FINDING OF NO SIGNIFICANT IMPACT & DECISION RECORD
FOR
EOG Resources, Inc.
Pontiac Wells
ENVIRONMENTAL ASSESSMENT –WY-070-EA09-004

DECISION: Is to approve as described in the attached Environmental Assessment (EA) and authorize EOG Resources' Pontiac Convential Oil Wells comprised of the following 4 Applications for Permit to Drill (APDs):

WELL NAME/#/LEASE/LOCATION:

Well Name & Number	QTR	Sec.	T	R	Lease #
Keeline Ranch 02-09H	SESE	9	45N	69W	WYW174474
Grand Prix 01-10H	SESW	10	45N	69W	WYW174474
Lemans 01-15H	NWNW	15	45N	69W	WYW174475
Grand Am 01-22H	SESW	22	45N	69W	WYW174728

This approval is subject to adherence with all of the operating plans and mitigation measures contained in the Master Surface Use Plan of Operations, Drilling Plan, and information in individual APDs. This approval is also subject to operator compliance with all mitigation and monitoring requirements contained within the Powder River Oil and Gas Project Environmental Impact Statement and Resource Management Plan Amendment (PRB FEIS) approved April 30, 2003.

RATIONALE: The decision to authorize as described in the attached Environmental Assessment (EA), is based on the following:

1. The Operator, in their proposed action has committed to:
   - Comply with all applicable Federal, State and Local laws and regulations.
   - Obtain the necessary permits from other agencies for the drilling, completion and production of these wells including water rights appropriations, the installation of water management facilities, water discharge permits, and relevant air quality permits.
   - Limit construction and development to the period between July 1 and March 14 (outside the Greater sage-grouse nesting season).
   - Limit noise sources to 10 dBA above natural, ambient noise (~39 dBA) measured at the perimeter of the nearest lek from March 1 to May 15.
   - Limit well density to 640 acre spacing.
   - Reducing impacts to Greater sage-grouse habitat and other wildlife habitat by using shared access road corridor to the well pads.
   - No overhead power lines will constructed in the core sage-grouse population area.
   - If the wells are put on production, daily routine pumper visits for up to 60 days will be limited to daylight hours between 9:00 AM to 4:00 PM from March 15 and June 30 except in an emergency situation.
   - A Scada system and automation will be installed to minimize traffic and noise if the wells are determined to be capable of producing economically. Thereafter, producing oil wells would be visited at least once per week.
   - For any surface-disturbing activities proposed in sagebrush shrublands, the Companies will conduct clearance surveys for sage grouse breeding activity during the sage grouse's breeding season before initiating the activities. The surveys must encompass all sagebrush shrublands within 0.5 mile of the proposed activities.
2. Disturbance to sage grouse will be minimal as the proposed actions are either in, or within close proximity to conifer woodland.
3. The Operator has certified that a Surface Use Agreement has been reached with the Landowners.
4. The proposed action will not result in any undue or unnecessary environmental degradation.

5. It is in the public interest to approve this development to help meet the nation's future needs for energy reserves. It also helps to stimulate local economies by maintaining stability for the workforce.
6. Mitigation measures applied by the BLM will lessen environmental impacts.
7. Approval of this alternative is in conformance with the PRB FEIS and the Approved Resource Management Plan for the Public Lands Administered by the Bureau of Land Management (BLM), Buffalo Field Office, April 2001.
8. The proposed action incorporates appropriate local sage-grouse research and the best available science from across the species' range in development of Conditions of Approval attached.

FINDING OF NO SIGNIFICANT IMPACT: Based on the analysis of the potential environmental impacts, I have determined that NO significant impacts are expected from the implementation of the proposed action and, therefore, an environmental impact statement is not required.
In conformance with Appendix E, *Record of Decision*, *Powder River Oil and Gas Project Environmental Impact Statement and Resource Management Plan Amendment* (PRB FEIS), BLM Buffalo Field Office has initiated management actions within the PRB FEIS analysis area in response to additional information regarding impacts to sage-grouse. These measures include:

1. Early initiation of a Land Use Plan (LUP) revision, based upon the evaluation of monitoring data generated under the "Mitigation Monitoring and Reporting Plan (MMRP)" in the PRB FEIS Record of Decision
2. Establishment of sage-grouse "focus" areas, encompassing approximately 1 million acres of sage-grouse habitat. These areas are managed under strict guidelines designed to preserve sage-grouse habitat for development of Alternatives during the LUP process (Appendix 1).
3. Initiation of a Population Viability Analysis in the Powder River Basin. This is a 24 month project involving the USGS, BLM Miles City Field Office, BLM Buffalo Field Office and the University of Montana. This work is scheduled to begin in the summer of 2009.
4. Development of Alternatives that modify the Proposed Action to reflect the best available science in sage-grouse management.
5. Development of Conditions of Approval, specific to sage-grouse management, that incorporate recommendations from recent research, the NE Local Sage-grouse Working Group, and the Petroleum Association of Wyoming.

The implementation meets the stated Purpose and Need for the Proposed Action. With the application of mitigation measures in the preferred alternative, sage-grouse population viability in the project area will not be compromised due to the larger scope of planning actions and research initiated by the BLM, Buffalo Field Office.

ADMINISTRATIVE REVIEW AND APPEAL: Under BLM regulations, this decision is subject to administrative review in accordance with 43 CFR 3165. Any request for administrative review of this decision must include information required under 43 CFR 3165.3(b) (State Director Review), including all supporting documentation. Such a request must be filed in writing with the State Director, Bureau of Land Management, P.O. Box 1828, Cheyenne, Wyoming 82003, no later than 20 business days after this Decision Record 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 3165.4.

Field Manager: _____ Date: _____

BUREAU OF LAND MANAGEMENT
BUFFALO FIELD OFFICE
ENVIRONMENTAL ASSESSMENT
EA # WY-070-09-004

PROJECT NAME: Pontiac Wells

WELL NAME/#/LEASE/LOCATION:

Well Name & Number	QTR	Sec.	T	R	Lease #
Keeline Ranch 02-09H	SESE	9	45N	69W	WYW174474
Grand Prix 01-10H	SESW	10	45N	69W	WYW174474
Lemans 01-15H	NWNW	15	45N	69W	WYW174475
Grand Am 01-22H	SESW	22	45N	69W	WYW174728

OPERATOR/APPLICANT: EOG Resources, Inc.

AFFECTED SURFACE OWNERS: Jim and Candace Hardesty, Bacon Creek Cattle LLC.

COUNTY: Campbell

INTRODUCTION: This site-specific analysis tiers onto and incorporates by reference the information and analysis contained in the Powder River Basin Oil and Gas Project Environmental Impact Statement and Resource Management Plan Amendment (PRB FEIS), #WY-070-02-065 (approved April 30, 2003), pursuant to 40 CFR 1508.28 and 1502.21. This document is available for review at the Buffalo Field Office. This project EA addresses site-specific resources and impacts that were not covered within the PRB FEIS.

LAND USE PLAN CONFORMANCE: This proposed action is in conformance with the terms and conditions of the Approved Resource Management Plan for the Public Lands administered by the Bureau of Land Management, Buffalo Field office, April 2001 and the Powder River Oil and Gas Project EIS and Resource Management Plan Amendment (PRB FEIS) approved April 30, 2003.

This proposed action falls inside a BLM Greater sage-grouse "focus area" and Wyoming Game & Fish Department's designated Sage Grouse Core Population Area and is in conformance with guidance issued August 13, 2008, by the BLM Buffalo Field Office (*Guidance for general management actions during BFO Resource Management Plan Revision).* These additional management actions were designed in accordance with the 2003 Record of Decision which states, in part, "Land use plan monitoring will be conducted by BLM…Information gathered from this monitoring will guide mid-course corrections in adapting to the inevitable changes that will occur because of new information."

NEED FOR THE PROPOSED ACTION:

The purpose of the proposed action is to explore for oil and gas reserves. The APDs were submitted by private industry for development of oil and gas on valid federal oil and gas leases issued to the applicant by the BLM.

Drilling the EOG wells would return royalties to the federal Treasury as well as stimulate local economies.

The BLM recognizes the extraction of oil and gas is essential to meeting the nation's future needs for energy. As a result, private exploration and development of federal gas reserves are integral to the agencies' oil and gas leasing programs under the authority of the Mineral Leasing Act of 1920, as amended, and the Federal Land Policy Management Act (FLPMA) of 1976. The oil and gas leasing

program managed by BLM encourages the development of domestic oil and gas reserves and reduction of the U.S. dependence on foreign sources of energy.

This action responds to the goals and objectives outlined in the Resource Management Plan for the Public Lands Administered by the Bureau of Land Management (BLM), Buffalo Field Office, April 2001 and the Powder River Oil and Gas Project Environmental Impact Statement and Resource Management Plan Amendment (PRB FEIS) approved April 30, 2003. This action helps move the Project Area towards desired conditions for mineral development with appropriate mitigation consistent with the goals, objectives and decisions outlined in these two documents.

1. DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

Information contained in the APDs is considered an integral part of this environmental assessment and is, therefore, incorporated by reference (CFR 1502.21).

No Action

This alternative would consist of no new federal wells. The Department of Interior's authority to implement a "no action" alternative that precludes development is limited. An oil and gas lease grants the lessee the "right and privilege to drill for, mine, extract, remove, and dispose of all oil and gas deposits" in the lease lands, "subject to the terms and conditions incorporated in the lease." The No Action Alternative is further described in the PRB FEIS, Volume 1, pages 2-54 through 2-62.

Proposed Action

The proposed action is to horizontally drill four conventional oil wells to the Mowry shale formation (approximately 12,633 ft) to an average depth of 12,464 ft. The wells are located as follows:

Well Name & Number	QTR	Sec.	T	R	Lease #
Keeline Ranch 02-09H	SESE	9	45N	69W	WYW174474
Grand Prix 01-10H	SESW	10	45N	69W	WYW174474
Lemans 01-15H	NWNW	15	45N	69W	WYW174475
Grand Am 01-22H	SESW	22	45N	69W	WYW174728

The proposed action falls inside a Greater Sage-Grouse focus area where BLM's stated objective is to maintain a viable population of sage-grouse and to maintain habitat connectivity by addressing habitat loss, degradation, and fragmentation. The BLM, in accordance with 40 CFR, 1506.1, is required to refrain from actions that would limit the choices of reasonable alternatives in the preparation of an EIS. The pace of oil and gas development in areas of high quality sage-grouse habitat in the Powder River Basin is likely to compromise alternatives to be considered (e.g. phased development, deferred development, more restrictive mitigation measures) in light of the current science and information about this population and its relation to oil and gas development.

The operator has committed to mitigation measures and management practices contained in the Surface Use Plan to effectively conserve sage-grouse habitats affected by the proposal such as:

- Construction and development will be limited to the period between July 1 and March 14 (outside the Greater sage-grouse nesting season).
- Noise sources will be limited to 10 dBA above natural, ambient noise (~39 dBA) measured at the perimeter of the nearest lek from March 1 to May 15.
- Based on habitat mapping, surface disturbance will not exceed 2% of sagebrush habitat per 640 acres.
- Impacts to Greater sage-grouse habitat and other wildlife habitat will be reduced by the use of a shared access road corridor to the well pads.

- Any electrical power will be buried to avoid creating raptor perch sites. If wells are put on production, perch guards to prevent raptor use will be installed on tanks and other infrastructure as applicable.
- If the wells are put on production, a pumper will visit each well location once per day via truck for up to 60 days. Visitation will be limited to daylight hours between 9:00 AM to 4:00 PM from March 15 and June 30 except in emergency situations such as alarms, fires, leaks, spills, loss of power or lease fuel that shuts down equipment, and natural causes such as heavy rains and/or winds.
- Scada system and automation will be installed to reduce traffic and noise if the wells are determined to be capable of producing economically.

