waste pits, especially for multiple well pads, and expressed concern about the disposal of up to 12,000 cubic yards (cy) of drill cuttings (Bakken holes average up to 800 cy of cuttings/hole) and corresponding impacts to groundwater/surface water from "impromptu landfills," containing poorly installed or maintained pit liners and inadequate reclamation. Comments indicated that disposal wells would likely increase from 29 to 50 or more, given the need to inject between 2 to 38 billion gallons of wastewater and questioned if the formation(s) used for this purpose would have the ability to handle this quantity and protect aquifers, etc. and if so, how they would be regulated.

Comments noted that the Pathfinder to Guernsey sub-basin of the North Platte River is an over appropriated sub-basin and that no new surface water withdrawals from the North Platte River can be incurred unless the withdrawal amount is mitigated for or purchased from an acceptable source. Comments identified transfers of water rights as a potential option for obtaining water, provided the permitted water right quantity is unchanged, and also noted that it is possible to obtain water from a non-hydraulically connected source providing the appropriate permits are obtained and that sufficient proof that the source is non-hydraulically connected to surface water is provided.

Commenters specifically requested the following EIS disclosures:

- Information about local hydrogeology, including depths/characteristics of the oil/gas formations, aquifer formations, interconnectedness, existing water quality issues in area, potential hydraulic head pressures causing deeper zones to interconnect with shallower zones thereby causing water quality problems, descriptions of geologic structures that would be barriers to flow or enhance transmissivity or permeability (from the Geology section of the EIS), etc.
- Description of all aquifers in the project area, including available water quality and water yield and identification of Underground Sources of Drinking Water.
- Maps depicting the location of sensitive groundwater resources such as municipal watersheds, source water protection zones, sensitive aquifers, recharge areas, and sole source aquifers (if any).
- Descriptions and locations of current groundwater use (e.g., public water supply wells, domestic wells, springs, and agricultural and stock wells).

- Information on any groundwater sampling in the project area and information on any known groundwater contamination.
- Map and discussion of proposed production wells, existing producing wells, and nonproducing wells in the area including their status (e.g., idle, shut-in, plugged and abandoned), if available, using WOGCC data for location and abandonment information.
- Detailed breakdown of anticipated water sources, including municipal, agricultural, surface water and groundwater that would be used for drilling, hydraulic fracturing, and oil production activities, and the availability of these water sources given current allocations and uses.
- Projected water use by acre-feet rather than barrels or gallons, and context of water use as compared to other key usages in the project area (agricultural, municipal, etc.).
- Analysis of the short- and long-term impacts of water use (including the price of water and impacts to other industries, also see Livestock Grazing and Socioeconomics comments).
- Risk of aquifer contamination from additives used in drilling or potential hydraulic head pressures causing deeper zones to interconnect with shallower zones.
- Anticipated amount of produced water per well.
- Analysis of produced water disposal impacts regarding both deep injection and surface disposal.
- Identification of the formation(s) that would be used for water disposal, and an assessment of the ability of those formations to accommodate the anticipated quantity of produced water and protect aquifers; determination if the existing COWDF within the project area would be able to accommodate the additional produced water.
- Description of UIC wells regulatory oversight.
- Expected salinity of produced water (both now and in the future) as well as salinity of oil and gas exempt wastes (e.g., drill cuttings, etc.).
- Description of how saltwater or other contaminated water would be disposed (including what would happen if radiation is detected in produced water).
- Disclosure of the economics of water reuse/recycling (also see Socioeconomics comments).

Suggestions for design features, BMPs, COAs, or other mitigation measures to reduce impacts included:

- Use of closed loop systems;
- Prohibitions against pits;
- Lining of evaporation ponds;
- Closure and monitoring of reserve pits and evaporation ponds;
- Requirements for disposal wells to have good surface casing and cement to the same depth as the horizontal wells in the area, with a minimum of 1,000 feet of cemented surface casing;
- Abandonment procedures for sealing wells no longer in use in order to reduce the potential for inactive wells to serve as conduits for fluid movement between production zone(s) and aquifers;
- Requirements that any water for oil and gas operations come from a depth of more than 600 feet below the surface;
- Requirements that any new water sources designated in the APD be completely cemented from 600 feet to the surface;
- Recycling and reuse of produced water from new and existing oil and gas for use in well drilling and stimulation, thereby decreasing the need for water withdrawals and for produced water management/disposal facilities and minimizing the associated impacts;

- Tracking of flowback water disposal to help eliminate the impacts of wastewater disposal and limit illegal dumping of flowback water;
- Requirements for recycling of drilling and fracturing water; and
- Setbacks and Buffers, including
 - No surface use or activity within designated sole source aquifers;
 - No surface occupancy or activity within 0.5 mile from public water supply wells or critical zones identified in source water protection or wellhead protection plans;
 - Minimum 1,000-foot setback for special or significant waters;
 - Minimum 1,000-foot setback from reservoirs and lakes that are public drinking water supplies;
 - Minimum 1,000-foot setback on both sides of streams extending for at least 10 miles upstream from surface water intakes for public water supplies;
 - Minimum 750-foot setback for 303(d) Impaired waters;
 - Minimum 500-foot setback for flowing waters (rivers and streams) or 100-year floodplain, whichever is greater;
 - Minimum 500-foot setback for lakes, ponds and reservoirs, wetland and riparian areas and springs;
 - No surface occupancy or activity within 500 feet from private wells;
 - Minimum 100-foot setback from slopes greater than 30 percent; and
 - Minimum 100-foot setback for intermittent and ephemeral streams.
- Monitoring Plans including the following:
 - The use of radioactive DNA tracers (already used by operators to trace their fracking explosives) to track where and how the gases get in to private water wells;
 - Groundwater quantity monitoring;
 - Water quality monitoring in the planning area prior to, during, and after anticipated development to detect impacts to both surface water and groundwater resources, including private well monitoring, that would meet WOGCC's requirements for pre-drilling baseline and post-drilling monitoring of groundwater, along with additional water quality monitoring activities; and
 - A plan for remediating future unanticipated impacts to drinking water wells, such as requiring the OG to remedy those impacts through treatment, replacement, or other appropriate means.

Comments also supplied monitoring plan examples ("Long-Term Plan for Monitoring of Water Resources" developed by the BLM for the Gasco Energy Inc. Uinta Basin Natural Gas Development Project Final EIS and the National Ground Water Association's "Water Wells in Proximity to Natural Gas or Oil Development Brief," which provides information on the importance of baseline sampling for private wells and types of analysis recommended).

