Environmental Assessment

Escalera Resources Co.

1692 Catalina D 44-13R, 42-24R, 44-24R, & 31-24R 4 Proposed Coal-Bed Methane Natural Gas Well Pads, Access Roads, Pipelines, and Utility Corridors

Carbon County, Wyoming

DOI-BLM-WY-030-2015-0080-EA
BLM Lease Numbers: WYW-137698

August 2015

BLM

High Desert District -- Rawlins Field Office, Wyoming

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DOI-BLM-WY-030-2015-0080-EA

BLM Lease Numbers: WYW-137698

Tiered Environmental Analysis
This Environmental Assessment Is Tiered To and References the "Atlantic Rim Natural Gas Development Project Final Environmental Impact Statement."

ENVIRONMENTAL ASSESSMENT

EA NUMBER: DOI-BLM-WY-030-2015-0080-EA

BLM Office: Rawlins Field Office **Lease Number**: WYW-137698

Proposed Action Title / Type: 1692 Catalina D 44-13R, 42-24R, 44-24R, & 31-24R Coal-Bed Methane Natural Gas Well Pads, Access Roads, Pipelines, and Electrical Corridors

Applicant: Escalera Resources Co. (Escalera)

Location of Proposed Action: Carbon County, Wyoming

Well Name	Well No.	T (N)	R (W)	Sec	Qtr/Qtr	Lease No.	Unit No.	Surface Ownership
1692 Catalina D	44-24R	16	92	24	SENE	WYW-137698	WYW-163121X	Federal
1692 Catalina D	44-13R	16	92	30	SESE	WYW-137698	WYW-163121X	Federal
1692 Catalina D	44-24R	16	92	24	SESE	WYW-137698	WYW-163121X	Federal
1692 Catalina D	31-24R	16	92	24	NWNE	WYW-137698	WYW-163121X	Federal

INTRODUCTION

Escalera proposes to drill 4 coal-bed methane natural gas wells, along with their accompanying well pads, access roads, pipelines, and utility corridors. The wells are all on federal surface and would be extracting federal minerals.

Purpose and Need for the Proposed Action

Purpose:
This site-specific Environmental Assessment (EA) is being prepared in response to the Applications for Permit to Drill (APDs), and discloses information which would allow the Authorized Officer to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI). The purpose of the action is to allow the lease holder to exercise their right to drill for, extract, remove, and market natural gas products at the above described locations.

Need:
The need for the action is established by the Bureau of Land Management's (BLM) authority under the Minerals Leasing Act of 1920, as amended, the Mining and Minerals Policy Act of 1970, the Federal Land Policy and Management Act of 1976, the National Materials and Minerals Policy, Research and Development Act of 1980, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987.

Decision to be made

The BLM will decide whether or not to issue an Application for Permit to Drill (APD) and, if so, under what conditions of approval.

Scoping and Issues

External:
Upon receipt of an APD or Notice of Staking (NOS) for a proposed well/location, the APD or NOS is posted in the public room of the Rawlins Field Office (RFO) for a period of 30 days. During that time, the APD or NOS is available for public review and comment. The information required under 43 CFR 3162.3-1(g) for these APDs were posted in the BLM RFO public room on May 14, 2015. The project was entered into the National Environmental Policy Act (NEPA) Register on February 5, 2015 (WY-IM-2009-037). As of June 23, 2015, no public comments have been received for this proposal.

Internal:
An on-site was conducted for the proposed locations on March 17, 2015. A BLM interdisciplinary team reviewed the new proposal and the following resources were found to have issues of concern that are addressed in this EA: air quality; cultural and historic resources; wildlife resources including threatened, endangered and sensitive species; weeds; soils; recreation/visual resources; lands with wilderness characteristics: range; noise; and Health and Safety. Other resources either were not present, or the impacts were adequately addressed in the Atlantic Rim (AR) Natural Gas Field Development Final Environmental Impact Statement (FEIS) or through the application of Standard Operating Procedures (SOPs), Best Management Practices (BMPs) and/or site-specific mitigation measures (see Appendix 1). However, some resources discussed in the impacts section of this EA, while not elevated to a level of concern that might influence a FONSI, are of sufficient concern to the public to warrant mention. These resources are ground water, and health and safety.

Resources considered, but not present or affected in such a manner as requiring site-specific analysis in this EA, include, but are not limited to:

Resource/Resource Use	Approved Rawlins RMP FEIS Reference	AR EIS Reference
Areas of Critical Environmental Concern	3-88 to 3-89; 4-514 to 4-515; Appendix 22	3-150 to 3-153; 4-158 to 4-163
Cultural Resources	3-10 to 3-17; 4-12 to 4-31; Appendix 5	3-122 to 3-132; 4-116 to 4-119; Appendix I
Environmental Justice	3-77; 4-189 to 4-203	3-145; 4-120 to 4-146
Hazardous Materials	Appendix 32	Appendix C
Health and Safety		3-148; 4-153- 4-155
Minerals	3-34 to 3-44; 4-83 to 4-111; 4-501	3-9; 4-2
Noise		3-149; 4-155 to 4-157
Off-Highway Vehicles	3-45; 4-113 to 4-125; Appendix 21	
Paleontology	3-48 to 3-49; 4-126 to 4-140; 4-502; Appendix 30	3-13; 4-2 to 4-5
Reclamation	3-44; Appendix 36	Appendix B
Recreation	3-51 to 3-58; 3-76; 4-141 to 4-188; 4-505; Appendix 37	3-115 to 3-119; 4-98 to 4-105
Socioeconomics	3-59 to 3-85; 4-189 to 4-203; 4-508; Appendix 35	3-132 to 3-145; 4-120 to 4-146
Soils	3-123 to 3-137; 4-408 to 4-438; 4-525	3-22 to 3-33; 4-16 to 4-19
Special Designations and Management Areas	3-86 to 3-98: 4-204 to 4-356; 4-512	3-150 to 3-153; 4-158 to 4-162
Transportation	3-26; 3-100; 4-356 to 4-367; 4-522; Appendix 21	3-146 to 3-148; 4-146 to 4-152
Vegetation	3-101 to 3-119; 4-369 to 4-389; 4-522; Appendix 19	3-68 to 3-79; 4-50 to 4-60
Visual Resources	3-120 to 3-122; 4-391 to 4-406; 4-524; Appendix 25	3-119; 4-105 to 4-113
Water Resources	3-123 to 3-137; 4-408 to 4-438; 4-525; Appendices 11, 13, and 32	3-33 to 3-66; 4-20 to 4-49
Wild Horses	3-139 to 3-142; 4-439 to 4-449; 4-528; Appendix 12	3-149; 4-157
Wilderness Study Areas	3-86 to 3-87; 4-204 to 4-207	

PROPOSED ACTION AND ALTERNATIVES

Proposed Action

Escalera is proposing to drill 4 coal-bed methane natural gas (CBNG) wells. The Proposed Action includes the construction of well pads, access roads, and gas gathering pipelines on federal surface for each of the 4 wells. All of the proposed well pads and access roads would be constructed on reclaimed well pads and access roads that were constructed in October of 2008. These 4 APDs had expired and the roads and well pads were reclaimed in the fall of 2013. The Proposed Action also includes the construction, operation, and reclamation of associated underground produced water-gathering pipelines, underground power-lines, and utility corridors (see Map 1). The maps and illustrations attached to the APDs and master surface use plan (MSUP) display the locations of the proposed wells, access roads, water-gathering pipelines, and power-line (electrical) corridors. Total surface disturbance for the project would be as follows:

Proposed Action	Number of Wells	Length (ft)	Width (ft)	Approximate Short-term Disturbance (acres)	Approximate Long-term Disturbance (acres)
Access Roads/ Pipeline/Utility ROWs	4	10,455 feet	50-80 feet*	13.78	2.91
Production Well Pads	4	300 feet	200 feet	9.7	5.48
Total Disturbance				**23.48**	**8.39**

*The disturbance width of the access road and pipeline/utility ROW corridors combined is 80'.
The combined disturbance width of the pipeline and utility ROW corridors is 50'.

Any additional facilities later determined to be necessary would be proposed and applied for via a Sundry Notice.

A discussion of the actions generally associated with drilling a well, including the plan of operations, construction of the access road, drilling pad, and pipeline installation can be found in the Atlantic Rim Natural Gas Field Development Project Final Environmental Impact Statement (AR FEIS, Appendix K: Plan of Development / Detailed Proposed Action).

Access: The operator proposes to construct 4 new primary access roads to the proposed 4 coal-bed methane natural gas well locations. The newly constructed roads would be constructed to meet BLM specifications for a "Resource Road", as specified in BLM Manual Section 9113. Proper drainage structures would be constructed/installed along the primary access road. The width of the roadway (travel surface) would be a minimum of 14 feet within an average 50-foot right-of-way. Unless prohibited by terrain, excessive surface disturbance, or other such circumstances, the proposed access road right-of-way would be combined with the pipeline/utility right-of-way into a road/utility corridor with a total width of 80 feet. To minimize surface disturbance, the majority of the pipeline/utility corridors would be located adjacent to

and parallel the proposed or existing access roads and existing pipeline disturbances, except where not feasible or applicable.

The proposed access road, including utility corridors, would be reclaimed during production operations to the maintenance width of approximately 30 to 40 feet. Utility corridors, upon completion of pipeline/power-line installation, along with any unneeded access roads, would be re-contoured, ripped, seeded, and re-vegetated.

Well Sites: In order to drill and complete the proposed wells, a drill pad would be constructed for each of the 4 well locations. The size of the well pads would be approximately 200 feet by 300 feet, excluding stockpiled topsoil and excess material storage areas (approximately 2.4 acres each).

Following drilling operations cut and fill portions of the well sites would be brought back to grade and reclaimed, along with any other unneeded portions of the well sites. Soil stockpiles would be re-spread or stabilized, and reseeded with native vegetation. The well pads would be reduced to about 1.4 acres for the duration of operations. Unless otherwise authorized, and in conjunction with interim well pad reclamation, the reserve pits, if used, would be dried and backfilled within 180 days (six months) of well completion, or plugging and abandonment. The entire well pad would be re-contoured, ripped, seeded, and re-vegetated during final reclamation upon final plugging and abandonment.

Pipeline/Utility Corridors: The produced water gathering pipelines and power-lines would be buried upon completion of construction and installation, and the disturbed surface areas reclaimed as soon thereafter as possible, but no later than 6 months. Upon well plugging and abandonment, or pipeline/power-line abandonment, the pipelines/power-lines would be properly abandoned in accordance with BLM procedures for abandonment, and the right-of-way corridors appropriately reclaimed. Any major crossings of drainages would be engineered to ensure design/construction adequacy and erosion protection. All channel crossings would comply with current BLM policies and mitigation measures appropriate to the crossings (see “Hydraulic Considerations for Pipelines Crossing Stream Channels,” BLM Technical Note 423, April 2007).

Produced Water Disposal: Produced water from the CBNG wells would be gathered and transported via buried water pipelines to water re-injection wells as indicated in the Master Water Management Plan (MWMP) submitted with the APDs.

The submitted APDs, with MSUP, MWMP, and standard design features, contain complete descriptions of the proposed wells, well pads, access roads, utility corridors, and pipelines. These documents are considered an integral part of this Environmental Assessment (EA) by reference. The APDs are located in the well/lease files In the Bureau of Land Management, Rawlins Field Office, 1300 North Third Street, Rawlins, Wyoming.

ALTERNATIVES INCLUDING THE NO ACTION ALTERNATIVE

The BLM interdisciplinary team, in review of the Proposed Action (as modified during on-site inspections, internal scoping, and subsequent review), identified no unresolved resource conflicts that would necessitate development of additional alternatives.

No Action Alternative

The "No Action" alternative would be to not approve the APD. Under leasing provisions, the BLM has an obligation to allow mineral development if the environmental consequences are not irreversible or too severe. If the APD is not approved, the applicant is allowed to, and generally would, submit a new APD to correct any flaws in the original. The APD process is designed to overcome the "No Action" alternative situation by not accepting the APD as complete, until all environmental impacts are either resolved or mitigated in the application and approval process.

The AR FEIS analyzed the "No Action Alternative" in detail. The AR FEIS Record of Decision (ROD) approved development of natural gas within the AR FEIS project area. The Proposed Action for this EA is consistent with the AR FEIS ROD, approved March 23, 2007. For the above stated reasons, the "No Action" alternative was considered but eliminated and will not be analyzed further in this EA.

Conformance with the Land Use Plan

This Proposed Action is subject to the Rawlins Resource Management Plan (RMP), EIS, and ROD, approved on December 24, 2008. The RMP has been reviewed to determine if the Proposed Action conforms to the land use plan as required by 43 CFR 1610.5-3. Development of natural gas reserves is covered on pages 2-20 to 2-22 of the RMP. The Proposed Action is in conformance with the RMP Management Objectives to provide opportunities for exploration and development of conventional and un-conventional natural gas, while protecting other resource values.