Efforts were made to assure that the impacts of this surface disturbing project are consistent with a well pad density of 640 acres including consolidation of infrastructure to lessen habitat fragmentation, degradation and loss; effective conservation of sage-grouse seasonal habitats and habitat connectivity; measurable conservation objectives; and implementation of measures contained in the Northeast Wyoming Local Sage-Grouse Working Group For example, three of the wells have been located in forested areas with rough topography, which is not suitable sage-grouse habitat as sage-grouse tend to avoid woodlands (*Executive Summary NE Wyoming Sage-grouse Conservation Plan, 2006).* Sage grouse tend to nest more on flat to slightly sloping lands (Connelly et. al 2000). Three of the proposed locations are situated on knolls with surrounding slopes greater than 25%. For more detail on design features and construction practices of the proposed action, refer to the Surface Use Plan of Operations and Drilling Plans, as well as operator-committed mitigation measures. These plans have been written and reviewed to ensure that environmental impacts to both surface and subsurface resources are reduced. The maps below show the proposed access roads and well locations. Also see the individual APDs for maps showing proposed access roads and individual well locations.

Figure 1: Proposed Grand Am 01-22H

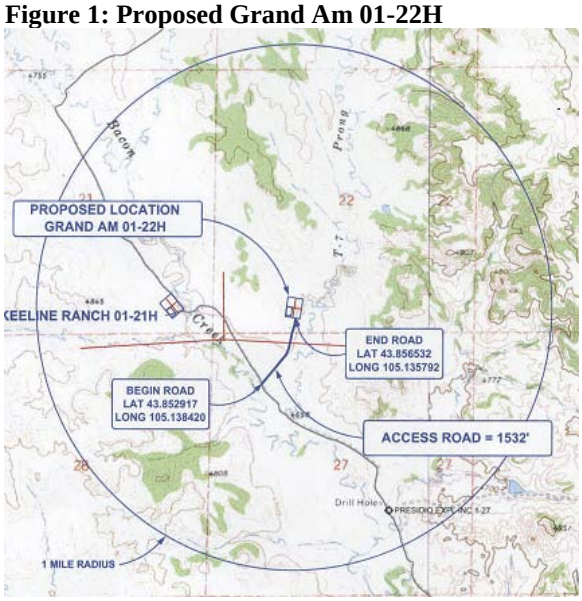
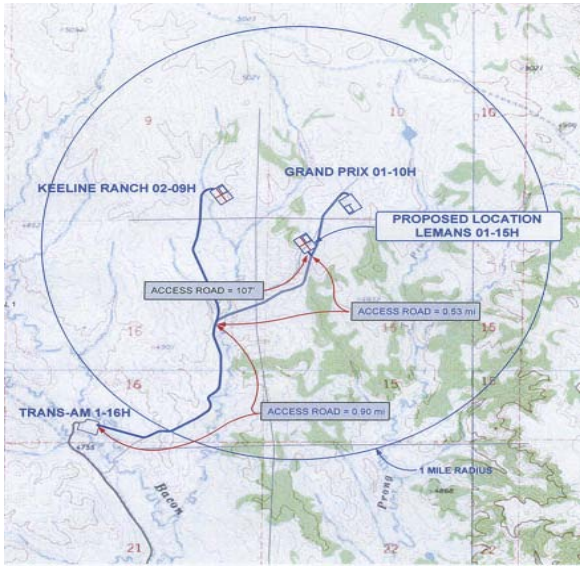


Figure 2: Three clustered Pontiac Wells



EOG's intent is to maximize horizontal lateral length, maintain 640 acre spacing and to drain the hydrocarbons from one horizontal wellbore in each 640-acre spacing unit (one square mile section). This eliminates the need for increased wellbore density and higher surface disturbance. It also allows for future placement of a second wellbore on the same well pad, which would avoid further surface disturbance. Maintaining 640 acre spacing is possible when three of the proposed wells are clustered, share infrastructure, and are therefore not one mile apart because three square miles of hydrocarbons can be drained by horizontal well bores without additional surface disturbance. No additional surface disturbance

is required for a second horizontal wellbore, if needed, on each of the three clustered well pads. (*Recommended Management Practices for Sage-grouse Conservation, Oil & Gas Development # 5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad*, Northeast Wyoming Sage-Grouse Working Group, August 15, 2006).

The following table shows length of horizontal well bores, surface and bottom hole locations:

Well Name & #	**Surface Hole**	**Bottom Hole**	**Horizontal Bore**
Keeline Ranch -2-09H	459'FSL; 609'FSL	662'FNL; 2074'FEL	Approx. 4188ft
Grand Prix 01-10H	370'FSL; 1951'FWL	1302'FNL; 661'FWL	Approx. 3750ft
Lemans 01-15H	613'FNL; 1016'FWL	700'FSL; 1940'FWL	Approx. 4188ft
Grand Am 01-22H	705'FSL; 1448'FWL	700'FNL; 700'FWL	Approx. 3875ft

The placement of the surface locations was determined based on geologic and drilling constraints associated with horizontal drilling. As a result, the placement of the surface location must allow for directional access of the downhole reservoir and adhere to the following Wyoming Oil and Gas Conservation Commission (WOGCC) rules:

> Chapter 3, Section 2(f)(ii) "In the absence of a special spacing order, no portion of the horizontal interval within the potentially productive formation shall be closer than six hundred sixty feet (660') to a drilling or spacing unit boundary, federal unit boundary, uncommitted tract within a unit, or boundary line of a lease not committed to the drilling of such horizontal well. The horizontal interval of wells drilled in the Powder River Basin below 11,000 feet to test the Frontier, Muddy, and/or Dakota Formations shall not be closer than one thousand three hundred-twenty feet (1,320') to the exterior governmental section line or federal unit boundary;
>
> (iii) Any horizontal interval to be completed closer than 1,320 feet to such boundaries, tracts or lines must be oriented such that an azimuth of at least eighteen degrees (18º) is created between the well path and such boundaries, tracts or lines, allowing up to three degrees (3°) of azimuth tolerance for unintended drift;"

The proposed locations are approximately 44.5-47.5 miles northeast of Wright, Wyoming. Access to all four proposed oil well locations is from 8.8 miles of existing improved road on privately owned and state surface. The Grand Am 01-22H location will require 0.28 miles of proposed improved access road. Three of the proposed locations, Keeline Ranch 02-09H, Grand Prix 01-10H, Lemans 01-15H, are within a half-mile radius of each other and would share 2.45 miles of consolidated infrastructure. In this situation, maintaining 640 acre spacing is possible with three clustered well pads because horizontal drilling allows three square miles of hydrocarbons (Sections 9, 10, and 15 of T.45N, R. 69W) to be produced without additional surface disturbance. There is a total of 2.73 miles of proposed improved access roads (this includes 1 mile of existing two-track ranch road which will be improved). Approximately 1.5 acres of existing two-track road, which intersects the proposed access road before the Lemans 01-15 H location, will be reclaimed by the proponent as part of this project.. This 1.5 acres of existing (to be reclaimed) two-track road in the NW1/4 of Section 15 T45N R69W was previously used for ranching operations by the surface owner, and was not chosen as an access to the proposed well locations because it is situated on ridgelines with slopes over 15%. This follows NE Wyoming Sage-Grouse Working Group "Recommended Management Practices" for Sage-Grouse Conservation, *Road Building Maintenance and Usage, #12, Minimize visual/auditory impacts where practicable (e.g. place roads below ridgelines or along topographic features).* Reclamation of the 1.5 acres of existing two-track ranch road will prevent oilfield traffic use and restore wildlife habitat. (NE Wyoming Sage-Grouse Working Group "Recommended Management Practices" for Sage-Grouse Conservation, General Mineral Development #2, encourage the reclamation of unnecessary or redundant roads.) Consolidation of infrastructure will lessen fragmentation of nesting habitat within the Sage Grouse Focus Area (BLM guidance 8/13/08). The

proposed Grand Am 01-22H well is 1.8 miles from the other three proposed wells, Keeline Ranch 02-19H, Grand Prix 01-10H, and Lemans 01-15H.

There are no existing oil and gas wells in Sections 9, 10, 15, and 22 of T45N R69W. There is 1 existing oil well within a one-mile radius of proposed wells Keeline Ranch 02-09H, Grand Prix 01-10H, Lemans 01-15H. There is 1 plugged and abandoned oil and gas well within a one mile radius of proposed well Grand Am 01-22H. There is one fee/fee well, Keeline Ranch 01-21H, in the SESE of Sec. 21 within one half-mile of proposed well Grand Am 01-22H. This fee surface/fee mineral well is located along the existing improved access road and requires no additional access road construction. The fee surface/fee mineral well named the Keeline Ranch 01-21H is also a horizontal well which allows for drainage of hydrocarbons along a horizontal well bore without additional surface disturbance, thereby maintaining 640 acre spacing. There is one well constructed, but not yet completed, in State Section 16, named the Trans Am 1-16H located approximately 0.75 mile from the proposed Lemans and Keeline Ranch wells. The Trans Am 1-16H well is a horizontal well with a surface location of 611 feet FSL and 1739 feet FWL. The length of the horizontal well bore is approximately 4000 feet. The horizontal well bore allows for drainage of hydrocarbons without additional surface disturbance in Section 16. There is also a monitoring well approved in the SENW of Section 16, which will monitor the hydraulic fracturing of the Trans Am 1-16H. The monitoring well will be plugged and capped after monitoring the completion (hydraulic fracturing) of the Trans Am 1-16H well.. No facilities will be required at the monitoring well location. The monitoring well will only be in operation for several months during the drilling and completion (duration of 50-65 days)of the Trans Am 1-16H well when sage-grouse are typically not present, and therefore will not impact grouse habitat use. Both of the wells in Section 16 are located on State lands and have received State of Wyoming approvals. The proposed road to access the Keeline Ranch, Grand Prix, and Lemans wells spurs off the Trans Am well and crosses through State land in Section 16. Approvals for the right-of-way in Section 16 have been obtained by the State of Wyoming. Approval for the right-of-way in section 16 required Wyoming Game & Fish Department review and approval for activity in the Sage Grouse core area. Please see individual APDs for supporting documentation.

The proposed Pontiac well locations require the construction of four engineered (cut & fill) well pads, as well as improved access roads. Located on each pad will be three 400-barrel oil tanks, one 400 barrel produced water tank, and a 6 x 20 vertical heater treater. EOG has committed to perch guards to prevent raptor use on facilities as applicable. (NE Wyoming Sage-Grouse Conservation Plan, Recommended Management Practices, *General Mineral Development #50, where structures must be built…modify the structures to prevent perching raptors, where possible*. Physical disturbance for four engineered (cut & fill) well pads is 14.19 acres. Disturbance for improved access roads is 17.07 acres. The total surface disturbance associated with the construction of these locations and access roads is approximately 31.26 acres. This figure includes disturbance associated with the well pads, the spoil and topsoil storage areas, and the construction equipment and vehicle disturbance. The access roads will be constructed to meet the standards of the anticipated traffic flow and all-weather requirements. Construction will include ditching, draining, graveling, and crowning of the roadbed.

Well Name & Number	Well Pad (acres)	Access Road (acres)	Total Acreage
Keeline Ranch 02-09H	3.61	7.27	10.88
Grand Prix 01-10H	4.19	5.82	5.82
Lemans 01-15H	3.14	2.57	5.71
Grand Am 01-22H	3.25	1.41	4.66
Total	**14.19**	**17.07**	**31.26**

The proposed access roads will be completed as single lane, 16’ wide, 40’ subgrade, crowned roads. The access roads will be constructed with a 4:1 slope for ditches. Riprap will be used as needed. A minimum

of 6 inches of topsoil will be stripped from the new access road prior to any further construction activity. Stripped topsoil will be stored along the sides of the new access road.