4.4.16 Wildlife and Special Status Species

Comments concerning wildlife and federally listed Threatened and Endangered species, or Candidate species, or other special status wildlife species expressed concern about swift fox, Preble's meadow jumping mouse, sage sparrow, Brewer's sparrow, sage thrasher, chestnut-collared longspur, McCown's longspur, and northern leopard frog, and requested a complete evaluation of these species' occurrence

within the project area and adoption of measures to eliminate impacts to these species and their habitats.

Comments noted that the project area overlaps an identified key non-game wildlife area delineated in the vicinity of the TBNG, which supports a number of Species of Greatest Conservation Need (SGCN) as identified by the Wyoming Game and Fish Department (WGFD) in the 2010 State Wildlife Action Plan. Comments recommended an analysis of impacts to shrubland and grassland SGCN and development of mitigation measures as appropriate.

Comments requested that the EIS examine impacts to sensitive wildlife species, including direct loss of habitat, habitat fragmentation, displacement of sensitive wildlife from adjacent habitats not directly affected by surface disturbance, disturbance of wildlife resulting in stress and/or decreased inclusive fitness for wildlife remaining in proximity to development, direct mortality due from multiple activities (including vehicle collisions, bird incineration in burners, poaching mortality, use of earthen pits to store fluid, chemical or oil spills, etc.), noise impacts, dust pollution resulting in reduced vegetation productivity, and dust and/or hydrocarbon pollution resulting in stress or decreased health and inclusive fitness.

Comments noted that many of the potentially significant wildlife impacts of this project are site-specific in nature and stated that failure to disclose wellsite locations and road alignments, as well as other facilities, will make it impossible for the BLM to fully evaluate the impacts from a fluid minerals project of this magnitude. Comments requested that the EIS disclose and fully map actual locations for infrastructure in order to assess the direct and cumulative impacts of this project on sensitive wildlife resources.

Comments expressed specific concern about impacts to wildlife from the use of reserve pits and evaporation ponds and recommended:

- Removal of all fluids from the reserve pits immediately following well completion, noting that cost-effective technology exists to solidify pit fluids and prevent mobilization of potential contaminants into the soil and/or groundwater;
- Use of netting instead of flagging, strobe lights, metal reflectors, and noise makers; and
- Pitless (closed-loop) drilling to reduce drilling waste, recycle drilling fluids, reduce drilling cost, conserve water, and prevent soil contamination.

Comment also suggested that stacks, well cellars, and other structures should be covered with wildlife enclosure covers to prevent entrapment of birds, small animals, such as reptiles, amphibians, and small mammals.

Comments stated that the increased road network and vehicle trips would have impacts on current populations of game, non-game, and reptiles due to an increase of wildlife-vehicle collisions, and asked how wildlife-vehicle collisions would be evaluated to determine potential effects on various species population levels. Commenters recommended development of a traffic plan (e.g., approved routes and speed limits) for the project area, including mitigation measures as appropriate.

Comments requested a wildlife cumulative impact analysis area for wildlife resources large enough to address nearby extensive oil and gas development, existing and expanding in-situ uranium development, three large industrial wind farm with additional projects in the permitting stage, and expanding residential development, indicating that these developments in conjunction with the proposed project will likely constitute significant impacts to wildlife on a landscape scale. Comments also suggested that livestock grazing activities and climate change should be considered in the cumulative impact assessment for wildlife.

4.4.16.1 Big Game

Comments noted that the project area supports yearlong and winter-yearlong habitat for elk, mule deer, and pronghorn, and requested that the EIS analyze impacts to big game habitat, hunting access, and the WGFD's ability to meet population objectives. Comments expressed concern that additional roads will result in more oil field-related poaching and recommended the inclusion of measures to minimize poaching concerns (also see Recreation and Transportation comments).

Comments specifically expressed concern about declines in the Cheyenne River Mule Deer herd in Converse County, which they attributed to oil and gas industry activities. Comments indicated that the WGFD has failed to comprehensively map and identify crucial winter ranges, parturition areas, and migration routes for mule deer in the project area and requested that the BLM undertake its own mapping of these key mule deer habitats, so that appropriate protections can be applied. Comments recommended that no surface disturbing activities be allowed within 0.5 mile of key ranges or migration corridors.

Comments expressed concern about impacts to elk, and cited a BLM study of the nearby Fortification Creek Elk Herd, which concluded that elk avoided using habitat within 1.7 miles of wellsites and within 0.5 mile of roads (as well as other studies with similar conclusions). Comments noted that elk migrate from Laramie Peak to the TBNG, migrating through and potentially using as critical habitat some of the lands in the project area. Comments directed the BLM to spatially identify migration corridors and seasonal ranges used by this herd, and disclose, by alternative, how many wellpads and miles of road would be added within key habitats and migration pathways. Comments suggested that the BLM should not allow development on the surface within 0.5 mile of elk ranges or migration corridors.

4.4.16.2 Preble's Meadow Jumping Mouse (Threatened)

The USFWS indicated that designated habitat for the Preble's Meadow Jumping Mouse may be present in the proposed project area, and indicated that if the project will disturb suitable habitat, surveys should be conducted prior to any action by trained biologists.

4.4.16.3 Black-footed Ferret (Endangered)

Comments noted that the endangered black-footed ferret has a Recovery Area of 50,000 acres designated under the TBNG LRMP and indicated that surface occupancy for additional oil and gas development should not be allowed within this area.

4.4.16.4 Greater Sage-Grouse (Candidate)

Comments also noted that the greater sage-grouse is a BLM Sensitive Species as well as a Candidate Species under the ESA and stated that the BLM must put in place and uphold measures to keep the greater sage-grouse from being listed. Comments also noted that a decision will be made in 2015 by the USFWS—before publication of the Draft EIS—and requested that the BLM and third-party contractor address any changes in status or other developments in the EIS analysis. Comments recommended coordination with WGFD to identify important greater sage-grouse habitats, and recommend seasonal restrictions and appropriate measures to minimize potential impacts from the proposed project. Comments also suggested surveys and mapping of important greater sage-grouse habitats where local information is not available.

Comments expressed concern about the Powder River Basin sage-grouse population, citing risks to the population from habitat destruction/fragmentation due to coalbed methane production, and losses due to West Nile virus. Comments indicated that this population is a critical link between grouse populations in Montana and the Dakotas, and the rest of the sage-grouse range. Comments made by respondents from the Douglas Greater Sage Grouse Core Area noted that they have not seen sage-grouse since a recent well blow out.

