DECISION RECORD
Environmental Analysis (EA), WY-070-EA14-186
Anadarko E&P Onshore, L.L.C., Antelope Federal Plan of Development (POD)
Bureau of Land Management, Buffalo Field Office, Wyoming

DECISION: The BLM approves the applications for permit to drill (APDs) from Anadarko E&P Onshore, L.L.C. (APC) to drill 6 horizontal oil and gas wells. APC proposes to drill the wells and construct associated infrastructure, at the locations noted below.

Compliance. This decision complies with:
- Federal Land Policy and Management Act of 1976 (FLPMA) (43 USC 1701); DOI Order 3310.
- National Environmental Policy Act of 1969 (NEPA) (42 USC 4321).
- National Historic Preservation Act of 1966 (16 USC 470).
- Endangered Species Act of 1974 (16 USC 1531).
- Buffalo, Powder River Basin (PRB) Final Environmental Impact Statement (FEIS), 1985, 2003 (2011).
- Buffalo Resource Management Plan (RMP) 1985, Amendments 2001, 2003, 2011.

BLM summarizes the details of the approval of Alternative B, below. The EA includes the project description, including specific changes made at the onsites, and site-specific mitigation measures.

BLM approves the following APDs and support facilities:

#	Well Name/ Well #	Qtr	Sec	Twp	Rng	Lease
Antelope Fed 4171-9-31 Well Pad						
1	Antelope Fed 4171 4-11TH	NWNE	9	41N	71W	WYW055069, WYW130033
2	Antelope Fed 4171 4-41TH	NWNE	9	41N	71W	WYW055069, WYW130033
3	Antelope Fed 4171 9-14TH	NWNE	9	41N	71W	WYW055069, WYW130033
4	Antelope Fed 4171 9-44TH	NWNE	9	41N	71W	WYW055069, WYW130033
Antelope Fed 4171-10-21 Well Pad						
5	Antelope Fed 4171 15-14TXH	NENW	10	41N	71W	WYW055069, WYW130033, WYW133561, WYW43560
6	Antelope Fed 4171 15-44TXH	NENW	10	41N	71W	WYW055069, WYW130033, WYW133561, WYW128995

Limitations. See the conditions of approval (COAs).

THE FINDING OF NO SIGNIFICANT IMPACT (FONSI). Analysis of Alternative B of the EA, WY-070-EA14-186, incorporated here by reference, found APC's proposal for 6 APDs will have no significant effects on the human environment, beyond those described in the PRB FEIS. There is no requirement for an EIS.

COMMENT OR NEW INFORMATION SUMMARY. Since receipt of the APDs BLM received clarified policies: BLM Instruction Memorandum (IM)-2013-033, reducing wildlife mortality; IM-2013-104, on NOS and APD processing; IM-2013-144, on NEPA processing; Wyoming BLM IM-2013-005, on migratory bird conservation, IM-2013-14, on NEPA processing, and SDR-2014-005.

DECISION RATIONALE. The approval of this project is because:
1. Mitigation measures and conditions of approval (COAs), analyzed in the EA, in environmental impact statements or environmental analysis to which the EA tiers or incorporates by reference, will reduce environmental impacts while meeting the BLM's need.

2. The approved project conditioned by its design features and COAs, will not result in any undue or unnecessary environmental degradation.
   A. The impact of this development cumulatively contributes to the potential for local extirpation of the Greater Sage Grouse (GSG) yet its effect is acceptable because it is outside priority habitats and is within the parameters of the PRB FEIS/ROD and current BLM and Wyoming GSG conservation strategies.
   B. There are no conflicts anticipated or demonstrated with current uses in the area.
3. Approval of this project conforms to the terms and the conditions of the 1985 Buffalo RMP (BLM 1985) and subsequent update (BLM 2001) and amendments (BLM 2003, 2011).
4. The selected alternative will help meet the nation's energy need, revenues, and stimulate local economies by maintaining workforces.
5. The operator, in their APDs, shall:
   - Comply with all applicable federal, state, and local laws and regulations.
   - Offer water well agreements to the owners of record for permitted water wells within 0.5 mile of a federal producing well in the APD (PRB FEIS ROD, p. 7).
6. The project is clearly lacking in wilderness characteristics as there is no federal surface.
7. APC certified there is a surface use access agreement with the landowners.
8. This approval is subject to adherence with all of the operating plans, design features, and mitigation measures contained in the Master Surface Use Plan of Operations, Drilling Plan, Water Management Plan, and information in the APDs.