There will be six low water crossings, nine turnouts and one diversion ditch along the proposed roads to service the referenced wells. Maximum grade of the new access roads will be less than 8 percent. There are no major cuts or fills, bridges, gates, or fences anticipated along the proposed access routes. The access roads will be constructed and maintained to prevent soil erosion and accommodate all-weather traffic according to BLM Gold Book standards (*Surface Operating Standards for Oil and Gas Exploration and Development,* Fourth Edition 2007).The roads will be crowned and ditched with drainage diversion installed as necessary to provide for proper drainage along the access road routes.

The access roads and associated drainage structures will be constructed and maintained in accordance with road guidelines contained in the joint BLM/USFS publication: *Surface Operating Standards for Oil and Gas Exploration and Development*, Fourth Edition (2007), and/or BLM Manual Section 9113 concerning road construction standards on projects subject to federal jurisdiction. During the drilling and production phase of operations, the road surface and shoulders will be kept in a safe and useable condition, and drainage ditches and culverts will be kept clear and free flowing. If the access roads are dry during construction, drilling, and completion activities, water will be applied to the access roads to help facilitate road compaction (during construction), reduce soil loss as a result of wind erosion, and reduce dust. This is a Project Recommended Management Practice for Sage-Grouse Conservation identified by Northeast Wyoming Sage-grouse Working Group, *General Mineral Development #10) Control dust from roads and other surface disturbances…* (15 August 2006).

During the exploratory stage, equipment necessary for well operation would be powered by a 100KW generator placed on each well pad. Equipment necessary for well operation could include a pumping unit, three 400 barrel oil tanks, one 400 barrel produced water tank, and a 6' by 20 vertical heater-treater. The generator would be fueled by natural gas produced from the well. The noise level from the generator would be approximately 100 dB at 50'. This value could change due to varying load levels on the generator. The noise level from the generator would be reduced with increasing distance from the source, and the noise level at 3 miles from the source (location of nearest sage-grouse lek) would not be noticeable above background levels. This is an operator-committed Project Recommended Management Practice for Sage-Grouse Conservation identified by the Northeast Wyoming Sage-grouse Working Group, *General Mineral Development #6) Reduce noise from industrial development or traffic, especially in breeding and brood rearing habitat*, (15August 2006); Wyoming Game & Fish Stipulation for Development in Core Sage Grouse Population Areas, A. Oil and Gas Lease Stipulation # 7, *Limit noise sources to 10dBA above natural, ambient noise (~39 dBA) measured at the perimeter of a lek from March 1 to May 15* (Inglefinger 2001, Nicholoff 2003). A generator would still be used on site if production is established. Because these are exploratory wells, EOG is not proposing power lines at this time. If power lines are proposed at a later date, a separate right-of-way application would be submitted for approval. EOG has an operator-committed mitigation measure in place to avoid overhead lines and other perch sites in the sage-grouse focus area. This is a Recommended Management Practice for Sage-Grouse Conservation identified by Northeast Wyoming Sage-grouse Working Group, *Predation #3) Avoid construction of overhead lines and other perch sites in occupied in sage-grouse habitat*, (15 August 2006).

Construction and drilling activities are anticipated to be completed within 2 years, the term of an APD. Construction and drilling occur year-round in the PRB. The average duration of drilling for each well is expected to be 50-65 days. However,construction and drilling activities in the sage-grouse core population areas will only occur between July 1 and March 14 (BLM guidance issued 7/31/08; Wyoming Game & Fish Department, Stipulations for Development in Core Sage Grouse Population Areas, A. #6, *Exploration and development activity will be allowed from July 1 to March 14*; and Recommended Management Practices for Sage Grouse Conservation Seasonal Guidelines, Northeast Wyoming Sage-grouse Working Group, August 15, 2006).

It is anticipated that each well will be drilled and completed in 50-75 days. The drilling phase could last up to 60 days, while completion and testing could last up to 15 days in duration. Water for drilling will be obtained from the Trans Am #1 Water Well, Permit No. U.W 185187 located in NE/NW, Section 21-T45N-R69W. No water supply well will be drilled. During drilling, the water will be transported daily on the access road via truck by an approved commercial water hauler. Any water produced in the production of these wells will be stored in one 400 barrel tank located on each well site. Produced water will be transported by a pumper truck to an approved disposal site until another means of disposal such as a water injection well could be permitted. Because this is an exploratory well, water disposal methods other than storage tanks at each well site are not proposed at this time.

EOG is not proposing flow lines for oil and produced water at this time because there are too many variables and unknown factors related to liquid volumes to justify pipelines in and out of the area for oil sales and water disposal. For these wells to be economic, they will have to initially produce enough volume collectively to fill one or more trucks per day. If commercial production is established and pipelines determined necessary, a right-of-way application will be submitted for approval. Any pipelines authorized at a future date would be co-located in the access road to avoid further habitat fragmentation. EOG would also consider centralized tanks after receiving BLM and WOGCC approval for any off-lease measurement and surface commingling. Until such time, tanks would be located on each well site.

In the event that commercial production is established from an exploratory well, the access road will be surfaced to an average minimum depth (after compaction) of four inches with ¾ inch minus gravel or crushed rock as required by the Authorized Officer. Materials will be obtained from a contractor having a permitted source within the general area. Construction activity will not be conducted using frozen or saturated soils material or during periods when watershed damage is likely to occur. If the wells are productive, electric power will be needed to each well location. Any power lines would be buried within the sage-grouse focus area.

The well pads and access road will be constructed as shown in the APDs. The entire area impacted will be reclaimed as described in the surface use plan and attached conditions of approval. If the wells are capable of production, all disturbed areas not needed for production purposes will be expediently re-contoured and reclaimed. At a minimum, the production facilities and pumping unit would require a working area of approximately 0.75 acre. The average size of the working pad once wells are complete and the pad has been pulled back for interim reclamation will be approximately 150 ft by 250 ft. Construction of the four proposed cut and fill well pads requires 14.19 acres of disturbance, however approximately 10.19 acres of that disturbance will be reclaimed during interim reclamation. Interim reclamation will include recontouring, erosion protection, soil stabilization, revegetation, and prevention of noxious, invasive, or non-native weeds. Two of the four proposed well locations and 7,027 feet of access road are located in soils with poor reclamation potential and will require additional interim reclamation efforts to insure site stabilization and re-vegetation.

If the wells are put on production, daily routine pumper visits for up to 60 days will be limited to daylight hours between 9:00 AM to 4:00 PM from March 15 and June 30 except in an emergency situation. Examples of emergency situations include but are not limited to:

1. Notice of shut-in equipment via SCADA system (alarms).
2. Fires, leaks, spills ad natural causes such as heavy rains and/or winds which can damage equipment or cause unusual erosion or flooding.
3. Loss of power or lease fuel that shuts down equipment.
4. Calls by landowners, people with grazing rights, or public in the vicinity expressing concerns. Also calls or notifications by law enforcement, and various local, state, or federal officials and agencies.

If after 60 days the wells are determined to be capable of producing economically, EOG would install SCADA systems and automation to reduce well site visits. A pumper would still need to visit each site at least once per week after SCADA is installed due to safety and environmental requirements. Oils wells require more maintenance than gas wells and there are inherently more areas for spills to occur. EPA has requirements that impose significant fines for spills. Specifically, CERCLA requires immediate reporting of spills that could get large with minimized wellsite visits. Per EOGs commitment to environmental issues, the company's SPCC (Spill Prevention, Control, and Countermeausre) Plans follow EPA reporting requirements. The SPCC plans specify that wells will be visited daily if possible. Also, safety becomes another issue with minimized well visits, particularly in the early stages of a well's life.

During these early stages, well volumes and pressures are at peak level and are difficult to predict. For these reasons, EOG will commit to visits of at least once per week, but visits more frequent than once weekly may be necessary. At a future point where well volumes and pressures decline, reducing visits further may become a possibility. Co-locating flowlines inside access roads, and centralized tanks could also reduce visitation frequency if commercial production is established. Project Recommended Management Practices for Sage-Grouse Conservation identified by the Northeast Wyoming Sage-grouse Working Group includes Road Building Maintenance and Usage #5, *Encourage remote monitoring of production sites to minimize road use and reduce harassment of birds during critical seasons* (15August 2006). Copies of EOG's SPCC Plans are available attached to individual APDs.

For more detail on design features and construction practices of the proposed action, refer to the Surface Use Plan of Operations and Drilling Plans in the APDs, and operator-committed mitigation measures. These plans have been written and reviewed to ensure that environmental impacts to both surface and subsurface resources, including impacts to Greater sage-grouse, are mitigated or minimized. Also see the individual APDs for maps showing the proposed access roads and well locations.

Alternatives Considered but Eliminated from Detailed Study

Several alternatives were considered to move the locations of the drill sites. The final placement of these locations was determined based on geologic and drilling constraints associated with horizontal drilling. EOG's intent is to maximize horizontal lateral length, maintain 640 acre spacing and to drain the hydrocarbons from one horizontal wellbore in each 640 acre spacing unit. This eliminates the need for increased wellbore density and higher surface disturbance. As a result, the placement of the surface location must allow for directional access of the downhole reservoir and also allow for future placement of a second wellbore on the same well pad, which would avoid further surface disturbance. (*Recommended Management Practices for Sage-grouse Conservation, Oil & Gas Development # 5. Where technically and economically feasible, use directional drilling or multiple wells from the same pad*, Northeast Wyoming Sage-Grouse Working Group, August 15, 2006).

Based on the onsite inspection, two drill sites were evaluated for relocation, Keeline Ranch 02-09H and Grand Prix 01-10H. At the onsite, BLM personnel suggested repositioning the well pads in order to rotate the pit locations to avoid knolls and rock outcroppings. However this would position the reserve pits in the fills, thereby, compromising the integrity of the pits. A considerable amount of rock would be placed in the fill, increasing the probability of tears in the liner. In the event that a leak should occur in the liner, there is less dirt in the embankment to prevent the content from washing out. After evaluation, EOG determined that the well pads for Keeline Ranch 02-09H and Grand Prix 01-10H cannot feasibly be repositioned. Both well sites for Keeline Ranch 02-09H and Grand Prix 01-10H as well as 7027 feet of proposed access road are located in soils which are rated poor for reclamation potential. Therefore, additional interim reclamation and site stabilization techniques are included in the drill pad design as well as COAs to reduce environmental impacts.

Another alternative suggested by BLM personnel at the onsite would be to relocate the Keeline Ranch 02-09H well pad 150 feet to the east in the flatter open area in order to avoid knolls and rock outcroppings.

However this would have resulted in greater impacts to ferruginous hawk and sage-grouse nesting habitat. EOG determined that this move was also not feasible based on geologic and drilling constraints associated with horizontal drilling because they would be unable to maximize horizontal lateral length, maintain 640 acre spacing and drain the hydrocarbons from one horizontal wellbore in each 640-acre spacing unit from the suggested location. This alternative was therefore eliminated from consideration.

A third alternative was also considered to drill the Keeline Ranch, Lemans, and Grand Prix wells from one common surface location. This is not feasible due to mechanical and drilling constraints and Wyoming Oil and Gas Conservation Commission (WOGCC) rules. Due to mechanical drilling constraints, EOG would not be able to sufficiently access the bottomhole location for all three of these wells from one central location. The placement of the locations was determined based on geologic and drilling constraints associated with horizontal drilling. EOG's intent is to maximize horizontal lateral length, maintain 640 acre spacing and to drain the hydrocarbons from one horizontal wellbore in each 640-acre spacing unit. This eliminates the need for increased wellbore density and higher surface disturbance. As a result, the placement of the surface location must allow for directional access of the downhole reservoir. The Wyoming Oil and Gas Conservation Commission (WOGCC) rules also eliminate this alternative, as follows:

> Chapter 3, Section 2(f)(ii) "In the absence of a special spacing order, no portion of the horizontal interval within the potentially productive formation shall be closer than six hundred sixty feet (660') to a drilling or spacing unit boundary, federal unit boundary, uncommitted tract within a unit, or boundary line of a lease not committed to the drilling of such horizontal well. The horizontal interval of wells drilled in the Powder River Basin below 11,000 feet to test the Frontier, Muddy, and/or Dakota Formations shall not be closer than one thousand three hundred-twenty feet (1,320') to the exterior governmental section line or federal unit boundary;
>
> (iii) Any horizontal interval to be completed closer than 1,320 feet to such boundaries, tracts or lines must be oriented such that an azimuth of at least eighteen degrees (18º) is created between the well path and such boundaries, tracts or lines, allowing up to three degrees (3°) of azimuth tolerance for unintended drift;"

Relocation of well pads was, therefore, eliminated from further study.