Comments noted the project area encompasses portions of the North Glenrock and Douglas Core Areas, parts of the Thunder Basin Core Area complex, and additional sage-grouse habitats on the TBNG that are proposed to be managed using Core Area prescriptions in order to meet USFS species viability requirements under NFMA. Comments recommended digitizing current surface disturbance to provide a baseline density/disturbance analysis relative to density/disturbance thresholds (i.e., 5 percent and 1/640) as a means for guiding alternative development. Comments also recommended that the project review Chesapeake Energy's POD for oil and gas in the Douglas core area. Comments recommended consultation with the WGFD on the core area strategy as appropriate. Within non-core sage-grouse habitat, comments identified 13 occupied leks within the project area boundary, including several leks within 2 miles of the project area boundary, and several new leks discovered in 2014.

Comments indicated that the provisions in the Governor's Executive Order (EO 2011-5) and the Sage-Grouse Core Area Protection Strategy (which state that development of any type in the identified core areas is done only when no decline to the species can be demonstrated, and that the burden of proof for showing no impact rests with the industry or proponent in question) are specific, stringent, balanced, and workable, and adequate for the project. These comments further indicated that exceeding these provisions would be unnecessary and counterproductive, and that the BLM should reject disturbance caps outside the core sage-grouse area, which are outdated given the advances in drilling technology.

Other comments stated they remained unconvinced that the measures proposed by the BLM for implementation in the Wyoming Greater Sage-grouse RMP Amendment Draft EIS will prevent significant impacts to sage-grouse and their habitats or maintain viable populations of this species over the long term. Comments noted that the BLM has convened a National Technical Team (NTT), which has published recommendations (NTT 2011) for managing fluid mineral extraction and its appurtenant infrastructure to reduce impacts to the greater sage-grouse, and stated that implementing these recommendations in full as COAs for this project is not only reasonable but potentially legally required in light of not only the BLM's Sensitive Species and Federal Land Policy and Management Act of 1976 (FLPMA), requirements, but also NEPA's scientific integrity requirements.

Comments indicated the EIS should consider the findings of Manier et al. (2013) and stated that the BLM must map greater sage-grouse breeding and display areas (leks), the nesting habitats that surround these leks within 5.3 miles (see Doherty et al. 2010), early and late-brood-rearing habitats, and wintering habitats in detail, and apply protections that will ensure that sage-grouse use of these habitats remains unimpaired by project facilities and/or activities.

Comments cited studies showing adverse effects to sage-grouse from overhead power lines and a lack of effectiveness of raptor perch inhibitors, and indicated that the BLM should require all electrical distribution lines to be buried inside and within 0.25 mile of all sage-grouse seasonal habitats in order to prevent significant impacts to sage-grouse.

Comments indicated that livestock grazing can have a significant negative impact on sage-grouse, particularly through the removal of adequate grass cover to hide breeding, nesting, and brood-rearing grouse from predators. Comments suggested that the BLM survey sage-grouse habitats on both public and private lands to determine the extent to which at least 7 inches of residual grass stubble remains during the breeding, nesting, and brood-rearing seasons. Comments indicated the EIS should consider how the project may exacerbate climate change impacts and how mitigation measures required under various alternatives might ameliorate these impacts and make long-term grouse viability more likely.

Based on studies showing avoidance, population declines or other adverse impacts at various distances, comments requested the following information be disclosed about existing conditions, and that the agency preferred alternative (APA) should be developed to eliminate new disturbance within these key areas (also see Alternatives comments):

- No drilling within 3 miles of active leks during the breeding and nesting season, without exception (Holloran 2005).

- Amount of existing and proposed infrastructure within 930 meters (m) of potential nesting habitat, as defined by Doherty et al. (2010); the preferred alternative should reduce this acreage with regard to new infrastructure to zero (see Holloran et al. 2007).
- Number of wells, both existing and proposed in this project, sited within 1.9 miles of active leks; the agency's preferred alternative should reduce the number of new wells in this radius to zero (see Holloran 2005).
- Acreage of sage-grouse habitat currently within 1.9 miles of roads serving 5 or more wells, including county roads that are equivalent, and the additional acreage that would be this close to major gravel roads under each alternative; the preferred alternative should reduce this new acreage to zero (see Holloran 2005).
- Acreage at which a one-wellpad-per-square-mile section density is already exceeded by current development, and the extent to which this threshold will be exceeded, both inside Core Areas and in sage-grouse habitats outside Core Areas, by the additional wells in this project. The agency's preferred alternative should not allow wellpad density in excess of one per square-mile section in order to prevent impacts to sage-grouse and other wildlife (Copeland et al. 2013; Doherty 2008; Holloran 2005; Tack 2009; Taylor et al. 2012; Walker et al. 2007).
- Location and number of square-mile sections in the project area that already exceed the 3 percent threshold for surface disturbance, which equates to significant negative impacts to sage-grouse. The agency's preferred alternative should require that cumulative surface disturbance (existing plus proposed) be kept below the 3 percent threshold, on a per-square-mile basis (Knick et al. 2013).
- Acreage of sage-grouse habitat within 4 miles of existing and proposed power lines; the preferred alternative should reduce new disturbance within 4 miles of grouse seasonal habitats to zero.

Comments indicated that agencies must apply the standard mitigation hierarchy for impacts in sage-grouse habitat that prioritizes avoidance and minimization before off-site compensatory mitigation for unavoidable impacts and offered the following additional suggestions for design features to avoid or minimize impacts:

- Consideration of infrastructure line of sight to occupied sage-grouse leks;
- Placement and construction specifications for water impoundments with consideration of West Nile virus risk;
- Unitization to allow for more siting flexibility;
- Expanded buffers around sage-grouse core areas or buffers around core and connectivity areas that are managed the same as core areas;
- Reclamation requirements of brush density and other vegetation species composition and diversity necessary to reclaim sage-grouse habitats, and prevention of new development until a percentage of sage-grouse habitat from existing development is fully reclaimed;
- Moratoriums on new oil and gas leasing in important sage-grouse habitat;

However, comments also noted that the BLM's interim Regional Mitigation Manual (Manual Section [MS] 1794) affirms that the BLM has the authority to require meaningful compensatory mitigation as a condition for a permit and can make project approval contingent on incorporating mitigation measures. Comments indicated a robust compensatory mitigation program for the greater sage-grouse consistent with MS 1794 should result in measurable, net benefit to the greater sage-grouse; apply a standardized, scientifically based methodology for assessing and quantifying the habitat conditions and outcomes associated with impacts and offsets across the range of the species; utilize a transparent and clearly articulated process for accounting, administering, and tracking mitigation projects and outcomes; enable temporary and permanent conservation contracts that match or exceed the time frame of impacts;

include independent, third-party verification of impacts, offsets, and performance; and apply a monitoring and assessment framework that ensures adaptive management of the mitigation program. Comments indicated that priority should be given to sites that present the best locations for long-term sage-grouse conservation within the surrounding landscape, regardless of whether these sites are located on private, state, or federal land, and proposed the use of the Upper Green River Conservation Exchange (UGRCE) / Wyoming Conservation Exchange to purchase mitigation credits to offset the unavoidable impacts of their activities; and/or use of their Habitat Quantification Tool to better quantify direct as well as indirect and cumulative impacts by being able to more closely quantify changes to habitat value.