The BLM uses the RMP as a guidance document in its environmental review of leasing, exploration, and development of mineral resources. As a result of initial interdisciplinary environmental review of the Proposed Action, appropriate design features, best management practices (BMPs), and standard operating procedures (SOPs) were identified and would be applied if the APDs are approved. The federal minerals leased to Escalera carry a contractual commitment to allow for development in accordance with the Lease Notice and stipulations of the lease.

The Rawlins RMP can be accessed at:
http://www.blm.gov/wy/st/en/programs/Planning/rmps/rawlins.html

The RMP is currently undergoing amendment as part of the Wyoming Greater Sage-Grouse Land Use Plan Amendment (Amendment). The Proposed Amendment and Final Environmental Impact Statement (EIS) were released on May 28, 2015.

The proposed action was screened against the Proposed Amendment to ensure that the proposed action would not preclude BLM's ability to select any alternative in a ROD. The proposed action was also determined to not be inconsistent with the direction outlined in the Amendment's Preferred Alternative.

Consistency with the EIS

The project is located within the area covered by the Atlantic Rim Natural Gas Field Development Project Final Environmental Impact Statement (AR FEIS), which was written to assess natural gas drilling within the Atlantic Rim project area. The ROD for this action was approved on March 23, 2007. The Proposed Action is in conformance with this EIS.

The EIS can be accessed at the following location:
http://www.blm.gov/wy/st/en/info/NEPA/documents/rfo/atlantic_rim.html.

Relationship to Statutes, Regulations, or Other Plans

This EA is prepared in accordance with NEPA procedures, and is in compliance with all applicable laws and regulations passed subsequently, including Council of Environmental Quality (CEQ) regulations (40 CFR, Parts 1500-1508); U.S. Department of Interior (DOI) Regulations for Implementation of the National Environmental Policy Act of 1969 (43 CFR Part 46); DOI BLM NEPA Handbook, H-1790-1 (BLM January 2008); Guidelines for Assessing and Documenting Cumulative Impacts (BLM 1994); and the Departmental Manual (DM) part 516. This EA and the AR FEIS assess the environmental impacts of the Proposed Action and serves to guide the decision-making process.

This EA was also prepared in accordance with the following regulations and guidance policies: Endangered Species Act of 1973, as amended (ESA); Federal Land Policy and Management Act of 1976 (FLPMA); Title 54, U.S.C. 306108 (commonly known as the National Historic Preservation Act of 1966); Wyoming Standards and Guidelines for Healthy Rangelands; Environmental Justice (Executive Order 12898); Mineral Leasing Act of 1920; Clean Air Act, as amended; and the Clean Water Act of 1972, as amended. Section 7 consultation with the U.S. Fish and Wildlife Service (USFWS), in accordance with the ESA, was not required.

Onshore Oil and Gas Order No. 1 (43 CFR 3164.1) requires that an APD provide sufficient detail to permit a complete appraisal of the technical adequacy of and environmental effects associated with the proposed project. The APD must be developed in conformity with the provisions of the lease, including the lease stipulations. The APD must provide for safe operations, adequate protection of surface resources and uses, and other environmental components, and must include adequate measures for reclamation of disturbed lands.

If the APD is inadequate or incomplete, the applicant must modify or amend the APD and/or BLM can set forth design features that are necessary for the protection of the surface resources, uses, and the environment and for the reclamation of the disturbed lands. For the purpose of this analysis, the design features for the APD are considered part of the Proposed Action.

The area was assessed as per the Wyoming Instruction Memorandum (IM) WY-IM-2012-019 (Greater Sage-Grouse Habitat Management Policy on Wyoming Bureau of Land Management (BLM) Administered Lands including the Federal Mineral Estate). The IM directs the BLM to analyze Greater Sage-Grouse habitat out to a minimum of four miles. In addition, this analysis is to occur both within and outside of the Greater Sage-Grouse core areas, as designated by the Governor's Executive Order (EO 2011-5). None of the locations are located within a Greater Sage-Grouse core area.

Note: This project does not fit any of the specified criteria allowing for Categorical Exclusion from NEPA analysis under Section 390 of the Energy Policy Act of 2005, 516 DM2 Appendix 1 and 516 DM, 11.9, and is therefore being analyzed herein.

AFFECTED ENVIRONMENT

The site-specific environmental impacts discussed herein are issue-driven and encompass information found during on-site inspections by BLM specialists, and in supporting documentation submitted by the operator as part of the APD with Surface Use Plan (SUP) and by BLM specialists during interdisciplinary review.

Environmental issues during scoping and review of the Proposed Actions that warrant analysis and discussion are as follows:

Air Quality: The basic framework for controlling air pollutants in the United States is mandated by the 1970 Clean Air Act (CAA) and its 1990 amendments, and the 1999 Regional Haze Regulations. The CAA addresses criteria air pollutants, state and national ambient air quality standards for criteria air pollutants, and the Prevention of Significant Deterioration Program. The regional haze regulations address visibility impairment in protected Class I and sensitive Class II areas, such as national parks, recreation areas, and wilderness areas.

The National Ambient Air Quality Standards (NAAQS) are established by the Environmental Protection Agency (EPA) to protect human health and are designed to protect the most sensitive portion of the population. The NAAQS specify the maximum concentration level, the averaging time, and a statistical form of the standard that defines when an exceedance would occur. State standards must be as strict as national standards, or stricter. Air pollutant concentrations above the Wyoming Ambient Air Quality Standards (WAAQS) and the NAAQS represent a risk to human health.

In order to ensure that ambient air quality in the State of Wyoming are maintained in accordance with the National Ambient Air Quality Standards (NAAQS), the Department of Environmental Quality, Air Quality Division operates and maintains a network of ambient air quality monitors to determine compliance with the NAAQS.

The Wyoming Department of Environmental Quality (WDEQ) released the 2014 Annual Summary for the Wamsutter air quality monitoring site (http://www.wyvisnet.com/Data/Reports.aspx). Within this report, WDEQ identified zero days that exceeded the ambient air quality standards; all monitored values were within or below air quality standard limits.

The primary pollutants of concern resulting from construction emissions are Particulate Matter (PM_{10}) and $PM_{2.5}$ from surface disturbance, wind erosion from stockpiles material, and vehicle traffic. Emissions of PM, other gaseous criteria pollutants, hazardous air pollutants (HAPs) and greenhouse gases (GHGs) also would result from mobile sources and construction equipment.

This is the most recent and available information the BLM has regarding air quality impacts within the Rawlins Field Office (RFO) at this time. Further discussion on air quality can be found in the AR FEIS Ch. 3, pp. 3-14 to 3-17, RMP, p. 2-10 and Appendix 4.

Climate Change: Ongoing scientific research has identified the potential impacts of greenhouse gas (GHG) emissions (including carbon monoxide (CO), methane (CH_4), nitrous oxide (N_2O), water vapor, and several trace gases) on global climate. Through complex interactions at regional and global scales, these GHG emissions cause a net warming effect of the atmosphere (which makes surface temperatures suitable for life on Earth), primarily by decreasing the amount of heat energy radiated by the Earth back into space. Although GHG levels have varied for millennia (along with corresponding variations in climatic conditions), recent industrialization and burning of fossil carbon sources have caused Carbon Dioxide(CO_2) concentrations to increase dramatically and are likely to contribute to overall climatic changes, typically referred to as global warming. Increasing CO_2 concentrations also lead to preferential fertilization and growth of specific plant species.

Global mean surface temperatures have increased nearly 1.0°C (1.8°F) from 1890 to 2006 (Goddard Institute for Space Studies, 2007). However, observations and predictive models indicate that average temperature changes are likely to be greater in the Northern Hemisphere.

In 2007, the Intergovernmental Panel on Climate Change (IPCC) pointed out that by the year 2100; global average surface temperatures would increase 1.4 to 5.8°C (2.5 to 10.4°F) above 1990 levels. The National Academy of Sciences (2006) confirmed these findings but also indicated that there are uncertainties regarding how climate change may affect different regions. Computer model forecasts indicate that increases in temperature will not be evenly or equally distributed but rather are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures are more likely than increases in daily maximum temperatures.

In most of the BLM Rawlins Field Office area, mean annual temperatures have warmed 0.4 to 0.8 F° and mean annual precipitation has increased 0.1 to 0.3 inches per decade since 1976. In the western part of the BLM Rawlins Field Office area, mean annual temperatures (AT) have warmed 0.25 to 0.4 F° per decade and mean annual precipitation (PPT) has decreased 0.3 to 0.6 inches per decade since 1976 (NOAA, 2005). For both parameters, varying rates of change have occurred, but overall, there have been increases in both AT and PPT. Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHG are likely to accelerate the rate of climate change.

Several activities occur within the BLM Rawlins Field Office area that may generate GHG emissions. Oil and gas development, large fires, and recreation using combustion engines can potentially generate CO_2 and methane.

Greenhouse Gas Emissions: Greenhouse gases (GHGs) present in the earth's atmosphere trap outgoing long-wave radiation and warm the earth's atmosphere. Higher concentrations of GHGs in the atmosphere result in more heat being absorbed and cause higher global temperatures. Some GHGs, such as water vapor, occur naturally in the atmosphere, and some such as carbon dioxide (CO_2) and methane (CH_4) occur naturally and are also emitted by human activities. The global atmospheric concentration of CO_2 has increased by about 36 percent over the last 250 years, and far exceeds pre-industrial values determined from ice cores spanning many thousands of years (IPCC, 2007). The anthropogenic GHGs of primary concern are: CO_2, CH_4, NO_2 and fluorinated gases. Ice core records extending back over thousands of years indicate that worldwide emissions of these anthropogenic GHGs have increased dramatically during the industrial era with an increase of 70 percent between 1970 and 2004 alone (IPCC, 2007).

The Intergovernmental Panel on Climate Change (IPCC) is the leading international body for the assessment of climate change. It was established by the United Nations Environment Programme and the World Meteorological Organization in 1988 to provide a clear scientific view on the current state of knowledge about climate change and its potential environmental and socioeconomic impacts. The main activity of the IPCC is to provide at regular intervals Assessment Reports of the state of knowledge on climate change. The latest report is "Climate Change 2007," the IPCC Fourth Assessment Report (AR4) (IPCC 2007). In AR4, the IPCC concluded that warming of the climate system is unequivocal and most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations. The IPCC further concluded that, "continued greenhouse gas emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would very likely be larger than those observed during the 20th century."

The impacts of climate change are expected to vary by region, and there is significant uncertainty regarding the effects of climate change on any particular region. In particular, it is unknown how climate change will affect the project area or its surrounding environment. However, AR4 identified specific risks for North America as a whole, and these are shown below:

- Warming in western mountains is projected to cause decreased snowpack, more winter flooding and reduced summer flows, exacerbating competition for over-allocated water resources.
- In the early decades of the century, moderate climate change is projected to increase aggregate yields of rain-fed agriculture by 5 to 20 percent, but with important variability among regions. Major challenges are projected for crops that are near the warm end of their suitable range or which depend on highly utilized water resources.
- Cities that currently experience heat waves are expected to be further challenged by an increased number, intensity, and duration of heat waves during the course of the century, with potential for adverse health impacts.
- Coastal communities and habitats will be increasingly stressed by climate change impacts, such as sea level rise, interacting with development and pollution.

The GHGs projected to be emitted by the project alternatives are CO_2, CH_4 and N_2O. The atmospheric lifetimes for CO_2, CH_4 and N_2O are on the order of years (IPCC, 2007). Emissions of GHGs from any particular source become well-mixed throughout the global atmosphere. GHG emissions from all sources contribute to the global atmospheric burden of GHGs, and it is

not possible to attribute a particular climate impact in any given region to GHG emissions from a particular source. It is possible to state only that GHG emissions produced by the Proposed Action and action alternatives would add to the global burden of GHGs and may therefore contribute to climate change impacts to the Affected Environment produced by world-wide emissions; these impacts may include those shown above.

Cultural and Historic Resources: Cultural resources within the proposed project area include prehistoric lithic scatters, open campsites and historic debris scatters common to the region. One historic trail, the Rawlins to Baggs Road, passes through the immediate area. Class III cultural resource inventories were conducted for the entire project area in order to identify any historic properties that may be affected by the proposed project in conformance with the National Historic Preservation Act (NHPA, 54 U.S.C. 306108) and implementing regulations at 36 CFR 800. A detailed discussion of the affected environment for cultural resources, including the historic trails, can be found in the AR FEIS Section 3.11 Cultural and Historical Resources, pp. 128–132.