Changes as a result of the pre-approval onsite inspection

The following table provides a summary of observations and changes made at the pre-approval onsite.

Well ID	QTR	Section	T/R	Notes
Keeline Ranch 02-09H	SESE	9	45/69	• Well site and access are not in quality sage grouse habitat because of tree density. • Access road to well has numerous LWCs (Low Water Crossings). Provide drawing depicting detail including slopes, for LWCs along access road. • The proposed location would be difficult to reclaim. Additional interim reclamation efforts will be required to insure site stabilization and revegetation • Move topsoil piles onto bench to avoid tree removal. • Describe plan for rock and tree removal: e.g. rock utilized in fill; slash chipped for mulch; younger trees transplanted, etc. • At the time of APD submission, provide diagram which includes all flowlines. • On production facility layout diagram, include

Well ID	QTR	Section	T/R	Notes
				dimensions and topography to accurately depict interim reclamation.
Grand Prix 01-10H	SESW	10	45/69	• Well site and access are not in quality sage grouse habitat because of tree density. • Maintain 20' vegetative border between disturbance for access road and edge of drainage cut. • Provide drawing depicting detail including slopes for LWCs (Low Water Crossings) along proposed access. • Due to shallow, shale soils and rock outcroppings, additional reclamation efforts will be required to insure site stabilization and revegetation. • Describe plan for rock and tree removal: e.g. rock utilized in fill; slash chipped for mulch; younger trees transplanted, etc. • At the time of APD submission, provide diagram which includes all flowlines. • On production facility layout diagram, include dimensions and topography to accurately depict interim reclamation.
Lemans 01-15H	NWNW	15	45/69	• Maintain 20' vegetative border between disturbance for access road and edge of drainage cuts. • Suitability of habitat for sage grouse is reduced because of tree stands. • Access to well moved south on well pad. Provide drawing that accurately depicts entry and exit of road through pad. • Topsoil pile moved to a location along east side of pad. • Position spoils pile to avoid tree removal. • Provide drawing depicting detail including slopes for all LWCs (Low Water Crossings) along proposed access. • Provide example of seed mix to be used. • At the time of APD submission, provide diagram which includes all flowlines. • On production facility layout diagram, include dimensions and topography to accurately depict interim reclamation.
Grand Am 01-22H	SESW	22	45/69	• Bacon Creek drainage is east of proposed well pad. Erosion control measures such as silt fencing or erosion waddles will be required along east side of pad, from corner #4 - #6 to prevent potential sedimentation into the drainage. • Is potentially suitable sage grouse habitat, although surrounded by pine hills. • Diversion ditch will be required along west and southwest side of proposed well pad. • Culvert will be required where the access road intersects the main resource road. • At the time of APD submission, provide diagram which includes all flowlines. • On production facility layout diagram, include dimensions and topography to accurately depict interim reclamation.

2. DESCRIPTION OF PROPOSED MITIGATION MEASURES

Implementation of committed mitigation measures contained in the Surface Use Plan of Operations and Drilling Plans, in addition to mitigation described herein and conditions of approval, would ensure that no adverse environmental impacts would result from approval of the proposed action:

Programmatic Mitigation Measures Identified in the PRB FEIS ROD
Programmatic mitigation measures are those, determined through analysis, which may be appropriate to apply at the time of APD approval if site-specific conditions warrant. These mitigation measures can be applied by BLM, as determined necessary at the site-specific NEPA APD stage, as COAs, and are in addition to stipulations applied at the time of lease issuance and any standard COA.

Surface Water

1. Channel Crossings:
   a) Channel crossings by road and pipelines will be constructed perpendicular to flow. Culverts will be installed at appropriate locations for streams and channels crossed by roads as specified in the BLM Manual 9112-Bridges and Major Culverts and Manual 9113-Roads. Streams will be crossed perpendicular to flow, where possible, and all stream crossing structures will be designed to carry the 25-year discharge event or other capacities as directed by the BLM.
   b) Channel crossings by pipelines will be constructed so that the pipe is buried at least four feet below the channel bottom.
2. Low water crossings will be constructed at original streambed elevation in a manner that will prevent any blockage or restriction of the existing channel. Material removed will be stockpiled for use in reclamation of the crossings.

Vegetation

1. Temporarily fence reseeded areas, if not already fenced, for at least two complete growing seasons to insure reclamation success on problematic sites (e.g. close to livestock watering source, erosive soils etc.).

Wetland/Riparian

1. Wetland areas will be disturbed only during dry conditions (that is, during late summer or fall), or when the ground is frozen during the winter.

2. No waste material will be deposited below high water lines in riparian areas, flood plains, or in natural drainage ways.

3. The lower edge of soil or other material stockpiles will be located outside the active floodplain.

4. Disturbed channels will be re-shaped to their approximate original configuration or stable geomorphological configuration and properly stabilized.

5. Reclamation of disturbed wetland/riparian areas will begin immediately after project activities are complete.

Air Quality

1. During construction, emissions of particulate matter from well pad and resource road construction will be minimized by application of water, or other dust suppressants, with at least 50 percent control efficiency. Roads and well locations constructed on soils susceptible to wind erosion could be appropriately surfaced or otherwise stabilized to reduce the amount of fugitive dust generated by traffic or other activities, and dust inhibitors (surfacing materials, non-saline dust suppressants, and water) could be used as necessary on unpaved collector, local and resource roads that present a

fugitive dust problem. The use of chemical dust suppressants on BLM surface will require prior approval from the BLM authorized officer.

Additional Operator-Committed Mitigation Measures

Vegetation

1. Approximately 1.5 acres of existing two-track roads along the ridgeline adjacent to the Grand Prix 01-10H and Lemans 1-15H locations will be reclaimed and reseeded to prevent future use and restore wildlife habitat. Approximately 1 mile (1.5 acres) of two-track road will be reclaimed. The reclamation and seeding methods described in the Master Surface Use Plan will be used to reclaim the two-tracks.

Wildlife

1. Construction and development will be limited to the period between July 1 and March 14 (outside the Greater sage-grouse nesting season).
2. Noise sources will be limited to 10 dBA above natural, ambient noise (~39 dBA) measured at the perimeter of the nearest lek from March 1 to May 15.
3. Surface disturbance will not exceed 2% of sagebrush habitat per 640 acres.
4. Impacts to Greater sage-grouse habitat and other wildlife habitat will be reduced by the use of a shared access road corridor to the well pads.
5. Overhead lines and other perch sites will be avoided in core sage-grouse population area.
6. If the wells are put on production, daily routine pumper visits for up to 60 days will be limited to daylight hours between 9:00 AM to 4:00 PM from March 15 and June 30 except in an emergency situation.
7. A Scada system and automation will be installed to minimize traffic and noise if the wells are determined to be capable of producing economically. Thereafter, producing oil wells would be visited at least once per week.

Soils

1. Grading, site preparation, and soil retention measures will reduce soil losses. Topsoil segregation will occur at the proposed well pads to be used during future pad reclamation and project restoration. Existing roads and previous soil disturbances will be utilized where feasible to minimize impacts to soil resources. Existing roads to be used are identified in the Surface Use Plan of Operations.

Wetlands/Riparian

1. BMPs will be implemented during construction to reduce surface disturbances and adherence to general and specific conditions of applicable Nationwide Permits, including due diligence in compliance with the Clean Water Act. This will mitigate impacts to wetland and riparian resources. In compliance with applicable NWPs and to mitigate impacts, low water crossings will be constructed the minimum width necessary. No change to channel flow capacity or stream morphology will occur.

3. DESCRIPTION OF THE AFFECTED ENVIRONMENT

Notice of Staking (NOS) applications for the Pontiac wells were received on December 20, 2007 and March 7, 2008. The APDs for the Pontiac wells described in the Proposed Action were received on September 16, 2008. Field inspections of the proposed well locations were conducted as follows:

- 8/21/2008 by Casey Freise, Debby Green, and Don Brewer – BLM; Steve Bennett and Heather Smith – EOG Resources, Inc.; Jim and Candy Hardesty – Bacon Creek Cattle LLC; Kelly Lang – Basin Energy Services.

Mandatory NEPA items evaluated for the proposed project are presented in the table below. Resources that are potentially impacted are discussed in the following sections. In addition, vegetation and soils are described and analyzed in separate sections.

Critical Elements of the Human Environment Requiring Mandatory Evaluation

Mandatory Item	Potentially Impacted	No Impact	Not Present On Site	BLM Evaluator/ Reviewer
Threatened & Endangered Species		X		Don Brewer
Floodplains			X	Debby Green
Wilderness Values			X	Debby Green
ACECs			X	Debby Green
Water Resources	X			Debby Green
Air Quality	X			Debby Green
Cultural or Historic Values			X	B.J. Earle
Prime or Unique Farmlands			X	Debby Green
Wild & Scenic Rivers			X	Debby Green
Wetlands/Riparian	X			Debby Green
Native American Religious Concerns			X	B.J. Earle
Hazardous Wastes or Solids		X		Debby Green
Invasive, Nonnative Species	X			Debby Green
Environmental Justice			X	Debby Green

Topographic Characteristics

The well locations are located in Campbell County, Wyoming. The area ranges in elevation from 4,600 to 5,000 feet above sea level. The drainages in the vicinity include Bacon Creek, T-7 Prong, and Newell Prong Creek. The topography of the area varies from hogback ridges to rolling sagebrush/grasslands. The area falls within a 12-16" precipitation zone, with most of the precipitation falling during late winter and spring. The surface ownership in the general area is a mixture of private, State, and BLM surface, with cattle grazing, coal mining, and oil and gas development being the primary surface uses. There are no existing oil and gas wells in T.45N, R.69W except for plugged and abandoned (P&A) oil wells as follows: one P&A site in Sec. 6, one P&A site in Sec 17, one P&A site in Sec. 27, and one P&A site in Sec. 29. In this proposal, EOG is proposing four horizontal oil and gas wells as follows: Keeline 02-09H in Sec. 9, Grand Prix 01-10H in Sec. 10, Lemans 01-15H in Sec. 15, and Grand Am 01-22H in Sec. 22. EOG has obtained approval for wells in State Sec. 16 as follows: one horizontal oil and gas well and one temporary monitoring well. EOG has one Fee/Fee oil and gas well in Sec. 21. A large strip mine is located 18 miles south of the project area on state route 450.

Vegetation & Soils

Five major vegetation communities occur within or in close proximity to the proposed well pads and access roads. These communities include 1) upland grasslands, 2) upland shrublands, 3) ponderosa pine (*Pinus ponderosa*) woodlands, 4) transitional wetlands, and 5) marginal riparian bottomlands. Wetland and riparian communities are discussed in the wetlands/riparian section.

The upland grassland community consists predominately of upland range grasses mixed with occasional patches of forbs. Sandberg bluegrass (*Poa secunda*), western wheatgrass (*Pascopyrum smithii*), bottlebrush squirreltail (*Elymus elymoides*), three-awn (*Aristida* sp.), and other upland range grasses and forbs are present within the upland grasslands. Cheatgrass (*Bromus tectorum*), an opportunistic, invasive grass and prolific seed producer, is also prevalent throughout this vegetation community. Upland grasslands are found primarily in the historic or active floodplains of Bacon Creek and its tributaries and are intermixed with the upland shrubland community.