4.4.16.5 Raptors and Migratory Birds

Comments expressed concern about raptors and migratory birds and indicated that mitigation may be required for loss of nests. Comments stated that permits will not be issued for an active nest of any migratory bird species, unless removal of an active nest is necessary for reasons of human health and safety; therefore, if nesting migratory birds are present on or near the project area, timing is a significant consideration and needs to be addressed in project planning.

Comments stated that any timing stipulations relied upon to provide protection for raptor nests and bald eagle roost sites should be rigorously enforced and not subject to waiver or exceptions.

Comments identified Golden eagles, merlins, red-tailed hawks, burrowing owls, Swainson's hawks, bald eagles, northern harriers, and other raptor species as nesting and/or roosting in the project area and requested the BLM disclose spatially by alternative how much infrastructure is located within 1 mile of these sensitive habitats. Comments expressed concern about ferruginous hawks as the most sensitive of all raptor species, and cited references indicating that nest abandonment, egg mortality, parental neglect, and premature fledging are common results of disturbance. Comments stated that if the avian survey data available for the project do not provide the detail needed to determine normal bird habitat use and movements, that information should be collected prior to determining locations for infrastructure.

Comments noted that nesting habitat for the mountain plover (a BLM Sensitive Species and recently listed as endangered under the ESA) is found in the project area and requested mapping of all known plover nesting habitats. Comments indicated that this species is rare and declining in the Powder River Basin, and that the BLM must not permit this project in such a way that contributes to the need to re-list this bird.

Comments expressed specific concerns about impacts to avian species from reserve pits and evaporation ponds. Comments stated that birds, including hawks, owls, and songbirds, are attracted to reserve pits and wastewater evaporation ponds by mistaking them for natural bodies of water and can fall into the ponds or become entrapped if there is oil along the banks of the pits/ponds. Comments also noted that songbirds may be attracted by entrapped insects; hawks and owls in turn may become victims when they are attracted by struggling birds. Comments further noted that light sheens of oil on the surface of pits/evaporation ponds can coat the birds feathers and cause mortality from exposure or from the ingestion of the oil during preening, surfactants allow water to penetrate through feathers and onto skin thus subjecting the bird to hypothermia, and that that birds ingesting sublethal doses of oil can experience impaired reproduction, and that microliter amounts of oil applied externally to eggs are extremely toxic to bird embryos. Comments further noted salt concentrations may eventually cause hypersaline conditions which could pose a risk to migratory birds and cause mortality.

Comments stated that flagging, strobe lights, metal reflectors and noise makers are not effective at preventing bird from entering pits and recommended the use of netting.

Comments noted that the POD proposes that approximately 1,500 miles of overhead electrical lines and requested an analysis of impacts to bald and golden eagles, other raptors, and migratory birds from the increase in overhead electrical lines. Comments also indicated that that the cumulative impact analysis should address the impacts to these species from existing wind projects, and consider potential electrical

lines that may be constructed for potential wind development throughout the project area. Comments stated that perch discouragers on power poles may reduce but will not prevent raptors from preying on species of concern and may increase electrocution risk for avian species as well as serve as nesting substrate for corvids, which could impact population demographics of sensitive prey species. Comments therefore discouraged the use of perch discouragers to reduce predation on sensitive prey species, but rather recommended other siting and design considerations (see below). Comments indicated that if perch discouragers are used, they should be installed and maintained to specifications which will minimize the likelihood of avian electrocutions.

Comments recommended the following measures be incorporated into the EIS to minimize impacts to avian species:

- No temporary or permanent surface occupancy occur within species-specific spatial buffer zones, including:
 - NSO within 0.5 mile all known plover nesting habitats
 - NSO within 2 miles of all ferruginous hawk nests.
 - NSO within 1 mile of nesting and/or roosting habitat for Golden eagles, merlins, red-tailed hawks, burrowing owls, Swainson's hawks, bald eagles, northern harriers, and other raptor species
- Keeping surface of pits/evaporation ponds free of oil or sheens to prevent the mortality of migratory birds and other wildlife, particularly during the breeding season and/or use of effective and proven wildlife deterrents or exclusionary devices (i.e., netting) to keep migratory birds and other wildlife from accessing pits, and/or containments of flow-back fluids in closed tanks unless the operator can demonstrate that the fluids will not pose a risk to migratory birds and other wildlife.
- Use of bird flight diverters in all areas identified as having high potential use of migratory birds and eagles to be placed at 5-m intervals to reduce collision potential.
- Power line design recommendation including:
 - Ensuring that all power lines, new or old construction, meet or exceed the recommendations contained in Avian Power Line Interaction Committee (APLIC) 2006.
 - Burying power lines through areas of high avian use areas (i.e., away from areas used for nesting, foraging, roosting or migrating), to minimize bird electrocution and collision potential.
 - Siting power lines outside of sensitive prey species' habitat.
 - Designing structures to minimize perching and nesting (such as tubular instead of lattice structures), especially in areas of high resource value.

The USFWS also requested notification should any migratory bird mortality be discovered.

4.4.16.6 BLM Sensitive Wildlife Species

Comments noted that the black-tailed prairie dog is a BLM sensitive species and a keystone species upon which a wide variety of other wildlife depend for their survival. In addition to analyzing direct impacts to prairie dogs and their habitats through habitat disturbance and vehicle collision, comments indicated the EIS must analyze the magnitude and cumulative impact of non-project activities deleterious to prairie dogs, including recreational shooting and poisoning. Comments recommended placing all lands within 0.25 mile of active colonies under NSO restrictions as a COA for this project.

4.4.16.7 Aquatic Species

Comments also requested disclosure of potential indirect impacts to wetlands, riparian areas and floodplains that could occur due to impacts on stream structure and channel stability; streambed substrate, including spawning habitats; and stream bank vegetation, riparian habitats, and aquatic biota (also see Water Resources and Vegetation comments).

Comments stated that if the proposed action may lead to consumptive use of water or have the potential to affect water quality in the Platte River System, there may be impacts to threatened and endangered species inhabiting the downstream reaches of this river system. The USFWS identified the least tern (endangered), pallid sturgeon (Endangered), piping plover, (Threatened), and whooping crane (endangered) as applicable wildlife species.