Wildlife: The proposed project is located within a sagebrush steppe environment that is primarily utilized by wildlife, such as mule deer, antelope, and other small animals, including rabbits, birds, and rodents. Raptor species that have been known to nest within a mile of the project area include the ferruginous hawk and other unidentified raptors. BLM Sensitive species that have the potential to inhabit the project area include bat species (long-eared myotis, fringed myotis, spotted bat and Townsend's big-eared bat) and bird species (loggerhead shrike, sage thrasher, Brewer's sparrow, and sage sparrow). The Proposed Action would also be located near several raptor nests, the East Dad Road Greater Sage-Grouse lek, Greater Sage-Grouse winter concentration areas, and pronghorn crucial winter range. Fish, wildlife, and special status plant, wildlife, and fish species are discussed in general in the AR FEIS sections 3.7 and 3.8 pp. 84-112.

Greater Sage-Grouse: Greater Sage-Grouse (GSG) is a U. S Fish and Wildlife Service (USFWS) Candidate species, a Wyoming BLM Sensitive species and a Wyoming Game and Fish Department (WGFD) species of greatest conservation need because of population declines and ongoing habitat loss. BLM Instructional Memoranda (IM) WY-2012- 019, and Washington Office (WO) IM-2012-044 and -043 establish interim management practices for proposed activities on BLM- administered lands, including federal mineral estate, until RMP updates are complete.

The following discussion is taken from the Northeast Wyoming Sage-grouse Conservation Plan Addendum (2014). Mortality of GSG from the mosquito driven West Nile virus (WNv) was documented in 2003 and 2007 in Wyoming. Researchers monitoring radio-collared grouse have provided the most insight on prevalence and mortality rates given that mortalities in collared birds are more likely to be found in a timely manner. Weather conditions play a large role in predicting WNv outbreaks. As temperatures rise, the *Culex tarsalis* mosquito, the primary vector for WNv, is able to produce in larger numbers; thereby, increasing the potential for disease transmission. The probability of a future catastrophic outbreak of WNv is not predictable.

A second factor contributing to the potential for the increased risk of disease transmission is associated with mosquito breeding habitats. Breeding habitats can develop from precipitation

accumulating in natural or manmade wetlands, ponds, and other bodies of standing water. Man-made water sources constructed to hold water can greatly increase the amount of available mosquito breeding habitats. Walker conducted studies in 2008 and found disease was present each year of the study and coincided with reduced annual female survival rates of up to 27% and reduced estimates of population growth 7-10% per year. Walker suggested that eliminating manmade water sources that provide suitable mosquito breeding habitats could reduce disease occurrence.

The risk of WNv due to increased mosquito habitats from holding ponds may also affect other special status bird species. Any shallow areas of water with emergent vegetation are susceptible to mosquito breeding and possible spread of WNv could occur. As such, water developments [associated with grazing activities] should be kept out of riparian and wetland areas where feasible, to help reduce the impacts to Greater Sage-Grouse from habitat loss, WNv, or reductions in forage in those areas.

Risks to Greater Sage-Grouse from Natural Gas development include elevated mortality due to collisions with structures and vehicles, risk of WNv due to increased mosquito habitats from holding ponds, disturbance of birds that may force them into suboptimal habitats with elevated predation rates (resulting in a decline in habitat suitability), and direct habitat loss. The construction phase of development (drilling and completion), which typically takes place during the fall of each year, is a period of high intensity human activity, noise, road and equipment use, and site disturbance. This period is considered one of particularly high impact to Greater Sage-Grouse, especially if it coincides with seasons when the birds might already be stressed. However, adverse impacts to sage-grouse may continue to occur beyond the construction phase and throughout normal operations during production. Sage-grouse may simply avoid otherwise suitable habitat as the density of roads, power lines, or energy development increases. Abandonment of leks may not occur during the first year of drilling and operations, but often is shown to occur within 2-10 years following well development.
If produced water is stored in evaporation ponds or reservoirs, Greater Sage-Grouse could be vulnerable to the threat of WNv if *Culix tarsalis* mosquitos are allowed to breed in the holding ponds.

The issues surrounding WNv are multi-faceted. Many actions considered necessary for addressing WNv and other potential impacts to statewide populations of sage grouse are being contemplated in the Draft RMP amendments and/or revisions. The analysis contained in the Population Viability Analysis (PVA) report assumed specific future development scenarios, which we are inherently unable to predict. Likewise, the report assumes specific impacts would occur to Greater Sage-Grouse lek attendance when applying the stochastic “catastrophic outbreak” of WNv to the assumed development scenario. The PVA report predicts that if all assumptions remain unchanged, then the result of such an outbreak would be a loss of population viability in the Wyoming portion of the basin. While the impacts to sage-grouse populations from WNv can be described in general terms, the potential for, and severity of, any future outbreak cannot be quantified.

Specifically, not all Natural Gas developments result in large volumes of produced water that would necessitate intensive planning and oversight-with or without WNv occurrences.

The authors of the PVA report concluded that "energy development alone would not result in extirpation of the sage-grouse population if all other environmental factors remained favorable. However, energy development combined with the threat of West Nile virus compromises this small population. Intensive population monitoring combined with large scale habitat reclamation/restoration and reducing the West Nile virus threat (man-made water sources) are recommended." (Northeast Wyoming Sage-Grouse Conservation Plan Addendum, 2014).

There are several on-going studies and strategies for limiting the potential for WNv outbreaks in Wyoming because the severe impacts of a widespread outbreak are of great concern to the BLM and its partners. The report reinforces the concept that robust strategies are necessary for healthy Greater Sage-Grouse populations that require large and predominantly unfragmented landscape-scale habitats. BLM-WY continues to work with industry partners, Wyoming Game and Fish Department, private landowners, and the U.S. Fish and Wildlife Service to maintain and manage for the long-term conservation and restoration of Greater Sage-Grouse habitats and populations.

WY IM 2012-019 Policy Statement 7: West Nile Virus
Artificial water impoundments will be managed to the extent of BLM's authority for the prevention and/or spread of West Nile virus (WNv) where the virus poses a threat to sage-grouse. This may include but is not limited to: (a) the use of larvicides and adulticides to treat waterbodies; (b) overbuilding ponds to create non-vegetated, muddy shorelines; (c) building steep shorelines to reduce shallow water and emergent aquatic vegetation; (d) maintaining the water level below rooted vegetation; (e) avoiding flooding terrestrial vegetation in flat terrain or low lying areas; (f) constructing dams or impoundments that restrict seepage or overflow; (g) lining the channel where discharge water flows into the pond with crushed rock, or use a horizontal pipe to discharge inflow directly into existing open water; (h) lining the overflow spillway with crushed rock and construct the spillway with steep sides to preclude the accumulation of shallow water and vegetation; and (i) restricting access of ponds to livestock and wildlife.

Field Offices should consider alternate means to manage produced waters that could present additional vectors for WNv. Such remedies may include re-injection under an approved Underground Injection Control (UIC) permit, transfer to single/centralized facility, etc.

Policy Statement 7 regarding WNv does not apply to naturally occurring waters. Impoundments for wildlife and/or livestock use should be designed to reduce the potential to produce vectors for WNv where the virus may pose a threat to sage-grouse.

Range and Livestock: The proposed project area is located within the Doty Mountain Grazing Allotment (#00415), which is permitted for use by cattle during the summer season and horses year round. The current permit licenses approximately 6886 active Animal Unit Months (AUMs). An AUM is the amount of forage necessary to feed a cow and her calf for one month. The Doty Mountain Grazing Allotment is held under an active Grazing Allotment Management Plan (AMP); therefore, animal numbers and dates can vary seasonally.

Normal Grazing Allotment Numbers	500-1000 Cattle from	4/1-12/01
	10 Horses from	3/1-02/28

The Doty Mountain Grazing Allotment consists of 96,078 acres of land, of which 67% is public lands. Cattle numbers have varied from 500 to 1000 pairs, based upon climate and operational factors. Further discussion about range and livestock in general can be found in the AR FEIS (Ch. 3, p. 3-80 through 3-83).

The Proposed Action is located within the Upper Colorado River watershed, which was assessed in 2001 and 2011 for conformance with the Wyoming Standards for Healthy Rangelands. At that time, although the watershed area containing the proposed project was meeting Standards, the drainage below the proposed project area (lower Muddy Creek) was on the State of Wyoming 303(d) list of impaired water bodies due to oil and gas development and livestock grazing; and therefore, did not meet Standard #5- Water Quality.

ENVIRONMENTAL IMPACTS

The site-specific environmental impacts discussed herein are issue-driven and include information found during on-site inspections and supporting documentation submitted by the operator in the APDs and SUPs and by BLM specialists during interdisciplinary review.

Air Quality: Air pollutant emissions from drilling and completions include the operation of drill rigs and ancillary equipment, as well as engines used for completion operations. In addition, emissions result from transportation of the drilling and completion equipment and service crew to the well pad using heavy and light duty vehicles. These operations emit criteria pollutants, Hazardous Air Pollutants (HAPs), and GHGs from fuel combustion and Particulate Matter (PM) from vehicle traffic on unpaved roads.

Following drilling and completion activities, emissions from production activities would exist throughout the life of the proposed wells. The first would be air pollutants resulting from the venting and flaring of natural gas from the proposed wells themselves. The venting and flaring of natural gas is limited to what is allowed by Notice to Lessees and Operators of Onshore Federal and Indian Oil and Gas Leases (NTL-4A). These emissions generally become greater and more frequent as the need to purge the wells of produced fluids increases towards the end of a well's life.

Emissions would also occur during the production phase. Criteria pollutants, HAPs and GHGs are emitted from production equipment during the operating lifetime of a production well. Emissions of volatile organic compounds (VOC) result from the volatilization of light organic liquids in the separator, known as flashing. Natural gas wells are typically equipped with glycol dehydrators and associated small gas-fired heaters, such as glycol re-boiler heaters, separator heaters, line heaters, and/or heat trace heaters. Natural gas-driven pneumatic pumps and pneumatic devices also release VOCs present in the natural gas, as well as methane (CH_4). Fugitive emissions of VOC, CO_2 and CH_4 result from leaks in valves, flanges, and connectors. The expected production life for the proposed wells is approximately 35 to 40 years.

The Wyoming Department of Environmental Quality (DEQ) has air quality permitting requirements for existing, new, and modified oil and gas production units under the Wyoming Air Quality Standards and Regulations, Chapter 6, Section 2 (WAQSR). However, the proposed project is unlikely to trigger permitting requirements based on the quantity of emissions from a

single well. Since the project is located in the Concentrated Development Area (CDA) identified by the DEQ in Chapter 6, Section 2, *Permitting Guidance for Oil and Gas Production Facilities*, the operator is encouraged to apply presumptive Best Available Control Technology (BACT) for all sources of emissions associated with the proposed project. Application of BACT can include controls for flaring, completions, dehydration units, pneumatic pumps and controllers, and flashing emissions. Application of BACT would minimize both short-term and long-term impacts in the project vicinity since previous development has occurred and other active, producing wells are present in the immediate area.

Climate, Climate Change, and Greenhouse Gas Emissions: Ongoing scientific research has identified the potential impacts of anthropogenic GHG emissions and changes in biological sequestration due to land management activities on global climate. Through complex interactions on a regional and global scale, these GHG emissions and net losses of biological carbon sinks cause a net warming effect of the atmosphere, primarily by decreasing the amount of heat energy radiated by the earth back into space. Although GHG levels have varied for millennia, recent industrialization and burning of fossil carbon sources have caused carbon dioxide equivalent (CO_2e) concentrations to increase dramatically, and are likely to contribute to overall global climatic changes. The Intergovernmental Panel on Climate Change (IPCC) recently concluded that "warming of the climate system is unequivocal" and "most of the observed increase in global average temperatures since the mid-20th century is very likely due to the observed increase in anthropogenic greenhouse gas concentrations" (IPCC 2007). Without additional meteorological monitoring systems, it is difficult to determine the spatial and temporal variability and change of climatic conditions, but increasing concentrations of GHGs are likely to accelerate the rate of climate change.

The assessment of GHG emissions and climate change is in its formative phase. It is currently not feasible to know with certainty the net impacts from the Proposed Action on climate. The inconsistency in results of scientific models used to predict climate change at the global scale coupled with the lack of scientific models designed to predict climate change on regional or local scales, limits the ability to quantify potential future impacts of decisions made at this level. When further information on the impacts to climate change is known, such information will be incorporated into the BLM's planning and NEPA documents as appropriate.

Cultural: Cultural resources were located during the cultural inventory; however, no historic properties were located within the direct area of potential effect (APE). Standard cultural resource design features that address buried discoveries apply and would be incorporated in the proposed project's conditions of approvals for the APDs. A BLM permitted archeologist would monitor construction activities associated with well locations, access roads, and pipeline corridors located in culturally sensitive soils.