The upland shrubland community is primarily composed of Wyoming big sagebrush (*Artemisia tridentata wyomingensis*) and silver sagebrush (*A. cana*), with scattered upland range grasses similar to those within the upland grassland community. This community dominates the drier benches and rolling hills of the project area. Bare sandy exposed soil is common within many areas. The upland shrublands are interspersed with stands of ponderosa pine, and the upland shrublands dominate the western portion of the project area.

The Grand Prix 01-10H and Lemans 01-15H well locations and access road will be located within an upland grassland community with scattered sparse sagebrush and stands of ponderosa pines. The Keeline Ranch 02-09H well location and access road will be situated in an upland grassland community, punctuated by sparse sagebrush and ponderosa pines of various age classes. The access road will pass through a mix of upland grasslands and shrublands. The proposed Grand Am 01-22H well location and access road will occur in an upland grassland community consisting of scattered sagebrush. This site is bordered by a dense stand of ponderosa pine trees and several additional, isolated stands surround the proposed well location and access road.

Soils observed in the project area consist of several different units and associations. Soils information for the proposed project area was obtained using the National Resources Conservation Service (NRCS) web soil survey (NRCS 2008). Soils in the area are relatively undeveloped, formed in recent alluvium or sand (U.S. Army Corps of Engineers [USACE] 2008). Soils found in the project area consist of the Forkwood-Cushman loam series, Hiland-Bowbac fine sandy loam series, Hilight-Wags-Badland complex, and Gateson-Taluce-Turnercrest complex. Please see the Soils Table #1, Reclamation Potential Tables #2 & #3, and Soils Map Figure #2 below, followed by a narrative soils description.

Table 1: Soils Description

Well Name	Soil Map Unit Symbol	Map Unit Name	Ecological Site
Keeline	163	HILIGHT-WAGS-BADLAND COMPLEX, 3 TO 45 PERCENT SLOPES	SHALLOW CLAYEY (10-14 NP)
Lemans	158	HILAND-BOWBAC FINE SANDY LOAMS, 6 TO 15 PERCENT SLOPES	SANDY (10-14 NP)
Grand Prix	150	GATESON-TALUCE-TURNERCREST COMPLEX, 6 TO 30 PERCENT SLOPES	Ponderosa Pine - Little Bluestem
Grand Am	147	FORKWOOD-CUSHMAN LOAMS, 6 TO 15 PERCENT SLOPES	LOAMY (10-14 NP)

A search of the BLM database indicates that the reclamation potential of soils throughout the project area is rated as "poor". Please see Table # 2 below which depicts the reclamation potential of soils for well locations as well as access roads.

Table 2: Well Reclamation Potential

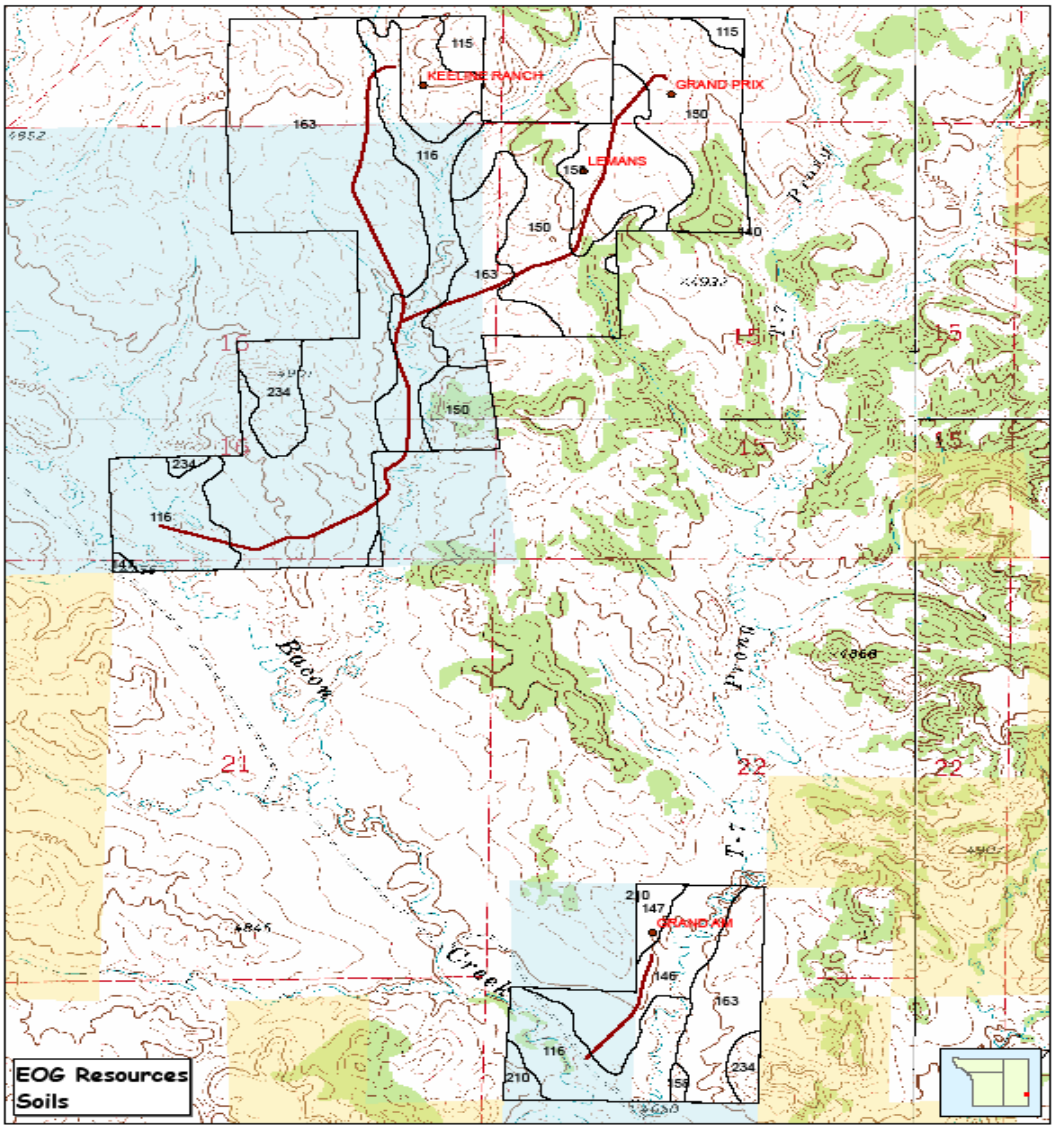
Well Name	Soil Map Unit Symbol	Reclamation Potential
Keeline	163	Poor
Lemans	158	Moderate
Grand Prix	150	Poor
Grand Am	147	Moderate

Table 3: Road Reclamation Potential
Length of road by Soil Map Unit with a Poor Reclamation Potential.

Soil Map Unit Symbol	Feet	
163	5864	Water erosion, droughtness and a badlands component.
150	1163	Wind erosion and droughtness, due to a sandy surface and a low water holding capacity in the 10-40 inch layer.

Additional interim reclamation efforts will be required to ensure site stabilization and re-vegetation, as well as to reduce topsoil loss, and minimize the growth of noxious or invasive weeds. Included in the surface use plans are operator committed mitigation measures and Conditions of Approval (COAs) to control the effects of erosion and sedimentation during construction and production phases of the project.

Figure #2: Soils Map of Proposed EOG Wells



The proposed well Grand Am 01-22H is located in the Forkwood-Cushman series, which consists of well-drained soils formed in alluvium on terraces, alluvial fans, piedmonts, hill, ridges, and buttes. Slopes range from 0 to 6%. These soils have a low to medium runoff and a moderate permeability. The parent material for these soils is sandstone, siltstone, and shale, which contribute to the very fine sandy texture of these soils. The depth to groundwater for these soils is greater than 80 inches, and the available water capacity is high. Flooding and ponding of these soils is very infrequent, and the depth to bedrock is less than 60 inches (NRCS 2008).

Proposed well Lemans 01-15H is located in the Hiland-Bowbac soils series. The Hiland-Bowbac series consist of very deep, well-drained soils formed in alluvium or aeolian deposits on terraces, fans and fan remnants, ridges, hills, stabilized dunes, and buttes. Slopes range from 0 to 20% and are both simple and

complex. These soils have a moderate permeability with a low to medium runoff potential. These soils are derived primarily from sandstone and have a fine sandy loam texture. The depth to groundwater in these soils is greater than 80 inches with bedrock less than 40 inches from the surface. The available water capacity for this soil series is moderate with ponding and flooding nonexistent (NRCS 2008).

The Hilight-Wags-Badland complex consists of well-drained soils formed in alluvium on ridges, shoulders, and hills with slopes between 3 and 45%. Proposed well Keeline Ranch 02-09H and 5,864 feet of proposed access road are located in this soil type. According to BLM soils database, this soil type is rated poor for reclamation potential. Additional site stabilization and reclamation mitigation measures are required. The well site is situated on a knoll with numerous rock outcropping surrounded by Ponderosa Pine. Mitigation measures and Conditions of Approval (COAs) have been included to control the effects of erosion and sedimentation during the construction and production phases of the project. These soils have a low to very low permeability and a low to medium runoff potential. These soils are derived from shale and have a fine sandy clay texture. The typical depth to groundwater is more than 80 inches from the surface, and ponding and flooding is very infrequent. Available water capacity for this complex is very low (NRCS 2008).

The Gateson-Taluce-Turnercrest complex occurs on 6 to 30% slopes on hills and ridges on well-drained alluvium, aeolian, and residuum derived from sandstone and shale. Proposed well Grand Prix 01-10H and 1163 feet of access road are located in this soil type. According to BLM soils database, this soil type is rated poor for reclamation potential due to a sandy surface and low water holding capacity in the 10-40 inch layer. Additional site stabilization and reclamation mitigation measures are required. Mitigation measures and Conditions of Approval (COAs) have been included to control the effects of erosion and sedimentation during the construction and production phases of the project. .This soil complex has a low available water capacity and low to medium runoff potential. The typical depth to groundwater is more than 80 inches from the surface and ponding or flooding of these soils does not occur (NRCS 2008).

According to the NRCS and the National Hydric Soils List by State, the Cambria-Kishona-Zigweid loam may exhibit hydric soil properties. In addition to the listed hydric soil unit, wetlands associated with Bacon Creek and its tributaries are observed on the Forkwood-Cushman loam and Hiland-Bowbac loam series, but only along the fringes of the narrow ephemeral drainages that bisect the different soil units (SWCA 2008).

Water Resources

Surface water resources in the project area consist of small agricultural impoundments and reservoirs within ephemeral streams in the area. According to the U.S. Geological Survey Quadrangles Rough Creek (1974) and Open A Ranch (1975), Wyoming, the closest significant surface water features besides the seasonal ephemeral streams in the area include Spath Reservoir, The Robb Reservoir, and Hay Lakes. Spath Reservoir, approximately 9.0 acres in size, is located approximately 2.0 miles west of the project area within the East Fork Coal Creek drainage. East Fork Coal Creek flows northwest away from the project area. The Robb Reservoir, approximately 7.0 acres in size, is another agricultural impoundment located approximately 2.5 miles southwest of the project area. This surface water feature is located in the headwaters of Cottonwood Creek which flows south away from the project area. Hay Lakes is the largest surface water resource within close proximity to the project area. Hay Lakes is located approximately 3.5 miles west of the project area and is comprised of two shallow lakes totaling approximately 248 acres in the upper headwaters of Cottonwood Creek. Cottonwood Creek flows south into Black Thunder Creek approximately 5.8 miles southwest of the project area and upstream from the confluence of West Bacon Creek and Black Thunder Creek.

Watershed value, including natural drainages, would not be adversely impacted by the proposal with properly applied mitigation. Other water resources will not be adversely impacted by the proposal. Possible contamination effects of fresh water aquifers will be reduced through the use of tested casing, by setting casing at appropriate depths and by following safe repair procedures in the event of casing failure.