Comments also stated that the EIS will need to include measures to minimize impacts to reptiles and amphibians and prevent the spread of aquatic invasive species, and suggested that the EIS include measures stating that equipment that has been in contact with surface water should not be moved from one 4th level (8-digit HUC) watershed to another.

4.4.17 Cumulative Effects

Comments stated that the analyses should consider a variety of past, present, and reasonably foreseeable actions, including:

- WOGCC data, which currently reports 1,144 active oil, gas, or coalbed methane wells in the project area, each served by an access road, and presumably product pipeline.
- The following oil and gas projects: Hiawatha (4,208 wells); Moxa Arch (1,861 wells); Continental Divide-Creston (8,950 wells); Normally Pressured Lance (3,500 wells); LaBarge Platform (838 wells); Bird Canyon (348 wells), and the Moneta Divide (4,250 wells).
- Ongoing and planned wind development; as well as potential electrical lines that may be constructed for planned wind development.
- The continued growth of other industries that presently occur within the county, including such as coal mining and livestock grazing, as well as private activities, such as fee estate drilling and production, coal mining, gas and oil facilities, and rail infrastructure.
- Human-induced climate change.
- Existing vehicle traffic and road networks.
- Existing fences.
- Existing and reasonably foreseeable patterns of human habitation and subdivision across the project area.

Comments requested that the cumulative impact analysis be presented as a separate chapter of the EIS.

4.4.18 Other Mitigation Comments

General mitigation comments indicated that the BLM must consider a wide range of mitigation measures in the EIS and adopt measures that are needed to prevent undue and unnecessary degradation. Comments stated that the BLM can and should put in place any needed COAs or BMPs needed to protect resources and resource values such as golden eagles, ferruginous hawks, big game crucial winter range, important cultural resources such as historic trails, private residences, etc. comments provided attachments such as “grey papers” or comments to other projects (for example see Exhibit 1 of Wyoming Outdoor Council’s comment letter) as examples of such measures.

Comments requested transparent and consistent compensatory mitigation at the landscape scale as consistent with the recent Secretarial Order 3330 (“Improving Mitigating Policies and Practices of the Department of Interior”). Comments noted that per the BLM’s Interim Regional Mitigation Manual (MS 1794), and CEQ requirements, the BLM must prioritize mitigating impacts to an acceptable level onsite, to the extent practical, through avoidance, minimization, rectification, or reduction of impacts over time and in that order (i.e., avoidance and minimization must receive priority). Comments requested that adherence to the landscape-scale mitigation strategy implementation provisions specified in the Mitigation Strategy (including the use of oil and gas master leasing plans). Comments also noted that several near-term deliverables are specified in the Mitigation Strategy, and indicated these should be met (in particular, the BLM must finalize MS 1794, and ensure that it complies with this additional new policy).

Comments suggested the use of the Upper Green River Conservation Exchange (UGRCE), a collaborative process including Sublette County Conservation District, the University of Wyoming, the Wyoming Chapter of the Nature Conservancy, and stakeholders in the Upper Green River area of Wyoming) for a compensatory mitigation program consistent USFWS policy, BLM MS 1794 and Secretarial Order No. 3330. Comments provided a summary paper that provides additional detail on the Wyoming Credit Exchange program, and noted that it is expected to be incorporated later this year.

Comments suggested that proximity to impacts should not be the only factor in identifying mitigation sites but rather, priority should be given to sites that present the best locations for long-term conservation within the surrounding landscape, regardless of whether these sites are located on private, state, or federal land. Comments further noted that this would be consistent with BLM MS 1794.

Comments suggested that the EIS include and analyze mitigations to reduce impacts to private surface property, such as additional bonding requirements to ensure oil wells will be plugged and the surface fully reclaimed in a timely fashion.

Comments urged the BLM to assess this project against the backdrop of the Wyoming Greater Sage-Grouse Core Area Strategy and ensure that any impacts to core areas or Wyoming BLM Preliminary Priority Habitat are properly mitigated (also see Wildlife comments).

Other comments indicated that the BLM cannot require compensatory off-site mitigation for all oil and gas development and that such requirements would ignore the fact that oil and gas development is an appropriate use of federal lands. Submittals noted that the BLM’s current policy regarding off-site mitigation as expressed in BLM IM No. 2008-204 makes it clear that compensatory off-site mitigation may be offered voluntarily by a project proponent and can only be a condition of a permit on a site-specific basis, under very specific criteria, and that compensatory off-site mitigation is only required or appropriate when impacts cannot be mitigated to an acceptable level on-site, but is not intended to be applied in all circumstances.

A comment pointed to the expiration of IM No. 2008-204 and the current lack of guidance for compensatory mitigation.

4.5 Land Use Plan Amendments

4.5.1 Amendments to Timing Restrictions

Comments included requests for the BLM to amend or revise the Casper RMP to allow Operators to drill year-round. Many comments supporting year-round drilling cited the following economic benefits:

- Projects can retain experienced employees and sub-contractors who otherwise would be forced to leave the area;
- Allows for more experienced personal, which reduces costs and time on location and helps ensure that the job is done right, in a safe, responsible manner;

- Allows workers that move here to put down roots in the local community;
- Provides year-round economic benefits as workers and their families to settle in the area; and
- “Smooths” out seasonal social and economic impacts.

Other comments indicated that waiving timing restrictions also would benefit wildlife by eliminating the noise, emission, activity, and traffic that would come with multiple rig redeployments and would reduce overall (start to finish) disturbance time and concentrate activity geographically, through directionally drilling multiple wells on a single pad. Comments indicated that while timing restriction are appropriate for single wells, they are less appropriate for projects with directionally drilling projects, as the restriction would reduce the very benefits of directional drilling (reduced surface disturbance and disruption from multiple mobilizations). Comments recommended the BLM work with operators to determine ways to provide year-round access for drilling in areas that have seasonal stipulations; for example, the BLM could allow for year-round access outside of sage-grouse core areas and, in return, an operator may perform mitigation inside core areas.

Other comments noted that Section 363 of the Energy Policy Act of 2005 also requires federal land management agencies to ensure that lease stipulations are applied consistently and that the least restrictive stipulations are utilized; the BLM must demonstrate that less restrictive measures were considered but found insufficient to protect the resources identified before requiring more restrictive lease stipulations. Comments suggested that the State of Wyoming EO 2011-5 provided the BLM with a greater sage-grouse habitat management strategy that has been found sufficient to protect greater sage-grouse habitat by a number of experts in the field of wildlife biology (e.g., Wyoming Sage Grouse Implementation Team and USFWS) and that any greater sage-grouse habitat management decisions and stipulations more restrictive than what is required under EO 2011-5 would violate the BLMs “least restrictive stipulation” policy.