The historic Rawlins to Baggs Trail is located to the east of the proposed wells, The 1692 Catalina D 42-25R is situated along the western edge of the Rawlins to Baggs Road two mile viewshed. A visual analysis indicates the well and associated facilities would not be visible from contributing segments of the historic trail. The proposed development would not change the character of the historic setting of the Rawlins to Baggs Trail; thereby causing no effect to this historic property.

Further discussion on cultural and historical resources can be found in the AR FEIS section 4.10, pp. 116-119).

Wildlife: Surface disturbances, including the loss of habitat and disruptive activities during construction and operation, such as human presence, dust, and noise may displace or preclude wildlife use of disturbed areas. Wildlife sensitivity to these impacts varies considerably with each species. Displacement is unavoidable in the short-term, and this displacement would have the potential to have the greatest effects on wildlife. The extent of displacement would be related to the duration, magnitude, and the visual prominence of the activity, as well as the extent of construction and operational noise levels above existing background levels. This displacement is impossible to predict for most species as the response severity varies from species to species, and can even vary between individuals of the same species. After initial avoidance, some wildlife species may acclimate to the activity and begin to re-occupy areas previously avoided. This acclimation and reoccupation would be expected to occur following construction and drilling as the project moves into the production phases, when less noise and human activity would take place.

With application of the SOPs, BMPs, and mitigation identified for Greater Sage-Grouse, Greater Sage-Grouse winter concentration areas, raptors, and big game crucial winter range (pronghorn), impacts caused by surface-disturbing and disruptive activities would be minimized.

Greater Sage-Grouse: The proposed projects are located within Greater Sage-Grouse habitat and are within two miles of a lek. The proposed project would potentially disturb Greater Sage-Grouse nesting and early brood rearing habitat areas. Displacement of the Greater Sage-Grouse could result in reduced fitness due to the animals becoming reliant on habitat that might be in relatively poor condition. However, no studies have been conducted to determine current actual use levels by Greater Sage-Grouse, or whether the habitat that would be removed as a result of the Proposed Action is in better or worse condition than adjacent habitat.

Best management practices have been developed and adopted by policy (See WY IM2012-019) and are being incorporated into the ongoing Greater Sage-Grouse Land Use Plan and RMP amendments in several field offices, including for the Rawlins Field Office. Potential impacts to Greater Sage-Grouse from outbreaks of WNv are expected to continue at current levels. The proposed project is not expected to change the overall threat to Greater Sage-Grouse from WNv, as it has no influence on the potential for an outbreak of WNv, or the severity of the effect to grouse populations should an outbreak occur.

With application of the SOPs, BMPs, and mitigation identified for Greater Sage-Grouse, impacts caused by surface-disturbing and disruptive activities would be minimized.

Range and Livestock: Livestock are likely to disperse from the proposed project area during construction activities, but would be expected to return to utilize available forage post construction. However, during construction activities, there is an increased likelihood of vehicle collisions with livestock resulting from increased traffic, as livestock are often found trailing in or along existing roads and two-tracks. There are several livestock water locations in the area, ensuring that livestock would remain in the general area of construction.

CUMULATIVE IMPACTS

In total, the approval of the Proposed Action is expected to add approximately 23.5 acres of additional surface disturbance to the area (13.8 acres attributed to the new access roads, pipeline, and utility corridors and 9.7 acres attributed to the new well pads).

The proposed project site is located within an area of high density oil and gas well development. Impacts as a result of the Proposed Action, in conjunction with existing and reasonably foreseeable development projects, would contribute to changes in the area, which exhibit increased examples of human intrusion and occupancy. Disturbance to this area may continue to reduce the carrying capacity for livestock grazing and wildlife habitat. Recreational activities may also continue to be reduced as disturbances visually disrupt the landscape. Visitors to the area would experience increased sights and sounds of oil and gas development. Noise from oil and gas operations would be more noticeable to individuals recreating in the area. Increased noise levels as a result of these operations could cause recreationists to find alternative areas in which to recreate. Visual impacts to the historic trails in the area would be slightly increased during construction activities.

Cumulative impacts of development in the region of influence - which includes oil and gas development - would increase emissions for all sources of carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide (SO2), PM10, and PM2.5, but these increases would not cause any exceedance of state or federal ambient air quality standards. Moreover, regional air quality monitoring by federal and state agencies would identify any exceedance of state air quality standards, should they occur.

The singular effects on air quality values associated with the construction, drilling and completion, and operation of the proposed well are expected to be minimal. Cumulatively, air quality impacts analyzed for the Rawlins Resource Management plan (RMP) concluded that the cumulative impacts of developments in the region of influence – which include oil and gas development – would increase emissions for all sources of carbon monoxide (CO), nitrogen oxides (NOx), sulfur dioxide (SO_2), PM_{10}, and $PM_{2.5}$, but that these increases would not cause any exceedance of state or federal ambient air quality standards. It also concluded that although cumulative impacts to air quality values of visibility, atmospheric deposition, or ozone cannot be determined through the qualitative studies conducted for the RMP, air quality analyses from an energy development project (Desolation Flats EIS) suggest that RMP planning area activities could contribute to a significant impact on visibility in the Bridger, Fitzpatrick, Mount Zirkel, and Rawah Wilderness Areas. Similarly, the more recent Atlantic Rim EIS (2007), found that there is a potential for cumulative visibility impacts to exceed visibility thresholds within PSD Class I Bridger Wilderness Area, and PSD Class II Popo Agie Wilderness Area, and Wind River Roadless Area. (40 CFR 52.21 “Prevention of significant deterioration of air quality” (PSD) identifies Class I and Class II areas that warrant special air quality protection measures).

As described in the analysis of environmental consequences, the Proposed Action and/or the alternatives may contribute to the effects of climate change to some extent through GHG emissions. However, it is not currently possible to associate any of these particular actions with the creation of any specific climate-related environmental effects. The lack of scientific tools designed to predict climate change at regional or local scales limits the ability to quantify

potential future impacts. It is currently beyond the scope of existing science to predict climate change on regional or local scales resulting from specific sources of GHG emissions.

Computer model forecasts indicate that increases in temperature will not be evenly or equally distributed, but are likely to be accentuated at higher latitudes. Warming during the winter months is expected to be greater than during the summer, and increases in daily minimum temperatures is more likely than increases in daily maximum temperatures.

IPCC also discloses that significant uncertainties remain with respect to the estimates of the current level of emissions and projections of future production of fossil fuels as the oil and gas industry is difficult to forecast with the mix of drivers: economics, resource supply, demand, and regulatory procedures. The assumptions used for the projections, based on recent trends or State production trends in the near-term, and AEO 2006 growth rates through 2020, do not include any significant changes in energy prices, relative to today's prices. Large price swings, resource limitations, or changes in regulations could significantly change future production and the associated GHG emissions. Other uncertainties include the volume of GHGs vented from gas processing facilities in the future, any commercial oil shale or coal-to-liquids production, and potential emissions-reducing improvements in oil and gas production, processing, and pipeline technologies.

The impacts of the proposed project, in conjunction with existing and reasonably foreseeable oil and gas development projects and other development projects, would contribute to a change in the area from a relatively open, high desert landscape to an area exhibiting increased examples of human intrusion and occupancy. Visitors to the area would experience the increased sights and sounds of industrial development.
Hi John,

The Chokecherry Sierra Madre Wind Energy Project is a reasonably foreseeable action within the region. The analysis of impacts associated with this development are discussed in the Chokecherry and Sierra Madre Final EIS, available online at:
http://www.blm.gov/style/medialib/blm/wy/information/NEPA/rfodocs/chokecherry/feis.Par.72118.File.dat/CCSM_Vol_ll-Ch5.pdf.

While surface disturbance generally corresponds to associated wildlife habitat loss, accurate calculations of cumulative wildlife habitat loss cannot be determined because the direct impacts of habitat disturbance are species-specific and dependent upon: 1) the status and condition of the population(s) or
individual animals being affected; 2) seasonal timing of the disturbances; 3) value or quality as habitat of the disturbed sites; 4) value or quality of adjacent habitats for the affected species; 5) the type and duration of surface disturbance; and 6) other variables that are difficult to quantify (e.g., habitat
avoidance due to increased noise and human presence).

Indirect cumulative impacts to big game (including mule deer, pronghorn, and elk) as a result of coalbed methane development, natural gas and oil development, and wind energy development include:

Animal displacement. Displaced individuals could be forced into already occupied and/or less suitable habitats, possibly resulting in reduced quantity and quality of habitat. Use of less suitable habitat and increased competition for resources could affect the body condition of individual animals and their ability to successfully reproduce.
Decreased reproduction success and survival. A decrease in body condition and an increase in stress may lead to lower survival and reproductive success. *Increased mortality and harassment*. An increase in traffic levels (associated with constructionand operation) on roadways has the potential to increase the risk of vehicle/wildlife collisions.Increased human utilization of resources would expose wildlife to potential human harassment (and poaching), either inadvertent or purposeful.

In particular, development in the western and southern portion of the Sierra Madre portion of the Chokecherry and Sierra Madre Wind Energy Project would have the potential to affect big game migration routes, feeding times, and vigilance.

Further discussion in general regarding cumulative impacts can be found in the AR FEIS, Ch. 5, pp. 5-1 to 5-26.

Standard Operating Procedures (SOPs), Best Management Practices (BMPs), and Mitigation

Site-specific design features, as identified during BLM interdisciplinary review, would be applied to the APDs, in addition to standard design features, SOPs, BMPs, and mitigation measures found in the SUP and applied as Conditions of Approval (COAs) (see Appendix 1) to the pending APDs. After review of the impacts described above, no additional mitigation measures are proposed or necessary.

RECLAMATION

Interim reclamation would commence within six months (weather and wildlife stipulations permitting) of drilling completion, reducing the well pad size to approximately a two acre production well site. All unneeded portions of the well site would be backfilled, leveled, re-contoured, reclaimed, and re-seeded with native vegetation. This includes pits, cut and fill, and soil stockpile areas. Total (final) reclamation would take place when the well(s) are no longer productive, and are plugged and abandoned. The seed mix is located in the Reclamation Plan submitted by the operator. The goal of reclamation would be to establish species composition, diversity, structure, and total ground cover appropriate for the desired plant community. All reclamation standards and guidelines are located in the Wyoming State Reclamation Policy (IM-WY-2012-032), as well as, in the Rawlins RMP (Appendix 36).

Upon the determination that the wells are not, or no longer, productive and/or are plugged and abandoned, final reclamation of the entire well pad and location, including the access roads, pipeline, and associated ROWs would take place in accordance with the operator's site-specific reclamation plan. Plans for reclamation are included in the well SUP, design features, and the submitted site-specific reclamation plans. Reclamation is discussed in general in the AR FEIS, Appendix B.

Persons/Agencies Consulted

Individual	Title	Organization
John Sjogren	Natural Resource Specialist (NRS)	BLM
Mary Read	Wildlife Biologist	BLM
Natasha Keierleber	Archaeologist	BLM
Kay Nation	Legal Instruments Examiner	BLM
Susan Foley	Soil Scientist	BLM
TJ Murry	Rangeland Management Specialist	BLM
Kelly Owens	Hydrologist	BLM
David Hullum	Outdoor Recreation Planner	BLM
Andrew Kauppila	Petroleum Engineer	BLM
Ben Smith	Wild Horse and Burro	BLM
Mark Newman	Geologist	BLM
Ray Ogle	NRS/Reclamation	BLM
Susan Foley	Planning and Environmental Coordinator	BLM
Alyssa Beard		Escalera Resource Co.
Katie Hamburger		Escalera Resource Co.