Any fresh water bearing sands will be protected and isolated with surface casing and/or cement. All hydrocarbon bearing zones will be protected and isolated by casing and cement. The proposed wells are conventional oil and gas wells. Any produced water will be stored in a 400 barrel water tank located on each well pad and transported by pumper truck to an approved water disposal site.

A search of the Wyoming State Engineer Office (WSEO) Ground Water Rights Database for this area showed six registered stock wells in Township 45N, Range 69W with shallow depths ranging from 110 to 250 feet. No domestic water wells are shown in the database. For additional information on water, refer to the PRB FEIS, Chapter 3 (BLM 2003).

Wetlands and Riparian

Wetlands in the project area are affiliated with the seasonally wet ephemeral streams in the area. These wetlands and narrow riparian corridors are associated with named streams such as West Bacon Creek and T-7 Prong drainages. These drainages exhibit marginal wetland characteristics (as per the federal standard for wetlands) with signs of good hydrology, moderate hydric soil development, and marginal vegetative coverage. Due to the dynamic nature of these ephemeral streams and the gravel substrate, wetland vegetation is marginal (SWCA 2008).

A narrow riparian corridor is often associated with dry ephemeral streams. Riparian corridors associated with the ephemeral streams in the project area are narrow and are only found within the floodplains. Scattered plains cottonwoods (*Populus deltoides*) provide an open tree canopy within the riparian areas, comprising less than 5% total aerial tree coverage within the riparian corridor. An understory of upland vegetation such as sagebrush and upland bunchgrasses transitioning to facultative upland species towards the active channel is observed in the riparian corridors and within the active floodplain of the ephemeral streams. Unnamed tributaries of ephemeral streams, such as West Bacon Creek, exhibit even narrower riparian and less wetland habitat as compared to named intermittent streams (SWCA 2008).

The hydrology of these ephemeral drainages is relatively localized by catchment with influx limited to localized precipitation events and snowmelt during the spring months. Wetland soils along the intermittent streams and within the riparian corridor are characterized as poorly to somewhat well drained, and comprised of a fine sandy skeletal mix (SWCA 2008). However, other wetland soils in the project area consist of a fine sandy clay loam within a fine granular structure. Wetland soils observed in the project area are small units of the Cambria-Kishona-Zigweid loam, Forkwood-Cushman series, and Hiland-Bowbac series.

Wildlife

Sage-Grouse

Greater sage-grouse (*Centrocercus urophasianus)* are managed as a sensitive species by the Buffalo Field Office. The proposed well sites are located within a BLM Greater sage-grouse focus area. EOG Resources has designed the project in accordance with BLM interim management guidance (BLM 2008) with well density not exceeding one well pad per square mile (640 acres). The well sites and access routes in the project area are in close proximity to ponderosa pine woodlands, reducing the value as sage-grouse habitat as sage-grouse generally avoid areas with conifers (Braun 1998)

The closest lek to the project area is the Rough Creek IV which is located approximately 3.1 miles northwest of the Keeline Ranch 02-09H well pad location (see table below). Two other leks, the Rough Creek II and Rough Creek III are within four miles of the project area. The leks were not surveyed because of the distance from the project area.

Table 4 Sage-grouse leks within 4 miles of the Pontiac Wells project area.

Lek Name	Legal Location	Occupancy and activity Status (Year - # Peak Males)	Distance From Project Area In Miles
Rough Creek II	T45N,R69W	08-15, 07-9, 06-8	3.8

Lek Name	Legal Location	Occupancy and activity Status (Year - # Peak Males)	Distance From Project Area In Miles
	Sec. 6 NWNE		
Rough Creek III	T45N,R70W Sec. 1 SWSW	08-0, 07-1, 06-10	3.9
Rough Creek IV	T46N,R69W Sec. 31 SENW	08-22, 07-35, 06-45	3.1

During 2008, surveys for wildlife and plant species included locating and identifying areas of potential greater sage-grouse nesting habitat within a 1-mile radius of the well pad locations (HWA 2008). The Wyoming Sage-Grouse Working Group (WSGWG) has identified sagebrush stands with the following characteristics as important nesting habitat: sagebrush canopy cover from 6 – 40%, sagebrush height from 8 – 32 inches, dense residual grasses at least as tall as the bottom of the canopy on mid-height sagebrush plants, and a diverse forb understory (WSGWG 2003). Therefore, sagebrush stands with these characteristics were considered suitable nesting habitat. A map of the greater sage-grouse nesting habitat delineated by biologists during the survey is identified in the 2008 Hayden-Wing Associates, LLC report entitled "EOG Resources, Inc. Pontiac Project Area Wildlife and Plant Surveys – 2008." HWA biologists delineated approximately 1,153 acres of potential sage-grouse nesting habitat. Over 1,046 acres were classified as suitable, with the other 107 acres determined to be marginal for nesting. Biologists observed no evidence of sage-grouse use of the project area during site visits (HWA 2008).

Brood-rearing habitat is considered to be wet areas with green vegetation and insect production to provide nutrition to developing sage-grouse chicks throughout the summer months and into the fall. Generally, with the exception of Bacon Creek tributary crossings, the well and access construction will take place in more xeric sites. The Bacon Creek tributaries in the project area are lined with cottonwood trees and are in close proximity to juniper and ponderosa woodlands. One area of potential brood-rearing habitat was noted in a wet draw near the Keeline 02-9H well site, but the draw is surrounded by ponderosa pine, increasing the likelihood that sage-grouse will avoid the area.

Sagebrush cover and height was estimated by the BLM biologist during a field check on March 4, 2009 at the Keeline 02-9H, the Lemans 01-15H, and the Grand Am 01-22H wells. No estimates were made at the Grand Prix 01-10H well as it is situated in a dense stand of ponderosa pine. Based on winter habitat criteria from the Northeast Wyoming Sage-Grouse Conservation Plan and BLM WY habitat framework (2001), the sagebrush complex present could be considered as marginal to suitable as winter cover, but all sites are in close proximity to coniferous woodland reducing their value as sage-grouse habitat. No sage-grouse or sage-grouse sign was observed by the BLM biologist during either the March 4, 2009 field visit or during an initial visit on August 21, 2008.

Sharp-tailed grouse inhabit short and mixed-grass prairie, sagebrush shrublands, woodland edges, and river canyons. In Wyoming, this species is found where grasslands are intermixed with shrublands, especially wooded draws, shrubby riparian area, and wet meadows. The portions of the Pontiac Wells project area on the edges of ponderosa woodlands have the potential to support sharp-tailed grouse during most of the year. The mosaic of grasslands and sagebrush-grasslands could provide habitat from April through October. Cottonwoods and junipers could provide buds and berries, respectively, to sustain grouse through the winter. The BLM database does not show any sharp-tailed grouse leks in the project area.

Big-Game - Raptors

The Wyoming Game and Fish Department (WGFD) (2006) database was queried to determine whether any of the proposed well sites and access roads are located in big game ranges. All four of the proposed well sites and access roads are within mule deer (*Odocoileus hemionus*) year-long range and Grand Am 01-22H is located in elk (*Cervus canadensis*) year-long range. Wyoming elk hunt Area 123 and deer hunt

Area 21 encompasses the project area. The Rochelle Hills elk herd unit and the Thunder Basin mule deer herd unit reside within these Hunt Areas (WGFD 2008b). Population estimates for these two big game species in 2008 found both herds to be at or above population objectives identified by the Wyoming Game and Fish Department (WGFD 2008b). The Rochelle Hills elk herd is estimated at 600 individuals with a population objective of 400 individuals. The Thunder Basin mule deer herd has a population estimate of 20,980 individuals with an objective of 20,000 individuals (WGFD 2008c). None of the proposed well sites and access roads are located within pronghorn (*Antilocapra americana*) range; however, the northern terminus of a pronghorn migration route is within a drainage approximately 1 mile southeast of the Grand Am 01-22H well site.

Several species of migratory birds and raptors may potentially be found in the habitat types associated with the project area. For a list of potential migratory bird and raptor species that may occur in the proposed project area please refer to the PRB FEIS (BLM 2003). A raptor nest survey was conducted by qualified biologists during 2008 (HWA 2008). No raptor nest sites were located within 0.5 mile of the well pad locations. Fourteen raptor nests were located over 0.5 mile from the well pad locations and include: one golden eagle nest, one red-tailed hawk nest, one great horned owl nest, and 11 nests of unknown raptor species (HWA 2008). The proposed access roads to Keeline Ranch 02-09H and Lemans 01-15H are within the ½ mile buffer of BLM nest # 6459. The nest is an unknown raptor nest in a cottonwood tree.

Threatened, Endangered, and Sensitive Species

Within the Buffalo Field Office, there are two species, the black-footed ferret and the Ute ladies' tresses orchid, that are listed as Threatened or Endangered under the Endangered Species Act.

No active prairie dog (*Cynomys* spp.) colonies are present within the project area; therefore, the area does not contain suitable habitat for the black-footed ferret. This nocturnal predator is closely associated with prairie dogs, depending almost entirely upon them for its food. The ferret also uses old prairie dog burrows for dens. Current science indicates that a black-footed ferret population requires at least 1,000 acres of black-tailed prairie dog colonies for survival (USFWS 1989).

During late summer 2008, surveys to identify areas with the potential to contain suitable habitat for Ute ladies'-tresses were conducted within 1 mile of the proposed well pads (HWA 2008). Habitat includes wet meadows, abandoned stream channels, valley bottoms, gravel bars, and near lakes or perennial streams that become inundated during large precipitation events. No Ute ladies'-tresses orchids were observed during the survey and potential habitats in the areas surveyed were determined to be unsuitable for the species due to: 1) water flows in Bacon Creek and Prong T-7 Creek are ephemeral; 2) stream banks of both creeks are narrowly incised and demonstrate abrupt transition from stream bed to upland vegetation, stream margins are either absent or narrow and hydrophytic vegetation is uncommon; 3) salt marks and alkaline conditions were commonly observed in the surveyed areas; and 5) all channels surveyed indicate their beds high in clay content, presumably from erosion deposition from adjacent uplands over time (HWA 2008).

The BLM Wyoming has prepared a list of sensitive species to focus species management efforts towards maintaining habitats under a multiple use mandate. The authority for this policy and guidance comes from the Endangered Species Act, as amended; Title II of the Sikes Act, as amended; the Federal Land Policy and Management Act (FLPMA) of 1976; and the Department Manual 235.1.1A.

Bald eagles (*Haliaeetus leucocephalus*) are designated as sensitive species by BLM. Bald eagle nesting habitat is generally found along lakes, rivers, and other areas that support large mature trees. Marginal nesting and roosting habitat is present in the form of large ponderosa pines and cottonwood trees along West Bacon Creek and its upland slopes. Suitable prey sources are available throughout the project area. No known bald eagle nests have been identified within 1 mile of the project area during surveys (HWA 2008). Potential bald eagle winter roost habitat occurs within 1 mile of the well pads. These potential

roosting habitats consist of isolated stands of mature cottonwood trees in the ephemeral drainage bottoms and scattered stands of mature ponderosa pine located in the higher elevations surrounding the project area. Large bodies of water occur within 8 miles of the proposed wells and bald eagles could use the area around the wells for winter roosting and foraging on terrestrial prey species.

Mountain plover (*Charadrius montanus*) are designated as sensitive species by the Buffalo Field Office. Mountain plovers are closely associated with heavily grazed areas such as prairie dog colonies and livestock pastures. Mountain plovers are typically associated with areas of vegetation shorter than 4 inches tall and slopes less than 5 degrees. Dominant shrubs over 12 inches tall, stands of ponderosa pine, and rolling topography preclude the use of the project area by mountain plover.