Comments opposing year-round drilling cited unacceptable impacts to a sensitive wildlife valued by residents and which the BLM has an obligation to protect from unnecessary and undue degradation under FLPMA. Comments stated that the sensitive nature of these species and the extent of habitat fragmentation currently present within the project area boundary makes area-wide or blanket exceptions from timing restrictions inappropriate. Comments also noted the RMP already provides for granting exceptions, modifications, and waivers to stipulations, which can be used to create flexibility on a case-by-case basis to allow drilling during otherwise prohibited time periods, making area-wide exceptions unnecessary. Comments included concerns about the following species-specific timing stipulations:

- Big game. Comments expressed concern about the allowance of timing waivers on a programmatic basis in identified big game winter concentration areas, noting that research in areas where exemptions have been indicated mule deer avoided areas with higher levels of traffic. Comments recommended that allowances for year-round activity in sensitive winter concentration areas should only be considered on a case-by-case basis.
- Greater Sage-grouse. Comments expressed concern about ESA listing of this species and indicated that waivers during breeding season in areas with active and undetermined leks would be inappropriate. Comments recommended waivers only on a case-by-case basis when it can be proven that waivers will not cause declines in sage-grouse populations, especially where population numbers are low (such as in the Douglas Core Area) and surface disturbance is near or exceeding 5 percent of viable habitat. Comments recommended consultation with the WGFD, and completion of the Density and Disturbance Calculation Tool.
- Migratory Birds and Eagles. Comments indicated that waiving all discretionary timing limitations would increase the risk of Migratory Bird Treaty Act (MBTA) and/or the Eagle Act violations. Comments recommended implementing voluntary spatial and seasonal buffer zones to protect individual nest sites for raptor species protected by the MBTA/Eagle Act, including: 1) distance buffers between the activity and the nest, 2) landscape buffers (natural areas) between the

activity and around nest trees, and 3) avoidance of certain activities during the breeding season territories as noted on the Wyoming Ecological Services website.

- Lambing. Comment expressed concern with changes to May 5 to June 25 lambing timing stipulations, stressing the need for limited activity during this time, and the potential economic impacts sheep operations if lambing is affected.

Other comments stated that if NSO requirements were to be applied in and around all sensitive wildlife habitats (within 5.3 miles of sage-grouse leks, 2 miles of ferruginous hawk nests, and 1 mile of other raptor nest sites, and within 0.25 mile of active prairie dog colonies) without the possibility of waiver or exception, then waivers of timing limitations would be more acceptable.

4.5.2 Other Potential Amendments

Comments noted the potential need to amend the existing RMP to address an increased level of development but indicated the Casper RMP should not be amended to reduce other environmental protections in the current plan; for example, requirements for directional drilling to protect other resource values, visual resource management (VRM) classification of VRM II or III, and National Historic Trails protections. Comments further stated that changes of this type would comprise an RMP revision, not an RMP amendment.

Comments requested additional information regarding how the RFD scenario was calculated, including all correspondence with operators regarding the RFD scenario, any uncertainties related to the RFD scenario, and whether actual drilling could be still greater than what is now anticipated. Comments indicated that the BLM must inform the public that the RFD Scenario is not a limit or threshold on future development, but rather a tool to estimate the potential impacts of oil and gas development within a particular resource area.

Comments also indicated that the BLM should require and enforce stipulations to prevent drilling in areas with limited reclamation potential, steep slopes, or severe erosion hazard.

Comments noted that the BLM has begun a review of its planning process to engage in landscape scale planning and indicated that any potential changes in BLM planning regulations and the BLM planning Handbook should be tracked and incorporated into any amendments to the Casper RMP.

Comments suggested that another important area that might be the subject of RMP amendment could relate to the CE provisions in the Energy Policy Act of 2005 that allows for exclusions from NEPA compliance for oil and gas well drilling. Comments indicated that the BLM should not use these CE provisions in Converse County because they would eliminate environmental review and negate the assertion that environmental review will occur at the well-drilling (APD) level.

Other comments requested the BLM limit the scope of the amendments to the RMP to those necessary and specifically warranted by the authorization of the project. Comments also indicated that any stipulations or restrictions proposed in the RMP Amendment must be enforceable without infringing upon valid existing rights.

4.6 Non-substantive Comment Summary

4.6.1 Statements of Support or Opposition

The BLM received 34 submittals that offered specific statements of support for the project and 1 submittal that specifically opposed the project. Most letters of support cited rationale of increased economic benefits to the local communities (direct employment and secondary employment, increased tax revenue, infrastructure improvements resulting from increased tax base, etc.), and addition of roads that can be used by the community. Some submittals also supported the project because it would increase domestic energy reserves for the nation. Others indicated that the federal government should

not be involved in private land ownership. The submittal opposing the project cited the backlog of well inspections, use of water from an arid landscape and deprivation of grazing range for wildlife (specifically pronghorn, and elk).

The tables in **Appendix E** generally identify statements of support or opposition by submission.

4.6.2 Out of Scope Issues

Most of the comments received were related to resource and process issues that will be addressed in the EIS (as discussed in preceding sections); however, a number of comments presented process issues and concerns that will not be addressed in the EIS. Comments of this type include administrative or policy issues; issues outside the scope of the EIS; or issues that have already been addressed through other BLM activities. These types of comments included requests to finalize the BLM's interim mitigation policy (BLM MS 1794) and suggestions proposing changes to WGOCC and WDEQ regulations.

5.0 Issue Summary

The BLM developed resource issue statements for 22 issue categories, written in the form of questions. These issue statements summarize the issues and concerns raised by the public during the scoping process. Based on the comments submitted during scoping and summarized above, the BLM developed 87 issue statements, in the form of questions, which describe the general issues and concerns identified during scoping.

Revisions to the resource issues will be made as needed during the NEPA process as the BLM receives additional input from the public, cooperating agencies, Tribes, and other affected parties.

Process

1. What level of detail in Chapter 2.0 is necessary for an adequate and defensible NEPA process and EIS?
2. How will the EIS best convey project information, especially information that is conceptual and programmatic?
3. What is the process by which permitting will proceed from a programmatic EIS analysis to more site-specific analyses at the APD level?
4. How should unknown or inadequate information be addressed?
5. How will the project comply with applicable policies, regulations, and permitting, including air quality?
6. How can cooperators, agencies with regulatory authority, affected stakeholders, and other interested parties participate during the NEPA process?