Preparer: _____ Date: 8/28/15
John Sjogren, Natural Resource Specialist

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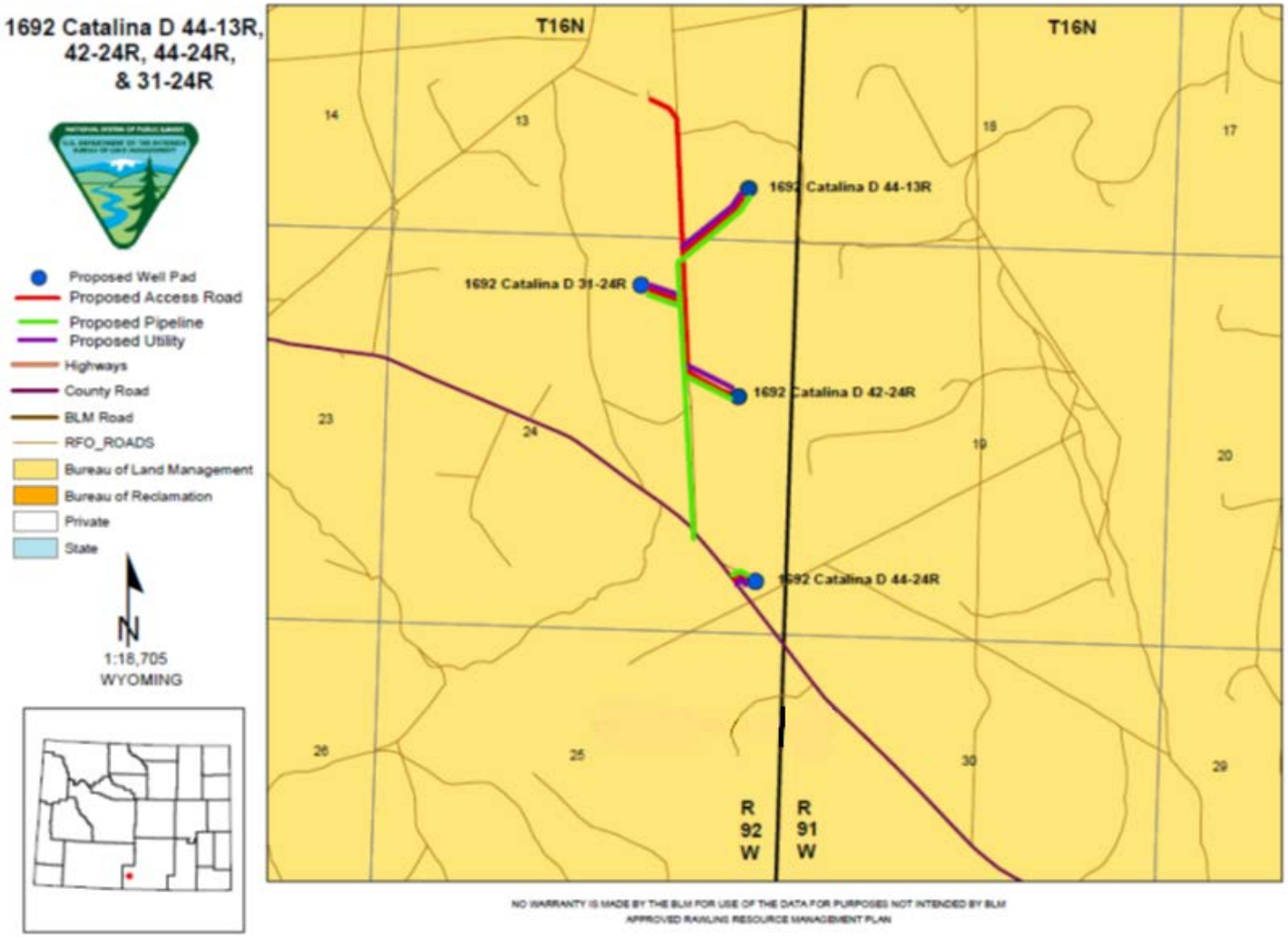
Map 1


1692 Catalina D 44-13R, 42-24R, 44-24R, & 31-24R
Proposed Well Pad
Proposed Access Road
Proposed Pipeline
Proposed Utility
Highways
County Road
BLM Road
RFO_ROADS
Bureau of Land Management
Bureau of Reclamation
Private
State
N
1:18,705
WYOMING
T16N
T16N
14
13
18
17
23
24
19
20
26
25
30
29
1692 Catalina D 44-13R
1692 Catalina D 31-24R
1692 Catalina D 42-24R
1692 Catalina D 44-24R
R 92 W
R 91 W
NO WARRANTY IS MADE BY THE BLM FOR USE OF THE DATA FOR PURPOSES NOT INTENDED BY BLM
APPROVED RAWLINS RESOURCE MANAGEMENT PLAN

APPENDIX 1

General Design Features

1. Approval of this Application for Permit to Drill (APD) does not warrant that any party holds equitable or legal title.

2. All lease exploration, development, construction, production, operations, and reclamation activity would be conducted in a manner which conforms to all applicable federal, state, and local laws and regulations.

3. All lease operations are subject to the terms of the lease and its stipulations, the regulations of 43 CFR Part 3100, Onshore Oil and Gas Orders, Notices to Lessees (NTL's), the approved APD, and any written instructions or Orders of the Bureau of Land Management (BLM) Authorized Officer (AO).

4. The approval of this APD does not grant authority to use off-lease federal lands. Facilities approved by this APD and/or Sundry Notices that are no longer included within the lease, due to a change in the lease or unit boundary would be authorized with a right-of-way. Similarly, should unit or lease boundaries change during the life of the project, the Operator would be responsible for acquiring necessary rights-of-way for affected facilities. Failure to do so may cause the operation to be shut-in.

5. This permit would be valid for a period of two years from the date of APD approval or until lease expiration or termination, whichever is sooner. APD extensions may be requested and granted for up to two additional years, but not to exceed a total sum of four years from the initial APD approval date. Should a permit extension be requested, it must be submitted prior to the permit expiration date via a Sundry Notice (Form 3160-5) to the AO for approval. If the permit terminates, any surface disturbance created under the application would be reclaimed in accordance with the approved reclamation plan found herein.

6. The Operator would submit a Sundry Notice (Form 3160-5) to the AO for approval prior to beginning any new surface-disturbing activities or operations that are not specifically addressed and approved by this APD.

7. The Operator may submit to the AO's Representative written requests (including documentation, supporting analysis and an acceptable plan for mitigation of anticipated impacts) for exception, waiver, or modification to this approved APD, associated design features, or other requirements. Such written approval would be obtained prior to commencement of operations that cause any deviation from the approved APD and associated limitations. Emergency approval may be obtained orally, but such approval would not waive the written reporting requirement.

8. At **least 48-hours prior to** beginning any APD related construction (e.g. access road, well pad, pipeline) and/or reclamation activities (e.g. dirt-work, seeding) the operator would notify the BLM via internet notice.

9. All construction of the well pad, flare pit, reserve pit, roads, flow lines, production facilities, and all associated infrastructure on federal lands would be monitored onsite by a licensed professional engineer OR designated qualified inspector (to be named at the time of construction notification) who would serve as the Operator's Compliance Coordinator to ensure construction meets the BLM-approved plans.

10. Within **24-hours** of spudding the well, the spud date would be submitted to the BLM via internet notice. A follow up report on Form 3160-5 confirming the date and time of the actual spud would be submitted to this office within 5 working days from date of spud.

11. At **least 24-hours in advance** of all BOP tests, running and cementing all casing strings (other than conductor casing), pluggings, DSTs and/or other formation tests, and drilling over lease expiration dates, notification would be submitted to the BLM via internet notice.

12. The operator would submit a production facility layout (Onshore Order 1, Section III. D.4.d. and D.4.i., or Section VIII. A.) for approval (prior to construction) which includes permitted location boundaries, production facility placement, access road inlet, and cut/fill slopes.

13. A site facility diagram (Onshore Order 3, Section III. I. and 43 CFR 3162.7-5(d)) for the purpose of a site security plan (Onshore Order 3, Section III. H. and 43 CFR 3162.7-5(c)) would be filed no later than 60 calendar days following first production.

14. Use of any tank heater/burners in production storage tanks must be approved prior to installation and/or use by the AO. Failure to obtain approval for installation/use of tank heater/burners in any production storage tanks may result in a Written Order (WO), Incidence of Non-compliance (INC), assessments and potentially a Shut-In Order.

15. No below or partially below ground fluid storage/containment tanks or vessels are to be used without prior approval of the AO. Below or partially below ground fluid storage/containment tanks or vessels would require systems for the prevention, containment, detection, and monitoring of any below ground leakage (e.g. secondary containment and leak detection/monitoring systems, etc.) A production facility layout depicting the proposed vessel construction and installation/location must be submitted for prior approval via APD or Sundry. As applicable, all subsurface vessels must comply with the Wyoming Storage Tank Act of 2007 (W.S. 35-11-14-29) and/or the Wyoming DEQ Underground Injection Control (UIC) Program.

Operations

Upon request, Operator must be prepared to provide copies of applications for, and approved copies of, federal, state, and local operating permits.

1. All survey monuments found in the area of operations would be protected. Survey monuments include, but are not limited to: General Land Office and BLM Cadastral Survey Corners, reference corners, witness points, U.S. Coastal and Geodetic benchmarks and triangulation stations, military control monuments, and recognizable civil (both public and private) survey monuments. In the event of obliteration or disturbance of any of the above,

the Operator would immediately report the incident, in writing, to the AO and the respective installing authority if known. Where General Land Office or BLM Right-of-Way monuments or references are obliterated during operations, the Operator would secure the services of a registered land surveyor or a BLM cadastral surveyor to restore the disturbed monuments and references using surveying procedures found in the "Manual of Surveying Instructions for the Survey of the Public Lands in the United States," latest edition. The Operator would record such survey in the appropriate county and send a copy to the AO. If the Bureau cadastral surveyors or other federal surveyors are used to restore the disturbed survey monument, the Operator would be responsible for the survey cost.

2. If any cultural values [sites, artifacts, human remains] are observed during operation of this lease/permit/right-of-way, they would be left intact and the AO notified. The AO would conduct an evaluation of the cultural values to establish appropriate mitigation, salvage or treatment. The Operator would be responsible for informing all persons in the area who are associated with this project that they would be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are uncovered during construction, the Operator would immediately stop work that might further disturb such materials, and contact the AO. Within seven (7) days after the operator contacted the BLM, the AO would inform the Operator as to: whether the materials appear eligible for the National Register of Historic Places; the mitigation measures the Operator would likely have to undertake before the site can be used (assuming in situ preservation is not necessary); and, a time-frame for the AO to complete an expedited review under 36 CFR 800.11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate. The AO would provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the Operator would then be allowed to resume construction measures.

   The Operator would be responsible for informing all persons associated with this project that they would be subject to prosecution for damaging, altering, excavating or removing any archaeological, historical, or vertebrate fossil objects or site. If archaeological, historical, or vertebrate fossil materials are discovered, the Operator would suspend all operations that further disturb such materials and immediately contact the AO. Operations would not resume until written authorization to proceed is issued by the AO.

   The Operator would be responsible for the cost of any mitigation required by the AO. The AO would provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the Operator would be allowed to resume operations.

3. If paleontological resources, either large or conspicuous, and/or of a significant scientific value are discovered during construction, the find would be reported to the AO immediately. Construction would be suspended within 250 feet of said find. An evaluation of the paleontological discovery would be made by a BLM-approved professional paleontologist within five (5) working days, weather permitting, to determine the appropriate action(s) to prevent the potential loss of any significant paleontological values. Operations within 250 feet of such a discovery would not be resumed until written authorization to proceed is issued

by the AO. The Operator would bear the cost of any required paleontological appraisals, surface collection of fossils, or salvage of any large conspicuous fossils of significant scientific interest discovered during the operation.

The Operator would be responsible for informing all persons associated with this project that they would be subject to prosecution for damaging, altering, excavating or removing any archaeological, historical, or vertebrate fossil objects or site. If archaeological, historical, or vertebrate fossil materials are discovered, the Operator would suspend all operations that further disturb such materials and immediately contact the AO. Operations would not resume until written authorization to proceed is issued by the AO.

Within five (5) working days, the AO would evaluate the discovery and inform the Operator of actions that would be necessary to prevent loss of significant cultural or scientific values.

The Operator would be responsible for the cost of any mitigation required by the AO. The AO would provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the Operator would be allowed to resume operations.

4. If any dead or injured threatened, endangered, proposed, or candidate animal species is located during construction or operation, the U.S. Fish and Wildlife Service's Wyoming Field Office (307-772-2374), its law enforcement office (307-261-6365), and the BLM Rawlins Field Office (307-328-4200) would be notified within 24 hours. If any dead or injured sensitive species is located during construction or operation, the Rawlins Field Office would also be notified within 24 hours.

5. Operators and Operator's sub-contracted personnel would not intentionally harm or harass wild horses, other wildlife, or domestic livestock.

6. ROW, mineral lease, mining claim, and permit holders would monitor and control noxious and invasive weeds, according to an approved weed management plan, on project-disturbed areas and native areas infested as a direct result of the project. The control methods would be in accordance with guidelines established by the EPA, BLM, state and local authorities. Prior to the use of pesticides, the Operator will obtain written approval from the AO - meaning an approved Pesticide Use Proposal form - showing the type and quantity of material(s) to be used, pest(s) to be controlled, and method of application. Copies of daily Pesticide Application Records (required by the State of Wyoming) and Summary Herbicide Use Reports are due monthly to the BLM AO-Weed Coordinator.