Air Quality
Existing air quality throughout the PRB is in attainment with all ambient air quality standards. Although specific air quality monitoring is not conducted throughout most of the PRB, air quality conditions in rural areas are likely to be very good, as characterized by limited air pollution emission sources (few industrial facilities and residential emissions in the relatively small communities and isolated ranches) and good atmospheric dispersion conditions, resulting in relatively low air pollutant concentrations.

Existing air pollutant emission sources within the region include the following:

- Exhaust emissions (primarily CO and oxides of nitrogen [NOx]) from existing compressor engines used in production of oil, natural gas, and coal bed methane natural gas; and, gasoline and diesel vehicle tailpipe emissions of combustion pollutants;
- Dust (particulate matter) generated by vehicle travel on unpaved roads, windblown dust from neighboring areas and road sanding during the winter months;
- Transport of air pollutants from emission sources located outside the region;
- Dust (particulate matter) from coal mines; and
- SO2 and NOx from power plants.

For a complete description of the existing air quality conditions in the PRB, please refer to the PRB Final EIS Volume 1, Chapter 3, pages 3-291 through 3-299.

Cultural or Historic Values
Class III cultural resource inventories were conducted for the well pads and access by Pronghorn Archaeological Services (BFO # 70080156; 70080157; 70080158; and70080159) following the Archeology and Historic Preservation, Secretary of the Interior's Standards and Guidelines (48CFR190). BJ Earle, BLM Archaeologist, reviewed all four reports for technical adequacy and compliance with Bureau of Land Management (BLM) standards, field-checked the localities, and determined the reports to be adequate. One site was located during these inventories. The following cultural resources are located in or near the area of potential effect.

Site Number	Site Type	Eligibility
48 CA 6888	Historic site	Not eligible

Site 48 CA 6888 is likely to be disturbed by the access road to the Grand Am well; since the site is considered not eligible for inclusion to the National Register of Historic Places, no further work is required, and cultural clearance is recommended with regard to these locations. Following the Wyoming State Protocol Section VI (A)(1) the Bureau of Land Management notified the Wyoming State Historic Preservation Officer in DBU_WY_2008_2271, 2270, 2269, and2266 on 10/01/2008, that no historic properties are within the APE.

The project area is mapped as the Lebo Member of the Fort Union formation, with a Paleontoloical Fossil Yield Potential rating of 3, a moderate ranking. No resources of interest to Native American cultural groups or Traditional Cultural Properties are known to occur in the project area.

Invasive, Nonnative Species
No state-listed noxious weed populations or weeds of concern have been observed within the project area, however cheatgrass (Bromus tectorum), an invasive, exotic weed, was observed during the BLM pre-approval onsite in the project area and vicinity (SWCA 2008). The operator has committed to the control of noxious weeds and species of concern. The state-listed noxious weeds are listed in PRB FEIS Table 3-21 (p. 3-104) and the Weed Species of Concern are listed in Table 3-22 (p.3-105).

4. ENVIRONMENTAL CONSEQUENCES

Vegetation & Soils
Well pad and access road construction would result in the disturbance of 31.26 acres of vegetation. This disturbance includes a total of 1.73 mile of new access roads, and 1 mile of existing two-track road that would be improved to provide access to well sites. Direct impacts of vegetation removal may include loss of vegetation, including the modification of vegetation structure, plant species composition, and aerial extent of cover types. Removal of vegetation results in increased soil exposure, loss of wildlife habitat, reduced plant diversity, and loss of livestock forage. Indirect impacts would include the increased potential for non-native/noxious plant establishment and introduction, accelerated wind and water erosion, changes in water runoff due to road/facility construction, soil impacts that affect plant growth (soil erosion or siltation), shifts in species composition and/or changes in vegetative density from desirable conditions, and changes in visual aesthetics.

Impacts to vegetation and soils from surface disturbance would be reduced by following the Operator's reclamation plans and BLM applied mitigation. Reclamation of disturbed areas with stockpiled topsoil, proper seedbed restoration techniques, and appropriate seed mixtures would serve to return the disturbed areas to pre-disturbance vegetative productivity and stability. Surface disturbance would be reduced by 11.19 acres after successful interim reclamation, with 0.75 acre remaining for each well, and 20.07 acres of access roads remaining after interim reclamation.

Impacts to soil resources within the project area are directly related to the amount of surface disturbed. Direct impacts include site clearing and grading, and indirect impacts include soil loss due to wind, rain, and other erosive forces. All available topsoil will be stockpiled, preserved, and redistributed over disturbed areas during reclamation. Impacts to soils from surface disturbance will be reduced by following the operator's plans and BLM applied mitigation. Expedient reclamation of disturbed land with stockpiled topsoil, proper seedbed preparation techniques, appropriate seed mixes, along with utilization of erosion control measures (e.g. silt fencing, erosion logs, water bars, culverts) would ensure that land productivity/stability is regained. Included in the Surface Use Plans are operator committed mitigation measures and Conditions of Approval (COAs) to control the effects of erosion and sedimentation during the construction and production phases of the project. These mitigation measures and COAs include but are not limited to the following:

1. Additional interim reclamation efforts to ensure re-vegetation, reduce topsoil loss, and minimize growth of noxious weeds such as mulching, straw crimping, or other soil amendments as well as fencing disturbed areas after seeding.
2. 30 day site-stabilization with erosion control methods such a silt fencing, matting, erosion logs, diversion ditches, and water bars.

Water Resources
The project area is located within the catchment of the West Bacon Creek drainage and its named and unnamed tributaries. Besides the ephemeral streams, no surface water features are located within the immediate catchment of the project area. Rob Reservoir and Hay Lakes are the closest water body to the project area. However they are not within the project area watershed and will not be impacted by the

proposed action. Hay Lakes and The Robb Reservoir occur in the upper catchment of Cottonwood Creek, which is a tributary to Black Thunder Creek. West Bacon Creek enters Black Thunder Creek below the confluence with Cottonwood Creek and would not be impacted by the proposed action. Considering the distance from the project area to permanent water bodies and the distance to surface water connectivity, no surface water features would be impacted by the proposed action.

Groundwater for drilling will be obtained from the existing Trans Am #1 Water Well, Permit No. U.W 185187 located in NE/NW, Section 21-T45N-R69W. No water supply well would be drilled as part of the proposed action. The proposed wells are conventional oil & gas wells. Any produced water will be stored in a 400 barrel water tank located on each well pad and transported by pumper truck to an approved water disposal site. Therefore no impacts to groundwater should result from the proposed action for these proposed conventional oil and gas wells. Proposed stream crossings are shown on the Master Surface Use Plan. Engineering designs for these structures, in addition to proposed well sites and access roads, would be constructed according to BLM Gold Book standards (*Surface Operating Standards for Oil and Gas Exploration and Development*, Fourth Edition 2007).

To mitigate impacts to watershed values, including natural drainages, erosion control measures such as silt fencing, erosion waddles, and diversion ditches are required on the Grand Am 01-22H well pad to avoid sedimentation into Bacon Creek drainage. Measures (e.g. secondary containment) will be used to keep contaminants (sewage, oil, chemicals, produced water, etc.) out of the watershed at all proposed well locations.

Wetlands/Riparian

Four low-water crossings of wetlands and narrow riparian areas would be required for the proposed action. These include three low-water crossings associated with access road construction and one upgrade to an existing low-water crossing. These low-water crossings include one crossing of the main channel of West Bacon Creek, two new low-water crossings of unnamed tributaries of West Bacon Creek, and an upgrade to a current two-track ranch road at an unnamed tributary of West Bacon Creek. No wetlands and riparian areas would be impacted by the construction of the four proposed well pads; however, access road construction would have a minor impact on wetlands and riparian corridor as the result of the three new low-water crossings and one upgrade to an existing low-water crossing. Nationwide permit pre-construction notification will be sent to the United States Army Corp of Engineers (USACE) prior to road construction, per USACE requirements.

Wildlife

Big-Game – Raptors

Based on annual population and game harvest reports for individual herd units, elk and mule deer herds in the subject area are at or above population objectives identified by the WGFD. No ~~direct impacts or~~ decreases in herd populations are anticipated by the implementation of the proposed action. The proposed action would result in the loss of 31.26 acres of mule deer year-long range. Approximately 20.07 acres of surface disturbance would remain after interim reclamation.

In addition to the direct habitat loss, big game would likely be displaced from the project area during drilling and construction. A study in central Wyoming reported that mineral drilling activities displaced mule deer by more than 0.5 miles (Hiatt and Baker 1981). The WGFD indicates a well density of eight wells per section creates a high level of impact for big game and that avoidance zones around mineral facilities overlap creating contiguous avoidance areas (WGFD 2004). A multi-year study on the Pinedale Anticline suggests not only do mule deer avoid mineral activities, but after three years of drilling activity the deer have not become accustomed to the disturbance (Madson 2005).

Big game animals are expected to return to the project area following construction; however, populations will likely be lower than prior to project implementation as the human activities associated with operation and maintenance continue to displace big game. Mule deer are more sensitive to operation and maintenance activities than pronghorn, and, as the Pinedale Anticline study suggests, mule deer do not

readily habituate. A study in North Dakota stated "Although the population (mule deer) had over seven years to habituate to oil and gas activities, avoidance of roads and facilities was determined to be long term and chronic" (Lustig 2003). Deer have even been documented to avoid dirt roads that were used only by 4-wheel drive vehicles, trail bikes, and hikers (Jalkotzy et al. 1997).

Winter big game diets are sub-maintenance, meaning they lose weight and body condition as the winter progresses. Survival below the maintenance level requires behavior that emphasizes energy conservation. Canfield et al. (1999) pointed out that forced activity caused by human disturbance exacts an energetic disadvantage, while inactivity provides an energetic advantage for animals. Geist (1978) further defined effects of human disturbance in terms of increased metabolism, which could result in illness, decreased reproduction, and even death.
Reclamation activities that occur within big game habitats during the spring will likely displace does and fawns due to the human presence in the area. This may cause reduced survival rate of does and fawns that must expend increased energies to avoid such activities.In the event that wells were put on production, daily visits to the wells would occur for 20 to 60 days. Thereafter, if the wells were determined to produce economically, EOG would install SCADA systems and automation to minimize well site visits. This would minimize long-term impacts to elk, mule deer, sage-grouse, and other wildlife. EOG has committed to burying all power should wells be put into production.

The proposed activities include long term disturbance would cause direct habitat loss and short-term disturbances that would result in direct habitat loss but should provide some habitat value as these areas are reclaimed and native vegetation becomes established.

Human activities in close proximity to active raptor nests may interfere with nest productivity. Romin and Muck (1999) indicate that activities within 0.5 miles of a nest are prone to cause adverse impacts to nesting raptors. If mineral activities occur during nesting, they could be sufficient to cause adult birds to remain away from the nest and their chicks for the duration of the activities. This absence can lead to overheating or chilling of eggs or chicks. Prolonged disturbance can also lead to the abandonment of the nest by the adults. Both actions can result in egg or chick mortality. In addition, routine human activities near these nests can draw increased predator activity to the area and increase nest predation.

To reduce the risk of decreased productivity or nest failure, the BLM BFO requires a one-half mile radius timing limitation during the breeding season around active raptor nests and recommends all infrastructure requiring human visitation to be located in such a way as to provide an adequate biologic buffer from occupied raptor nests. The one nest (BLM nest # 6459) is within ½ mile of the access routes to Keeline Ranch 02-09H and Lemans 01-15H. The construction of access routes will be subject to timing limitations if surveys indicate nesting activity. Disturbances to nesting raptors from the proposed project should be minimal.

Threatened, Endangered, and Sensitive Species
Potential impacts to Threatened, Endangered, and sensitive species are summarized below and in the two tables that follow.