Purpose and Need

7. To what degree should the Operator's request for year-round drilling be incorporated in the purpose and need?

Alternatives

8. What equipment, techniques, and design features will be implemented on the project to respond to local and regional resource issues?
9. What design features are technically and/or economically feasible?
10. What is a reasonable range of alternatives?
11. What is an appropriate project area?

Air Quality and Climate Change

12. What methodologies should be used for a robust and quantitative modeling for all appropriate air pollutants and sources such as drilling, production, vehicle use, and other sources?
13. Will the project conform to National Ambient Air Quality Standards?
14. How will the project affect greenhouse gases and contribute to climate change?
15. What is the long-term impact to the surrounding air quality if produced gas is flared compared to collecting the gas and not flaring?
16. What methods or actions can minimize or mitigate air quality impacts and potential effects on human health and other resources from the project?

17. What elements should be included in an air monitoring plan?

Geology and Paleontology

18. How does area geology affect the potential for gas and liquid to migrate from one formation or zone to another?
19. How would the potential for gas and liquid migration be affected by drilling, hydraulic fracturing, injection of produced water, or other project activities?
20. What is the potential for impacts to important paleontological resources and how can this be minimized?

Soils

21. How does area soil type affect the potential for erosion, runoff, and subsequent sediment loading?
22. How will impacts to erodible soils, saline soils, or other sensitive soil types be minimized or mitigated?

Water Resources

23. What water sources would be used for drilling, hydraulic fracturing, and oil production activities? How would the projected water use affect long-term availability of these sources for use due to depletion caused by oil activities in conjunction with use by other entities?
24. How would the characteristics of the oil/gas formations, aquifer formations, and their interconnectedness affect water quality during project activities such as drilling, hydraulic fracturing, injection of produced water, or other project activities?
25. How will the proponents handle the collection, storage, treatment, and disposal of produced water?
26. What design features, BMPs, mitigation measures, and conditions of approval can be incorporated into the project to reduce risk to water resources?
27. What are appropriate setbacks for protection of public and private wells, lakes and streams, impaired waters, floodplains, or other water resources?
28. How should water quantity and quality be monitored over the life of the project?

Wildlife/Threatened and Endangered Species

29. How will impacts to wildlife habitat be analyzed at a programmatic level?
30. How would planned habitat disturbance, vehicle use, and other project elements affect wildlife, special status species, and their habitat?
31. What design features, BMPs, mitigation measures, and conditions of approval can be incorporated into the project to reduce risk to wildlife and special status species?
32. How will the project affect big game, including effects on habitat fragmentation and connectivity and the potential for additional human disturbance or poaching from roads?
33. How would proposed changes to the current protective stipulations for special status species affect habitat and species viability?
34. What are the direct and cumulative impacts to sage-grouse leks and surrounding nesting and brood-rearing habitats with consideration of habitat restoration and other mitigation measures?
35. What research, impact assessment tools, and conservation strategies for greater sage-grouse should inform the project design, alternatives, and impacts analysis?

36. How would the project comply with existing regulations and policies associated with special status species, including the Governor's Greater Sage-Grouse Core Area Protection Executive Order?
37. What is the potential for the project to affect the Platte River System through consumptive use or impacts to water quality?

Vegetation

38. How will vegetation resources such as sagebrush habitat be protected, maintained, or restored?
39. How would special status plant species be protected?
40. How would the spread of noxious weeds be mitigated?
41. How would surface disturbance or changes in hydrology affect wetland or riparian areas and how will these areas be protected?

Cultural Resources

42. How can the BLM protect and conserve cultural resources?
43. What specific protective measures including buffers will be applied to linear and non-linear cultural resources?
44. How will consultation with cultural preservation groups be incorporated?
45. What cultural importance do local tribes place on the project area?
46. How can the setting of regional historic trails and routes, early highways, and other linear resources in the project vicinity be protected?

Hazardous Materials

47. What are the types and amounts of hazardous materials that will be used for this project?
48. What methods will be used for hazardous materials transport and storage to reduce risk of adverse impact to physical, biological, and other resources?
49. How will contaminants be disposed of and can planned disposal facilities accommodate the projected waste levels?
50. How can waste disposal on private lands be regulated?
51. What contingencies exist to handle unexpected contaminations such as naturally occurring radioactive materials or spills?

Human Health and Safety

52. How will the BLM protect public health and safety in and around the project area?
53. What are appropriate setbacks for residences, towns, and other areas where people live or work?
54. How will the project impact emergency and health care services?
55. What avenues can be used to inform the public about potential hazards?

Land Use

56. How will development in the project area affect access to federal, state, and private lands?
57. How would the project comply with county and local policies concerning development?
58. How will private property rights and property values be protected?

59. How will the BLM address split estate lands in terms of survey or reclamation requirements?

Livestock Grazing

- 60. How will the EIS analyze the direct, indirect, and cumulative impacts to livestock grazing, including impacts on range improvements, potential loss of AUMs, reduction in allotments, and declines in economic returns?
- 61. What mitigation measures should be used to reduce the impacts to livestock grazing?
- 62. What opportunities exist for the BLM, Operators, and permittees to work collaboratively to minimize conflicts?

Special Designations

- 63. How will areas of critical environmental concern and inventoried roadless areas be protected?
- 64. How can impacts to key landscape settings around historic trails be minimized?

Recreation and Visual

- 65. How would the project affect access to recreation and the quality of the recreational experience?
- 66. How will the effects of the extraction industry on recreational resources and opportunities (as well as the recreation industry) be mitigated?
- 67. How will visual impacts on recreational areas within the project area be reduced?
- 68. What are the hunting values of lands in the project area and impacts to hunting activities?

Socioeconomics

- 69. How will the project affect social and economic conditions on local and regional levels?
- 70. How would resource conservation measures and other actions that would restrict or limit oil and gas development affect social and economic conditions?
- 71. How can impacts to less tangible social issues such as quality of life be analyzed?
- 72. What mitigation strategies can be used to minimize adverse social or economic impacts?
- 73. How can the direct and indirect impacts to social and economic resources be balanced with the positive impacts brought by the extraction industry?

Transportation

- 74. How will the project affect traffic on local and regional levels on a daily and annual basis?
- 75. How will the project affect the local road system in terms of existing road standards, usage, condition, dust abatement, maintenance, noise, and traffic safety?
- 76. How will the project minimize adverse impacts to traffic and the local transportation network?