7. The Operator would be responsible for the prevention and suppression of fires on public lands caused by its employees, contractors, or its subcontractors. During conditions of extreme fire danger, surface use operations may be either limited or suspended in specific areas, or additional measures may be required by the AO. Should a fire occur, it would be immediately reported to this office by calling 307-328-4200, and notifying the Fluid Minerals staff.

8. Emissions of particulate matter from well pad, road, and other facility construction, operation, and reclamation activities would be minimized by application of water or other dust suppressants. Dust inhibitors (surfacing materials, dust suppressants, and water) would be used as necessary on locations that present a fugitive dust problem. The use of chemical dust suppressants on public surface would require prior approval from the AO.

9. If groundwater or permeable/porous subsoil or bedrock is encountered upon construction of the pad or pits, or upon drilling and completing shallow holes for surface conductor, rat/mouse holes, or water supply well, the Operator must immediately notify the AO's Representative before proceeding.

10. The Operator would comply with the Hazardous Materials Management Plan/Summary in the RMP ROD (Appendix 32) and/or the appropriate EIS ROD, including requirements to transport, store, utilize, and dispose of hazardous substances. The Operator would maintain a hazardous substances release contingency plan that would include, among other things, provision to notify the AO in the event of any release of hazardous substances associated with project operations. Treatment chemicals may require additional storage and containment measures and facilities depending on chemical classification and hazard.

11. If a portable sewage treatment facility is moved onto location, the well/lease Operator would provide the BLM AO a copy of the facility Operator's notification letter to the Wyoming Department of Environmental Quality. Facility operations would comply with BLM requirements, including unauthorized discharge notification and reclamation of disturbed surfaces.

12. Only those hazardous wastes that qualify as exempt, under the Resource Conservation and Recovery Act (RCRA), Oil and Gas Exemption, may be disposed of in the reserve pit. Generally, oil or gas wastes are exempt if they 1) have been sent down hole and then returned to the surface during oil/gas operations involving exploration, development, or production, or 2) have been generated during the removal of produced water or other contaminants from the oil/gas production stream. The term hazardous waste, as referred to above, is defined as a listed (40 CFR 261.31-33) or characteristic (40 CFR 261.20-24) hazardous waste under RCRA.

13. Any spilled or leaked oil, produced water or treatment chemicals must be reported in accordance with NTL-3A and immediately cleaned up in accordance with BLM requirements. This includes clean-up and proper disposition of soils contaminated as a result of such spills/leaks. The Operator would segregate, treat, and/or bio-remediate contaminated soil materials as authorized via Sundry Notice (Form 3160-5) or dispose of contaminated soils at a permitted waste facility. Treatment chemicals may require additional storage and containment measures and facilities depending on chemical classification and hazard.

14. The Operator would install an identification sign consistent with the requirements of 43 CFR 3162.6 immediately upon completion of the well pad/location construction operations.

15. The Operator would contain and remove all debris, unused equipment, and other waste materials not needed for production. Waste materials would be disposed of at an approved disposal facility.

16. Upon APD expiration, it is the responsibility of the Applicant/Operator to see that all stakes, flagging, posts or other materials placed on the locations and/or access roads, pipelines and associated rights-of-way are removed. Operator must immediately cease all operations associated with preparing to drill the well and begin final reclamation activities of all APD related disturbance, pursuant to the approved APD design features and to be completed within 6 months of the APD expiration date.

Site Specific Design Features

1. For wells 1692 Catalina D 42-24R, 44-13R, 44-24R, and 31-24R, surface disturbing and disruptive activities are prohibited November 15-April 30 for the protection of big game (pronghorn) winter habitat.

2. For wells 1692 Catalina D 42-24R, 44-13R, 44-24R, and 31-24R, surface disturbing and disruptive activities are prohibited within one mile of ferruginous hawk nest(s) from March 1-July 31.

3. For wells 1692 Catalina D 42-24R, 44-13R, 44-24R, and 31-24R, surface disturbing and disruptive activities are prohibited within .75 mile of a raptor nest(s) from February 1-July 15.

4. For wells 1692 Catalina D 42-24R, 44-13R, 44-24R, and 31-24R, construction, drilling, reclamation, and other potentially disruptive activities in suitable Greater Sage-Grouse identified nesting and early-brood rearing habitat within two (2) miles of the perimeter of an occupied Greater Sage-Grouse lek, or in identified Greater Sage-Grouse nesting and early brood rearing habitat, are prohibited from March 1 to July 15.

5. For wells 1692 Catalina D 42-24R, 44-13R, 44-24R, and 31-24R, surface disturbing and disruptive activities are prohibited between November 15 and March 14 for Greater Sage-Grouse wintering area.

6. For well 1692 Catalina D 44-24R, disruptive activities are prohibited from 6pm – 9 am from March 1- May 20 on and within ¼-mile of the perimeter of an occupied grouse lek.

7. For wells 1692 Catalina D 42-24R, 44-13R, and 31-24R, operator will fence the reclaimed well/facilities locations after interim seeding to exclude livestock and wildlife and to help ensure better re-vegetation success.

8. Operator will fence the reclaimed Catalina Pod D Central Delivery Point facility, which encompasses the1692 Catalina D 44-24 location, after interim seeding to exclude livestock and wildlife and to help ensure better re-vegetation success.

9. Above-ground structures, production equipment, tanks, transformers, and insulators not subject to coloring requirements for safety would be painted the color of “Covert Green” (5Y 4/2).

10. If production facilities are needed, facilities would be placed as close to the entrance of the well pad (where access road ties into the well pad) and would be placed on grade or cut portions of the pad.

11. For wells 1692 Catalina D 44-13R, 42-24R, and 31-24R, a BLM permitted archeologist shall monitor construction of the location, access road, and pipeline because the area has the potential to contain intact, buried, cultural deposits.

12. For well 1692 Catalina D 42-24R, a protective fence will be constructed along the west side of the access road corridor prior to construction; the placement shall be coordinated with a BLM permitted archeologist.

13. For well 1692 Catalina D 44-13R, a protective fence will be constructed along the west side of the pipeline corridor prior to construction; the placement shall be coordinated with a BLM permitted archeologist.

14. For well 1692 Catalina D 31-24R, a protective fence will be constructed along the edge of the existing disturbance on the west and northwest corner of the pad prior to construction.

15. For well 1692 Catalina D 42-24R, a silt fence will be constructed along the south corner of the pad.

16. For wells 1692 Catalina D 32-24R, 44-24R, 44-13R, and 42-24R, the Potential Fossil Yield Classification (PFYC) system has identified the area as having a moderate to high potential to yield scientifically significant paleontological resources. A pre-construction survey will be performed by a consulting paleontologist holding a valid BLM Resources Use Permit. Submission of reports will be done directly to the BLM by the paleontologist. A recommendation for mitigation including no further mitigation, on site monitoring, spot checking or testing will be made in the report.

Construction

1. All facilities on location that have the potential to leak/spill oil, glycol, methanol, produced water, condensate, or other fluids which may constitute a hazard to the environment, public health or safety (including, but not limited to, drain sumps, sludge holdings, and chemical containers), would be within secondary containment, impervious to those fluids, exclusive of wildlife and livestock, with animal/bird escape capability, and able to contain a minimum of 110% of the volume of the largest storage vessel, respective to content, or 100% with at least one foot of freeboard, whichever is greater, so that any spill or leakage would not drain, infiltrate, or otherwise escape to ground water, surface water, or navigable waters before cleanup can be completed (within 72 hours).

2. Construction over and/or immediately adjacent to existing pipelines would be coordinated, and in accordance with, the relevant pipeline companies' policy.

3. Fencing would be installed around produced water, oil, and condensate tank batteries in order to help maintain the integrity of the surrounding containment structure and to prevent livestock and wildlife from entering the area in case of a leak or spill.

4. All open vent stack equipment would be designed and constructed to prevent entry by birds and bats and to discourage perching.

5. The immediate repair/replacement (to BLM standards) of any range infrastructure breached, altered, or damaged by construction, drilling, or operation activities related to this APD would be the responsibility of the Operator. All fence relocations would be in accordance with BLM approval.

6. Construction, maintenance, and reclamation operations with frozen material or during periods when the soil material is saturated is expressly prohibited. If equipment, including licensed highway vehicles, creates ruts in excess of four (4) inches deep, the soil would be deemed too wet to adequately support maintenance and/or heavy equipment.

7. Accumulated snow present on the ground at the outset of construction, maintenance, or reclamation activities would be removed before the soil is disturbed and piled downhill and/or downwind from the disturbed area. Equipment used for any non-construction snow removal operations would be equipped with 6" shoes to ensure blades do not remove topsoil or vegetation. Written approval must be obtained before snow removal related to a federal action but outside of designated disturbance areas is undertaken. When blading/removing snow, drifts/berms would be constructed with a gap of 20-30 yards every ¼ mile, to allow unobstructed movement of wildlife, livestock and human activities.

8. Clearly remove, segregate, and delineate from all other spoils, all available topsoil from constructed locations and surface disturbances including areas of cut and fill. Stockpile and clearly identify topsoils at the site for use in reclamation on all areas of surface disturbance (well pads/locations, roads, pipelines, etc.).

9. Plugs or embankments providing wildlife with access out of and across open pipeline trenches would be installed, at minimum, every 1320 linear feet along open pipeline trenches.

10. No construction and/or reclamation would block or change the natural course of any drainage, nor would topsoil, waste, or fill material be deposited below high water lines in riparian areas, flood plains, or in natural drainage ways. The lower edge of soil or other material stockpiles would be located outside active floodplains. All spoils would be placed where they can be retrieved without creating additional surface disturbance and where they do not impede and/or contribute sediment to watershed and drainage flows. The Operator would also reconstruct and stabilize stream channels, drainages, and ephemeral draws to exhibit similar hydrologic characteristics that were found in stable, naturally occurring and functioning systems.

11. Drainage and runon/runoff would be diverted away from all new construction naturally or through the use of spoil material to create berms. All drainage structures would approximate topographic contour lines, have a grade no greater than 0.5 - 1 percent, would release water onto natural undisturbed ground without causing additional accelerated erosion. The use of riprap or other armoring to prevent erosion may be necessary (BLM Manual 9113). Drainage structures would not discharge directly into/onto natural drainages/channels. Water-bars, waddles, hay bales, and/or silt fences would be used as needed to reduce surface runoff velocity and promote upland sediment deposition, thus reducing drainage/channel sedimentation and erosion.

12. Silt fences, if needed, would be installed after topsoil removal and before pad leveling begins and must remain in place until interim reclamation is complete and there is adequate vegetation present to stabilize the soil. Silt fences would be constructed in locations where surface erosion is evident or potential for surface erosion exists such as areas of steep slopes or highly erosive soils. Fences would be installed at the inside edge of disturbance.

13. Silt fences would be constructed using metal posts that are at least 5 feet long with at least 2 feet in the ground (3 feet above ground) with 8 feet spacing if a wire re-enforcement backing is used or 6 feet spacing if no wire backing is used. The fabric is to be toed into the ground at the base of the fence a minimum of 8 inches deep and an 18 inch overlap is required when splicing two fences together. The fabric is to be installed on the uphill side of the metal posts and attached to the posts at least every 6 inches along the length of the post. Silt fences are to be inspected at least once a month or 48 hours after a rain storm event. If holes in the fence or undercutting of the fence are found, repair is required within 48 hours of discovery. When silt accumulates to a height equal to two-thirds the height of the fabric, the silt is to be cleaned out and deposited on the excess spoils pile.

14. Sediment fences, straw wattles, erosion mats, and/or hay bales should be used to minimize erosion and sediment transport on disturbance area.

15. If temporary surface pipelines, as authorized by the AO, are used to transport water, they would be placed/removed when the ground surface is dry. Surface blading prior to line placement is prohibited. The pipelines must be removed within 30 days after well completion (or determination of inactivity).

16. Construction control stakes would be placed as necessary to ensure construction of the well pad, topsoil stockpile, spoil pile, and outer limits of the area to be disturbed in accordance with the specifications outlined in the APD. The Operator would assume full responsibility for protecting all stakes and offsetting any additional stakes or grades which may be necessary.

17. Cathodic protection wells would be drilled on the existing well pad, placed so as not to interfere with re-contouring of cut and fill slopes during interim reclamation, designed and constructed to prevent commingling and contamination of water aquifers. The AO would be notified of any water flows at surface and the problem would be resolved promptly.

Roads

1. All access roads and drainage control structures, whether existing or newly-constructed, would be both constructed to resource road standards and regularly maintained in a safe and usable condition as outlined in BLM Manual, Section 9113. A regular maintenance program may include, but is not limited to, blading, ditching, culvert installation, dust control, and gravel surfacing or other activities as specified by the AO. The Lessee and/or Operator would enter into a maintenance agreement with all other "authorized users" of the common access road(s) to the well site. The costs of road maintenance in dollars, equipment, materials, labor, and other related expenses would be shared proportionally among the "authorized users." Upon request, the AO would be provided copies of any maintenance agreement or agreements.