Sage-Grouse
The proposed action is located within a greater sage-grouse focus area (BLM, Wyoming Game & Fish Department). Greater sage-grouse nesting habitat is located within a 1-mile radius surrounding the well pads. The Grand Am 01-22H well pad is located in suitable nesting habitat, and the Lemans 01-15H well pad is located in a conifer woodland near suitable nesting habitat. Approximately 21.6 acres of marginal to suitable winter range will be disturbed and approximately 4 acres of suitable nesting habitat would be directly lost as a result of the proposed action. The potential brood-rearing habitat near the Keeline Ranch 02-09H well site will not be directly impacted because the access road is located above the draw. Vehicle traffic using the access road could disturb hens with broods using the habitat, but it is unlikely sage-

grouse are using this habitat due to the proximity to trees. The presence of conifers reduces the likelihood that sage-grouse will use the area, thereby reducing impacts to sage-grouse.

Per the guidelines for development in focus sage-grouse population areas (BLM and Wyoming Game & Fish Department guidance issued 7/31/08), construction and development activities associated with the proposed action would occur between July 1 and March 14 (outside the nesting season), which would decrease potential impacts to the species. The Keeline Ranch, Grand Prix, and Lemans well pads are located off one common access road, which would reduce further impacts and fragmentation of nesting habitat in the focus area. Additionally, EOG Resources has committed to the following mitigation measures to conserve sage-grouse and their habitat:

- Surface disturbance will not exceed 2% of sagebrush habitat per 640 acres.
- Impacts to greater sage-grouse habitat and other wildlife habitat will be decreased by the use of a shared access road corridor to the well pads.
- Any electrical power will be buried to avoid creating raptor perch sites.
- If the wells are put on production, daily routine pumper visits for up to 60 days will be limited to daylight hours between 9:00 AM to 4:00 PM from March 15 and June 30 except in an emergency situation. Emergencies would include; notice of shut-in equipment via SCADA system (alarms), fires, leaks, spills and natural causes such as heavy rains and/or winds which can damage equipment or cause unusual erosion or flooding, loss of power or lease fuel that shuts down equipment, calls by landowners, people with grazing rights, or public in the vicinity expressing concerns, calls or notification by law enforcement, and various local, state, or federal officials and agencies, calls by anyone else working or recreating in the area. Conversion to producing well will not take place during nesting season.

A SCADA system and automation will be installed to decrease traffic and noise if the wells are determined to be capable of producing economically. Thereafter, producing oil wells would be visited at least once per week to inspect production equipment.
Impacts to sharp-tailed grouse would be similar to that of sage grouse.

Because there is no habitat, implementation of the proposed action will have "*no effect*" on the black-footed ferret.

As suitable Ute ladies'-tresses orchid habitat is not present within project area, implementation of the proposed action will have *"no effect"* on the Ute ladies'- tresses orchid.

Based on the raptor nesting surveys, it is unlikely bald eagles nest within the project area. Therefore, no direct impacts to bald eagle nesting are anticipated as a result of the proposed action. Winter roost habitat does occur within 1 mile of the proposed wells. To reduce the risk of disruption to the winter roosting activities of bald eagles, the BLM BFO requires a 0.5 mile no surface occupancy radius and a one mile radius timing limitation of all winter roosts (either communal or consistent use).It is not likely that bald eagle winter roost habitat will be adversely affected by disturbance from activities associated with the project but bald eagles using the area for day time foraging could be disturbed.

The area is not suitable mountain plover habitat; therefore, there will be no impact to this species as a result of the proposed action.

Summary of Threatened and Endangered Species Habitat and Project Effects

Common Name (Scientific Name)	Habitat	Presence	Project Effects	Rationale
Endangered				
Black-footed ferret (*Mustela nigripes*)	Black-tailed prairie dog colonies or complexes > 80 acres.	NP	NE	No black-tailed prairie dog colonies present.
Threatened				
Ute ladies'-tresses orchid (*Spiranthes diluvialis*)	Riparian areas with permanent water	NP	NE	Habitat is lacking due to poor soils, vegetation cover, and lack of perennial water.

Presence
K Known, documented observation within project area.
S Habitat suitable and species suspected, to occur within the project area.
NS Habitat suitable but species is not suspected to occur within the project area.
NP Habitat not present and species unlikely to occur within the project area.

Effect Determinations
LAA Likely to adversely affect
NE No effect.
NLAA May affect, not likely to adversely affect individuals or habitat.

Summary of Sensitive Species Habitat and Project Effects

Common Name (Scientific Name)	Habitat	Presence	Project Effects	Rationale
Amphibians				
Northern leopard frog (*Rana pipiens*)	Beaver ponds, permanent water in plains and foothills	S	MIIH	Stock ponds present
Spotted frog (*Ranus pretiosa*)	Mountain ponds, sloughs, small streams	NP	NI	Habitat not present.
Birds				
Baird's sparrow (*Ammodramus bairdii*)	Grasslands, weedy fields	S	MIIH	Sagebrush cover will be affected
Bald eagle (*Haliaeetus leucocephalus*)	Conifer and deciduous forests, cottonwood galleries	S	MIIH	May forage in area
Brewer's sparrow (*Spizella breweri*)	Basin-prairie shrub	S	MIIH	Sagebrush cover will be affected
Burrowing owl (*Athene cunicularia*)	Grasslands, basin-prairie shrub	NP	NI	Habitat not present
Ferruginous hawk (*Buteo regalis*)	Basin-prairie shrub, grasslands, rocky outcrops	S	MIIH	Sagebrush cover will be affected
Greater sage-grouse (*Centrocercus urophasianus*)	Basin-prairie shrub, mountain-foothill shrub	S	MIIH	Habitat present and will be impacted. Project located in designated core/focus population area.
Loggerhead shrike (*Lanius ludovicianus*)	Basin-prairie shrub, mountain-foothill shrub	S	MIIH	Sagebrush cover will be affected
Long-billed curlew (*Numenius americanus*)	Grasslands, plains, foothills, wet meadows	NP	NI	Habitat not present
Mountain plover (*Charadrius montanus*)	Short-grass prairie with slopes <5%	NP	NI	Habitat not present
Northern goshawk (*Accipiter gentilis*)	Conifer and deciduous forests	NS	MIIH	Habitat present; no nests present.
Peregrine falcon (*Falco peregrinus*)	Cliffs	NP	NI	Habitat not present
Sage sparrow (*Amphispiza billneata*)	Basin-prairie shrub, mountain-foothill shrub	S	MIIH	Sagebrush cover will be affected
Sage thrasher (*Oreoscoptes montanus*)	Basin-prairie shrub, mountain-foothill shrub	S	MIIH	Sagebrush cover will be affected
Trumpeter swan (*Cygnus buccinator*)	Lakes, ponds, rivers	NS	MIIH	Stock ponds present
White-faced ibis	Marshes, wet meadows	NP	NI	Habitat not present

Common Name (Scientific Name)	Habitat	Presence	Project Effects	Rationale
(*Plegadis chihi*)				
Yellow-billed cuckoo (*Coccyzus americanus*)	Open woodlands, streamside willow and alder groves	NP	NI	Habitat not present
Fish				
Yellowstone cutthroat trout (*Oncoryhynchus clarki bouvieri*)	Mountain streams and rivers in Tongue River drainage	NP	NI	Habitat not present
Mammals				
Black-tailed prairie dog (*Cynomys ludovicianus*)	Prairie habitats with deep, firm soils and slopes less than 10 degrees	NP	NI	Habitat not present
Fringed myotis (*Myotis thysanodes*)	Conifer forests, woodland chaparral, caves and mines	NS	MIIH	Habitat not present
Long-eared myotis (*Myotis evotis*)	Conifer and deciduous forests, caves and mines	NS	MIIH	Habitat present
Spotted bat (*Euderma maculatum*)	Cliffs over perennial water	NP	NI	Habitat not present
Swift fox (*Vulpes velox*)	Grasslands	NP	NI	Habitat not present
Townsend's big-eared bat (*Corynorhinus townsendii*)	Caves and mines	NP	NI	Habitat not present
Plants				
Porter's sagebrush (*Artemisia porteri*)	Sparsely vegetated badlands of ashy or tufaceous mudstone and clay slopes 5300-6500 ft.	NP	NI	Habitat not present
William's wafer parsnip (*Cymopterus williamsii*)	Open ridgetops and upper slopes with exposed limestone outcrops or rockslides, 6000-8300 ft.	NP	NI	Habitat not present

Presence
K Known, documented observation within project area.
S Habitat suitable and species suspected to occur within the project area.
NS Habitat suitable but species is not suspected to occur within the project area.
NP Habitat not present and species unlikely to occur within the project area.

Project Effects
NI No Impact.
MIIH May Impact Individuals or Habitat, but will not likely contributes to a trend towards Federal listing or a loss of viability to the population or species.
WIPV Will Impact Individuals or Habitat with a consequence that the action may contribute to a trend towards Federal listing or cause a loss of viability to the population or species.
BI Beneficial Impact

Air Quality
Air emissions would result from construction, drilling and completion activities, and production. Construction emissions would occur from earth-moving equipment, vehicle traffic, and fugitive dust. Drilling rig, workover rig, and vehicle engine exhaust would result in additional emissions. Well production equipment could result in fugitive emissions as well. The amount of air pollutant emissions would be controlled by watering disturbed soils and by air pollutant emission controls imposed by the Wyoming Department of Environmental Quality – Air Quality Division. Air quality impacts modeled in the PRB FEIS concluded that projected oil and gas development would not violate any local, state, tribal, or national air quality standards. This project would not contribute to any air quality standard exceedances.

Cultural or Historic Values
There are no eligible sites within the APE of the proposed project. Therefore, the proposed action is not expected to result in any impacts to cultural resources or historic values. Following the Wyoming State Protocol Section VI (A)(1) the Bureau of Land Management has electronically notified the Wyoming State Historic Preservation Officer (SHPO) that no eligible historic properties exist within the APE.

Invasive, Nonnative Species
The surface disturbance associated with the construction of the proposed well sites and access roads would present opportunities for weed invasion and spread. Direct impacts to vegetation from weed infestations in the project area may include reduced species diversity, loss of wildlife habitat, and loss of rangeland productivity; indirect impacts resulting from weed infestations could be changes in the fire cycle and increased economic costs from weed management efforts. The operator has committed to control noxious and invasive plants on all disturbed areas within the exterior limits of the access roads and well pads. These control measures would be in accordance with Environmental Protection Agency, BLM, State, and other local regulatory agencies. Downy brome was located in the project area at the onsite. Downy brome (Bromus tectorum) is found in such high densities and numerous locations throughout NE Wyoming that a control program is not considered feasible at this time. To mitigate impacts from invasive and noxious weeds Conditions of Approval (COAs) are in effect.

Cumulative Impact Analysis
The impacts of the proposed action, when considered with other existing and proposed activities in the project area, are within the parameters for cumulative impacts to natural, cultural, or socioeconomic resource discussed in the PRB FEIS. The application of mitigation measures will ensure that the incremental impacts of these four wells, when considered with existing development, are not significant. For a complete description of cumulative impacts in the PRB, refer to the PRB FEIS Volume 2, Chapter 4, pages 4-1 through 4-364.

5. CONSULTATION/COORDINATION

Contact	Title	Organization	Present at Onsite?
Jennifer Yu	Senior Regulatory Assistant	EOG Resources, Inc.	No
Steve Bennett	Construction Foreman	EOG Resources, Inc.	Yes
Jim and Candy Hardesty	Surface Owners	Bacon Creek Cattle LLC	Yes
Heather Smith	NEPA Coordinator	EOG Resources, Inc.	Yes

6. AUTHORITIES

The National Environmental Policy Act of 1969 (NEPA), as amended (Pub. L. 91—90, 42 U.S.C. 4321 et seq.)

Code of Federal Regulations (CFR)

- 40 CFR All Parts and Sections inclusive Protection of Environment. Revised as of July 1, 2001.
- 43 CFR All Parts and Sections inclusive – Public Lands: Interior. Revised as of October 1, 2000.

The Federal Land Policy and Management Act, as amended. Public Law 94-579. U.S. Department of the Interior, Bureau of Land Management and Office of the Solicitor (editors). 2001.

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