Cumulative Impacts

- 77. How will the cumulative impacts from oil and gas and other regional development affect air quality, visibility, water resources, greater sage-grouse, and other wildlife?
- 78. What reasonable foreseeable actions are appropriate for inclusions in resource-specific cumulative impact analyses?

Mitigation

- 79. How would the project comply with new regulations and policy associated with mitigation, including the Secretarial Order 3330 and BLM's Interim Regional Mitigation Manual?
- 80. What off-site mitigation opportunities or other compensatory mitigation management options should be considered?
- 81. How will mitigations be applied to private property?

Reclamation

- 82. What elements should be required as part of a comprehensive reclamation plan that addresses post-reclamation monitoring, annual reporting, and bonding?
- 83. How will the BLM ensure that reclamation requirements are being met?

Land Use Plan Amendments

- 84. How will the project consider and comply with applicable federal land use plans?
- 85. Will the project result in revision to the Casper RMP or TBNG LRMP to allow year-round drilling or other activities?
- 86. How will the ongoing Casper RMP revision affect the project?
- 87. How will valid existing rights be maintained?

6.0 Next Steps

The BLM will consider the comments submitted during scoping and the issues identified in this scoping report when developing alternatives to the Proposed Action. The BLM will continue to consider issues identified during scoping, along with other issues and potential impacts, during preparation of the EIS. The BLM will analyze and document potential impacts that could result from implementing the Proposed Action and the alternatives in a Draft EIS.

The Draft EIS is currently scheduled for publication in Winter of 2015. A Notice of Availability (NOA) for the Draft EIS will be published in the *Federal Register* announcing availability of the Draft EIS for review and comment. Publication of the NOA for the Draft EIS will initiate a public comment period during which the BLM will invite the public and other interested parties to provide comments on the Draft EIS. The BLM will hold public meetings during the public comment period and will advertise meetings through mailings to contacts on the project mailing list and through other notification methods. The BLM will review and consider all comments received on the Draft EIS during the public comment period. The BLM will revise the Draft EIS as appropriate based on public comments and all substantive comments and responses will be incorporated into the Final EIS. A NOA for the Final EIS will be published in the *Federal Register* announcing the availability of the Final EIS. The Final EIS is scheduled to be released in early 2017.

The BLM and USFS will prepare RODs to document their selected alternative and identify any accompanying mitigation measures. The agencies will issue their respective RODs no sooner than 30 days after the NOA for the Final EIS is published in the *Federal Register*. The RODs are scheduled to be released in the Fall of 2017.

If BLM RMP or USFS LRMP amendments are proposed as part of the project, the Draft EIS and Final EIS will include an analysis of the impacts to the amendments. The RMP and LRMP amendment process would run concurrently with issuance of the Final EIS and RODs, as shown below in **Figure 6-1**.

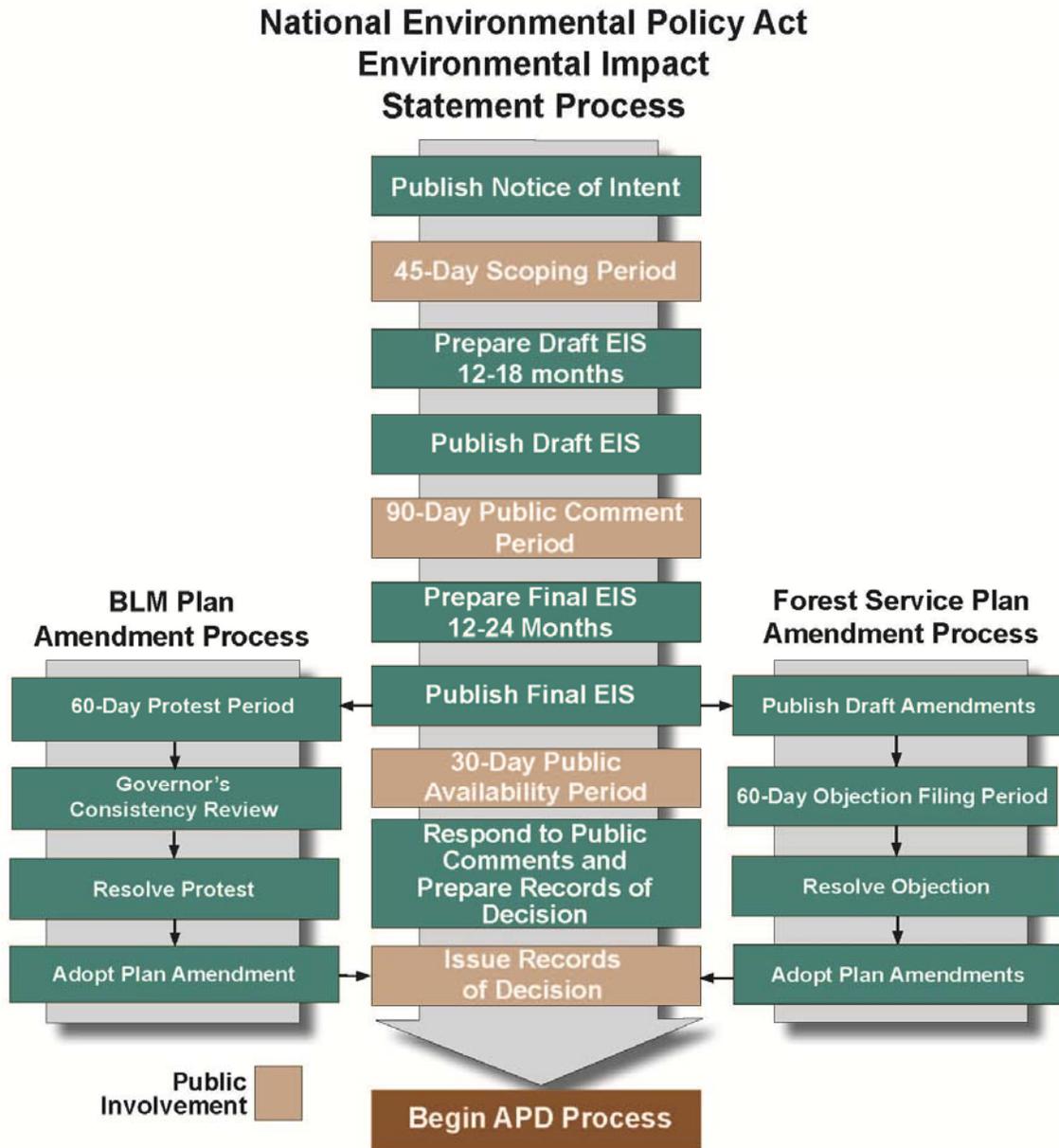


Figure 6-1 NEPA and LUP Amendment Process Steps