2. All operators and operator's representative vehicles are restricted to authorized travel routes only and would not use any other access route, e.g.; two-track roads, trails, and pipeline rights-of-way to access the drill/well pad and any ancillary facilities.

3. Two-track roads would not be cut-off as a direct result of construction, maintenance, or reclamation of the well access road or associated well facilities, unless authorized by the BLM.

4. Prior to construction, road(s) would be surveyed and staked with construction control stakes set continuously along the centerline at maximum 100-foot intervals (less where needed to be inter-visible) and at all tangent and curve control points, fence or utility crossings, and culverts. In addition to centerline stakes, slope stakes would be placed at the top of the cut and the bottom of the fill for those portions of the road that are engineered.

5. Before proposed road construction activities begin, the topsoil must be bladed to the side of the road and stockpiled. The topsoil stockpile would be contoured so as to prevent water ponding or flow concentration. Once the borrow ditch and the cut slopes are constructed, cleared vegetative material and topsoil that is windrowed would be spread back onto the cut/fill slopes of the road, removing any windrows or berms remaining at the edge of the road.

6. The minimum travel-way width of the immediate access road would be 14 feet with turnouts at least 10 feet in width. No structure would be allowed to narrow the road top. The inside slope would be 4:1. The bottom of the ditch would be a smooth V with no vertical cut in the bottom. The outside slope would be 2:1 or flatter. After the road is crowned and ditched with a .03 - .05 ft/ft crown the topsoil and windrowed vegetative material would be pulled back down on the cut slope so there is no berm left at the top of the cut slope. Turnouts would be spaced at a maximum distance of 1000 feet and would be intervisible. If the access road crosses a floodplain, the ditch would be flat-bottomed so as to provide material to raise the road, unless otherwise approved by the AO.

7. If soils along the access road route are dry during road construction, use, and/or maintenance, fresh water would be applied to the road surface to facilitate soil compaction and minimize soil loss as a result of wind erosion.

8. Construction and surfacing of the new access road would be complete prior to moving drilling equipment onto the well pad and the presence of heavy vehicular traffic. Compact the top foot of sub-grade in even six (6) to eight (8) inch lifts to established standards, adding water as needed for compaction. Surface with an appropriate grade of gravel to a minimum depth of four (compacted) inches.

9. All cattle guards would be designed and maintained consistent with BLM standards and would be a minimum of 16 feet wide and 8 feet long; set on either timber, pre-cast concrete, or cast-in-place concrete bases at right angles to the roadway; have an adjacent 16 foot wide bypass gate; not narrow the road surface; and have fence and end panels on either side constructed using 3 posts with braces.

10. All culverts would be a minimum of 18 inches in diameter. Culverts would have a minimum of 12 inches of fill or 1/2 the pipe diameter, whichever is greater, placed on top of the culvert, and would be of length sufficient to allow at least 12inches of culvert to extend beyond the toe of any slope. The inlet and outlet would be set on grade. No rocks would be used in the bed material and no rocks greater than 2 inches in diameter would be immediately adjacent to the culvert. The entire length of pipe would be bedded on native material before backfilling, which would be completed using unfrozen material and rocks no larger than two inches in diameter; compact the backfill evenly in 6-inch lifts on both sides of the culvert. A permanent marker would be installed at both ends of the culvert to help prevent traffic from damaging the culvert. Additional culverts would be placed in the new access road as the need arises or as directed by the AO.

11. Wing-ditches would be staked and constructed at a slope of .5 to 1.0 percent down slope unless otherwise approved by the AO. All wing/drainage ditches and culverts would be kept clear and free-flowing, and would also be maintained in accordance with the original construction standards. Drainage structures would not discharge directly into/onto natural drainages/channels, and/or use riprap or other armoring to protect from erosion (BLM Manual 9113).

12. Low water crossings would be constructed perpendicular to the channel and at original channel elevation in a manner that would not block or restrict existing channel flow. Excavated material would be stockpiled for use in reclamation of the crossings.

Pits

1. All oil and gas pits that could contain fracture/stimulation fluids, recycled pit fluids, or produced water, except those only containing fresh-water based constituents, are required to be lined with an impermeable (12 mil minimum with a permeability less than or equal to $1x10^7$ cm/sec) liner. The liner would be physically and chemically-compatible with all substances which it may contact and would be of sufficient strength and thickness to withstand normal installation and use, and installed so that it would not leak. The liner would be installed over a smooth sub-grade, matting, or fill materials (e.g. sifted dirt, sand, or bentonite) free of pockets, loose rocks, and other objects that could damage the liner.

2. The only fluids/waste materials which are authorized to go into reserve pits are RCRA-exempt exploration and production wastes. Any evidence of RCRA non-exempt wastes being put into the reserve pit may result in the BLM Authorized Officer requiring specific testing and closure requirements.

3. All pits are required to maintain a minimum of 2 feet of freeboard between the liquid level and the top of the liner. If operations cause fluid levels in pits to rise above the required freeboard, immediate notification would be provided to the AO with concurrent steps taken to cease the introduction of additional fluids, until alternative containment methods can be approved.

4. Flaring of gas into the reserve or completion pits would not be allowed without prior approval from the AO.

5. All pits would be kept free of trash, debris, solid wastes, and other unauthorized waste materials including oil and liquid hydrocarbons.

6. For the protection of livestock and wildlife, all pits and open cellars would be fenced on all sides, with corner bracing, immediately upon construction. Reserve, flare, completion, and production pits would be adequately fenced during and after drilling operations until pits are reclaimed so as to effectively keep out wildlife and livestock. Operator would, within ten (10) days of discovery, remove any floating hydrocarbons from pit surface or install netting over the pit. Approved netting (mesh diameter no larger than one inch) is required over any pit that contains or is identified as containing hydrocarbons or hazardous substances (per RCRA 40 CFR Part 261 or CERCLA Section 101(14) (E)).

7. Pits would be dried, backfilled, and closed within six (6) months from well completion (total depth) or well plugging. Pits must be void of all free fluids prior to backfilling. Pit trenching or squeezing is prohibited. Pits may be dewatered/dried in the following manner: natural evaporation, mechanical aeration, chemical and mechanical solidification (e.g. with fly ash, cement kiln dust, etc.) and/or hauled to an approved DEQ disposal site. The installation/operation of any sprinklers, misters, aerators, pumps, hoses, and related equipment would ensure that water spray or mist does not drift outside of the pit. All other dewatering/drying, removal or disposal methods not listed in the APD and or Design features would have prior written approval from the AO.

8. Pits, once dry, would be backfilled and compacted with a minimum cover of at least three (3) feet of soil, void of any topsoil, vegetation, large stones, rocks or foreign objects. The pit area would be mounded to allow for settling and to promote positive surface drainage away from the pit. Before backfilling synthetically lined reserve pits, those liner portions remaining above the "mud line" would be cut off as close to the top of the mud surface as possible and disposed of at an approved solid waste disposal facility. The pit bottom and remaining liner would not be trenched, cut, punctured, or perforated.

Reclamation

1. By March 1 of each year the operator would report and submit annual surface disturbance and reclamation data for the previous calendar year, utilizing the BLM Rawlins Field Office Disturbance (As-Built) and Reclamation Database. Monitoring and reporting would be in accordance and consistent with the Wyoming State Reclamation Policy, RFO RMP Record of Decision (ROD) and Appendix 36, and the field/project level EA/EIS, as applicable. The Rawlins Field Office surface disturbance and reclamation database, as well as information on the database and submission of the data, is available at the following web address: http://www.blm.gov/wy/st/en/field_offices/Rawlins/oil_and_gas.html, or by contacting the Rawlins Field Office, Minerals and Lands, Supervisory Natural Resource Specialist/Physical Scientist at 307-328-4200 for further information.

2. Reclamation earthwork for interim and/or final reclamation would be completed within 6 months of well completion or well plugging (weather permitting) including unnecessary access roads and pipeline right(s)-of-way, and would consist of: 1) backfilling pits, 2) re-contouring and stabilizing the well site, access road, cut/fill slopes, drainage channels, utility and pipeline corridors, and all other disturbed areas, to approximately the original contour, shape, function, and configuration that existed before construction (any compacted backfilling activities would ensure proper spoils placement, settling, and stabilization), 3) surface ripping, prior to topsoil placement, to a depth of 18-24 inches deep on 18-24 inch centers to reduce compaction, 4) final grading and replacement of topsoil, 5) surface-roughening and other techniques such as snow fencing to increase soil moisture retention and reduce compaction (all surface soil material would be pitted or roughened such that the entire reclamation area would be uniformly covered with depressions constructed perpendicular to the natural flow of water and/or prevailing wind), and 6) seeding in accordance with reclamation portions of the APD and these Design features.

3. Temporary fencing of the reclaimed well/facilities locations for the first two to four growing seasons after either interim or final seeding may be required to exclude livestock and wildlife and to help ensure better re-vegetation success. Similarly, off-road vehicle prevention measures would be employed on reclaimed locations.

4. Any subsequent re-disturbance of interim reclamation would be reclaimed within six (6) months by the same means described herein.

5. A Notice of Intent to Abandon (Form 3160-5) must be submitted and approved prior to any well abandonment activities. A joint inspection of the disturbed areas may be required and attended by the BLM and the Operator (or Operator's Designee), the primary purpose of which is to review and agree to the existing (or a new) abandonment and/or final reclamation plan. Earthwork must commence and be completed within six (6) months from the date of plugging and abandonment and seeding no later than the next immediate growing season upon the completion of earthwork. All reclamation should be accomplished as soon as possible after the disturbance occurs, with efforts continuing until the criteria for reclamation success has been met.

6. The Operator would submit a Final Abandonment Notice (FAN), using Form 3160-5, to the AO when the criteria for reclamation success have been met on the surface-disturbed. This FAN indicates that the Operator believes the location is considered ready for final inspection, with adequate vegetation cover and species diversity. Upon receipt of the FAN, the BLM would conduct a field inspection prior to releasing the bond liability for this location.

7. Re-vegetation would consist of species occurring in the surrounding natural vegetation and/or included in the approved seed mix as deemed desirable by the BLM or private surface owner in review and approval of the reclamation plan. Inter-seeding, secondary seeding, or staggered seeding may be required to accomplish re-vegetation objectives. The seed mixture(s) would be planted in the amounts specified in pounds of pure live seed (PLS)/acre. There would be no primary or secondary noxious weed seed in the seed mixture. Seed would be tested and the viability testing of seed would be done in accordance with State law(s) and within 9 months prior to purchase. Commercial seed would be either certified or registered seed. The seed mixture container would be tagged in accordance with State law(s) and available for inspection by the AO. Seed would be broadcast if drilling is not possible. When broadcasting the seed, the pounds per acre are to be doubled. The seeding would be repeated until a satisfactory stand is established as determined by the AO.

8. Evaluation of growth and success would be conducted as per RMP ROD (Appendix 36). The site would also comply with additional management needs, including control of weed infestations. Success criteria as defined by the RMP is: criteria based on pre-disturbance surveys or surveys of adjacent undisturbed natural ground cover and species composition (which the Operator would do prior to disturbance) or eighty percent of pre-disturbance ground cover, ninety percent dominant species, no noxious weeds, and erosion features equal to or less than surrounding area. The AO reserves the right to require a revaluation of the reclamation success of the disturbances and determine if reseeding is necessary.

9. All practicable measures would be utilized to minimize erosion and stabilize disturbed soils on or adjacent to the disturbed and reclaimed area. There would be no evidence of mass-wasting, head-cutting, large rills or gullies, down cutting or overall slope instability. Should the use or storage of hay, straw, or mulch be necessary, the Operator is required to use certified weed-free hay, straw, and mulch on BLM managed lands.

10. Any topsoil to be stockpiled for longer than one year would be spread in layers not to exceed 2 feet maximum thickness and appropriately identified/signed as topsoil. These soil stockpiles would be seeded with a prescribed seed mixture or sterile cover crop (approved by the AO) and covered with mulch to reduce erosion and discourage weed invasion.

Fluids

1. All storage, removal and disposal of produced water must be in accordance with and comply with Onshore Oil and Gas Order No. 7. Produced water must be disposed of at a permitted off-site commercial disposal facility, unless approved otherwise by the BLM AO. The onsite storage/disposal of produced water, in open pits, tinhorns, sumps, etc., is not authorized except as follows: 1) produced water from the well subsequent to drilling may be disposed of in the approved well site reserve pit (for up to 90 days), and/or 2) used for well drilling or

completion, upon prior written approval from the AO via approved APD or Sundry. Produced water may be transported and used for drilling/completion operations from approved fee, state, or federal wells/leases to federal wells/leases within the developed field/unit and/or EIS area, subject to WOGCC and BLM approval.

2. Pit drilling fluids may be transferred from a reserve pit at an approved federal well location to a lined reserve pit at another approved federal well location, for the purpose of drilling the well. Transfer/reuse would only be permitted when transfer is by a lease operator from one or more pits to another pit or pits on the operator's federal lease/unit or adjacent federal lease. Unless approved by this APD, the transfer and reuse of pit drilling fluids would require prior written approval from the AO, via a Sundry Notice (Form 3160-5).

3. The AO may authorize the use of produced water or reuse of pit drilling fluids for drilling when: 1) surface casing has been set with fresh water through any and all possible fresh water zones, 2) use is for drilling/completion only, and 3) the receiving pit is lined.

4. Pit fluids may be transferred by a lease operator from one or more pits to another (lined) pit or pits on the operator's federal lease/unit or adjacent federal lease, for the purpose of fluid consolidation and mechanical/chemical drying and disposal. The 6 month pit closure requirement would apply. Unless approved by this APD, the transfer of pit fluids for consolidation/disposal would require prior written approval from the AO, via a Sundry Notice (Form 3160-5).

5. Initial operator requests for the transport and use/reuse of produced water or pit drilling fluids or the transfer/consolidation of pit fluids would include: 1) the potential locations/leases in which fluids are to be transferred to and from, and 2) the potential quantity to be moved. Requests would be submitted for prior written approval from the AO via APD or Sundry Notice. Upon completion of transport, use/reuse or consolidation, the specific information on leases, units or locations and quantities transferred would be submitted to the AO, via Sundry Subsequent Report. Transportation of fluids would be along approved haul routes and authorized right-of-ways. Temporary surface pipelines may be authorized by the AO for the transfer of fresh water only, and NOT for produced water or pit fluids.

6. Drilling water sources/supplies or any changes to drilling water sources/supplies, the fate of drilling/completion fluids, routes and means of fluid transportation/disposal, and location or method of produced water disposal requires prior written approval from the AO via approved APD, Sundry Notice or Right-of-Way (ROW) as applicable.

7. The drilling of water wells on federal lands would require prior BLM approval via APD, Sundry, or ROW as applicable, in addition to State Engineer Office (SEO) approval.

U.S. Department of the Interior
Bureau of Land Management
Rawlins Field Office **August 2015**

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Escalera Resources Co.
1692 Catalina D 44-13R, 42-24R, 44-24R, & 31-24R
4 Proposed Coal-bed Methane Natural Gas Wells Pads, Access Roads, Pipelines, and Utility Corridors
Lease Number: WYW-137698
DOI-BLM-WY-030-2015-0080-EA

Finding of No Significant Impact:

Based on the analysis of potential environmental impacts contained in the attached Environmental Assessment (EA) (DOI-BLM-WY-030-2015-0080-EA), I have determined that the Proposed Action which incorporates the BLM required Standard Operating Procedures, Best Management Practices, and project design features, will not result in new impacts other than those analyzed and disclosed in the Atlantic Rim Natural Gas Field Development Project Final Environmental Impact Statement (AR FEIS) and Record of Decision (ROD), approved March 27, 2007, which would have sufficient context and intensity, as defined in section 7.3 of the BLM National Environmental Policy Act Handbook (Manual H-1790-1, page 70), to be considered significant.

The considerations listed in 40 CFR 1508.27(b) (1-10) were used to evaluate the intensity of the effects described in the EA:

1. There would not be an offset of potential significant adverse effects as a result of beneficial effects by approving the Proposed Action.

2. Health and safety would not be significantly affected. Solid wastes would be disposed of properly. Air and water quality would not be significantly affected (monitoring would continue and would identify any exceedance of standards). There would be no significant Social or Economic effects beyond those disclosed in the AR FEIS ROD.

3. Neither the Rawlins Resource Management Plan (RMP) review nor interdisciplinary review found unique characteristics in the geographic area which would be adversely affected.

4. Interdisciplinary review found no indication to which the effects on the quality of the human environment would likely be highly controversial.

5. The effects of constructing an access road, well pad, pipeline, and drilling a well as the Proposed Action describes are well known. There would not be high uncertainty of the effects, nor unique or unknown risks.

6. The degree to which the Proposed Action would establish a precedent for future actions with significant effects or would represent a decision in principle about a future consideration would be minimal.

7. The Proposed Action falls within the development and cumulative impact analysis in the final versions of the AR FEIS. The Proposed Action does not result in additional impacts beyond those disclosed in the AR FEIS.

8. There would be no significant adverse effects to resources with scientific, cultural, or historic value.

9. There would be no significant effect to habitat for threatened or endangered species. Construction timing restrictions would minimize or prevent adverse effects to other wildlife species and their habitat.

10. Approving either the Proposed Action or the No Action alternative would not violate any Federal, State, or local laws or regulations imposed for the protection of the environment.

Authorized Official:

Timothy Nash

ACTING Rawlins Field Manager

9.21.15

Date

U.S. Department of the Interior
Bureau of Land Management
Rawlins Field Office **August 2015**

DECISION RECORD

Escalera Resources Co.
1692 Catalina D 44-13R, 42-24R, 44-24R, & 31-24R
4 Proposed Coal-bed Methane Natural Gas Wells Pads, Access Roads, Pipelines, and Utility Corridors
Lease Numbers: WYW-137698
DOI-BLM-WY-030-2015-0080-EA

Decision:

I have reviewed this Environmental Assessment (EA), and the accompanying Finding of No Significant Impact (FONSI), including the analysis and discussion of any potentially significant environmental impacts. I have determined that the Proposed Action, with the mitigation measures described below, will not lead to any new significant impacts not previously addressed in the Atlantic Rim Natural Gas Field Development Project Final Environmental Impact Statement (AR FEIS) and Record of Decision (ROD), approved March 27, 2007 (see FONSI for this EA (DOI-BLM-WY-030-2015-0080-EA)). It is my decision to select the Proposed Action, with the mitigation measures identified below, which consists of the construction of four well pads and access roads, and the drilling of four coal bed methane natural gas wells.

Plan Conformance and Consistency:

The Proposed Action meets the standards and direction of the various guiding laws, regulations, and directives that apply, including the Federal Land Policy and Management Act of 1976 (43 USC 35). The Proposed Action meets the decisions from, and is in conformance with, the Rawlins Resource Management Plan (RMP) and ROD, approved on December 24, 2008.

The proposed action has been analyzed for consistency with WY-IM-2012-019 "Greater Sage-Grouse Habitat Management Policy on Wyoming BLM Administered Public Lands" and WO-IM-2012-043 "Greater Sage-Grouse Interim Management Policies and Procedures."

The RMP is currently undergoing amendment as part of the Wyoming Greater Sage-Grouse Land Use Plan Amendment (Amendment). The Proposed Amendment and Final Environmental Impact Statement (EIS) were released on May 28, 2015. The proposed action was screened against the Final RMP to ensure that the proposed action would not preclude BLM's ability to select any alternative in a ROD. The proposed action was also determined to not be inconsistent with the direction outlined in the RMP's Preferred Alternative.

Rationale for Decision:

Adoption of the Proposed Action will allow the operator to develop their fluid mineral lease. The decision to approve the Proposed Action was based upon the following: (1) consistency with the Bureau of Land Management, Rawlins Field Office RMP and the AR FEIS and ROD; (2) national policy; (3) agency statutory requirements; (4) relevant resource and economic issues; (5) application of measures to avoid or minimize environmental impacts; (6) meeting the purpose and need for the project; (7) application of resource protection mitigation (i.e. lease stipulations); and (8) application of SOPs, applied mitigation, Required Design Features and Conditions of Approval identified for Greater Sage-Grouse, impacts caused by surface-disturbing and disruptive activities would be minimized.. The Proposed Action was chosen as being the most environmentally sound alternative that meets the purpose and need of the Project.

Mitigation Measures and Monitoring:

This project will be implemented with all Standard Operating Procedures (SOPs), Best Management Practices (BMPs), and mitigation measures as described and/or referenced in the EA. All required SOPs, BMPs, and mitigation measures are part of the Proposed Action and can be located in the Application for Permit to Drill (APD), Surface Use Plan (SUP), and Conditions of Approval (COAs) for the APDs.

Bureau of Land Management personnel will monitor and review operations, as needed, to ensure compliance with the approved APD.

Appeal:

Under BLM regulation this decision is subject to administrative review in accordance with 43 CFR Part 4. Any request for administrative review of the decision must include all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, P.O. Box 1828, Cheyenne, Wyoming 82003 within 20 business days of the date the decision is received, or considered to have been received.

Any party who is adversely affected by the State Director's decision may appeal that decision to the Interior Board of Land Appeals, as provided in 43 CFR Part 4.

Authorized Official:

Timothy Nemecek

ACTING Rawlins Field Manager

9.21.15

Date

WYOMING GAME AND FISH DEPARTMENT

5400 Bishop Blvd. Cheyenne, WY 82006

Phone: (307) 777-4600 Fax: (307) 777-4699

wgfd.wyo.gov

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September 18, 2015

WER 9678.13
Bureau of Land Management
Rawlins Field Office
Environmental Assessment
for the Catalina Pod D Sub Area
within the Atlantic Rim Natural Gas Development Project Area

BLM Rawlins Field Office
ATTN: Jennifer Fleuret
P.O. Box 2407
1300 N. Third Street
Rawlins, WY 82301

Dear Ms. Fleuret:

The staff of the Wyoming Game and Fish Department (WGFD) has reviewed the Environmental Assessment for the Catalina Pod D Sub Area within the Atlantic Rim Natural Gas Development Project Area. We offer the following comments for your consideration.

Terrestrial Considerations:

A portion of this project falls within pronghorn crucial winter range. For well sites that may fall within pronghorn crucial winter range, we recommend surface disturbing activities do not occur from November 15 through April 30 to protect wintering pronghorn. Drilling activities should occur outside this time frame.

We recommend that wells maintain a ¼ mile distance from any leks in non-core area sage-grouse habitat. In addition, for wells that may fall within the 2-mile overlap of active leks, we recommend no surface disturbing activities occur from March 15 through June 30. Drilling should occur outside this time period.

We are supportive of the site specific features described in Appendix I which address our recommendations.

Aquatic Considerations:

Since this proposed project is located within the Atlantic Rim Natural Gas Development Area, our aquatic concerns will be address by the Atlantic Rim Record of Decision goals and objectives.

Thank you for the opportunity to comment. If you have any questions or concerns, please contact Tony Mong, Senior Wildlife Biologist, at 307-380-8283 or Rick Huber, Staff Aquatic Biologist, at 307-777-4558.

Sincerely,

John Kennedy
Deputy Director

JK/mf/ns

cc: USFWS
Chris Wichmann, Wyoming Department of Agriculture, Cheyenne
Robb Keith, WGFD, Green River Region
Tony Mong, WGFD, Green River Region
Mark Zornes, WGFD, Green River Region

---------- Forwarded message ----------
From: **Scott Thayer** <scottt@rnbonline.com>
Date: Wed, Sep 16, 2015 at 12:18 PM
Subject: Catalina Pod D Comment
To: "BLM_WY_AtlanticRim@blm.gov" <BLM_WY_AtlanticRim@blm.gov>

Measure impact to wildlife, especially antelope, with proposed windmills (South on Miller Hill) then with this project (North on Atlantic Rim) to the resulting migration and changed habits. Negative impact would be expected to private lands going East to Highway 71. Wildlife would be expected to avoid the energy areas with deer and elk relocating elsewhere, then antelope would be thought to travel lower (ie on Bridger Pass Road) East & West depending on spring migration or winter migration. More antelope moving off Miller Hill and Atlantic Rim.

Response to Comments Received on Catalina POD D

Commenter	Comment	Response
Scott Thayer	Measure impact to wildlife, especially antelope, with proposed windmills…to the resulting migration and changed habits.	See added text in the cumulative impacts section.
Wyoming Game and Fish Department	For well sites that may fall within pronghorn crucial winter range, we recommend surface disturbing activities do not occur from November 15 through April 30 to protect wintering pronghorn.	See Site Specific Design Feature #1.
Wyoming Game and Fish Department	Recommend that wells maintain a ¼ mile distance from any leks in non-core area sage-grouse habitat.	#44-24 falls within ¼ mile of a sage-grouse lek that has been inactive 10 out of the last 20 years. In addition, the proposed road and wellpad falls on existing disturbance (both road and wellpad) thus this will reduce overall impacts to sage-grouse as well as other resources.
Wyoming Game and Fish Department	For wells that may fall within the 2-mile overlap of active leks, we recommend no surface disturbing activities occur from March 15 through June 30.	See Site Specific Design Feature #3.