ADMINISTRATIVE APPEAL: This decision is subject to administrative appeal in accord with 43 CFR 3165. Request for administrative appeal 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: 2/21/14

FINDING OF NO SIGNIFICANT IMPACT
Environmental Analysis (EA), WY-070-EA14-186
Anadarko E&P Onshore, L.L.C., Antelope Federal Plan of Development (POD)
Bureau of Land Management, Buffalo Field Office, Wyoming

FINDING OF NO SIGNIFICANT IMPACT (FONSI). Based on the information in the EA, WY-070-EA14-186, which BLM incorporates here by reference; I find that: (1) the implementation of Alternative B will not have significant environmental impacts beyond those addressed in the Buffalo Final Environmental Impact Statement (FEIS) 1985, and the Powder River Basin (PRB) FEIS, 2003, 2011; (2) Alternative B conforms to the Buffalo Field Office (BFO) Resource Management Plan (RMP) (1985, 2001, 2003, 2011); and (3) Alternative B does not constitute a major federal action having a significant effect on the human environment. Thus an EIS is not required. I base this finding on consideration of the Council on Environmental Quality's (CEQ) criteria for significance (40 CFR 1508.27), with regard to the context and to the intensity of the impacts described in the EA, and Interior Department Order 3310.

CONTEXT. Mineral development is a common PRB land use, sourcing over 42% of the nation's coal. The PRB FEIS foreseeable development analyzed the development of 54,200 wells. The additional development analyzed in Alternative B is insignificant in the national, regional, and local context.

INTENSITY. The implementation of Alternative B will result in beneficial effects in the forms of energy and revenue production however; there will also be adverse effects to the environment. Design features and mitigation measures included in Alternative B will minimize adverse environmental effects. The preferred alternative does not pose a significant risk to public health and safety. The geographic area of project does not contain unique characteristics identified in the 1985 RMP, PRB FEIS, or other legislative or regulatory processes. BLM used relevant scientific literature and professional expertise in preparing the EA. The scientific community is reasonably consistent with their conclusions on environmental effects relative to oil and gas development. Research findings on the nature of the environmental effects are not highly controversial, highly uncertain, or involve unique or unknown risks. The PRB FEIS predicted and analyzed oil development of the nature proposed with this project and similar projects. The selected alternative does not establish a precedent for future actions with significant effects. The proposal may relate to the PRB Greater Sage-Grouse and its habitat decline having cumulative significant impacts; yet the small size of this project is within the parameters of the impacts in the PRB FEIS. There are no cultural or historical resources present that will be adversely affected by the selected alternative. The project area is clearly lacking in wilderness characteristics as there is no federal surface and is amidst mineral development. No species listed under the Endangered Species Act or their designated critical habitat will be adversely affected. The selected alternative will not have any anticipated effects that would threaten a violation of federal, state, or local law or requirements imposed for the protection of the environment.

ADMINISTRATIVE REVIEW AND APPEAL. This finding is subject to administrative review according to 43 CFR 3165. Request for administrative review of this finding 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 FONSI is received or considered to have been received. Parties adversely affected by the State Director's finding may appeal that finding to the Interior Board of Land Appeals, as provided in 43 CFR 3165.4.

Field Manager: _____ Date: 2/21/14

Environmental Assessment (EA), WY-070-EA14-186
Six Applications for Permit to Drill (APDs)
Anadarko E&P Onshore, L.L.C., Antelope Federal Plan of Development (POD)
Bureau of Land Management, Buffalo Field Office, Wyoming

1. INTRODUCTION

Anadarko E&P Onshore, L.L.C. (APC) requests BLM's approval for 6 applications for permit to drill (APDs) on 2 pads. BLM incorporates the APDs here by reference; see the administrative record (AR). APC proposes to drill the horizontal oil and gas wells and construct associated infrastructure at the locations in Table 1.1. The wells will be drilled from a non-federal surface location into underlying federal minerals on lease numbers listed below – resulting in standard split federal jurisdiction. Cloud Peak Energy and Peabody Energy are the surface owners at the proposed wells. APC proposes an initial disturbance including pad disturbance, cuts, fills, spoil piles, top soil piles, access roads, and buried utilities, of about 39.5 acres; disturbance summaries are in Tables 2.3a and 2.3b.

Table 1.1. Proposed Wells

#	Well Name/ Well #	Qtr	Sec	Twp	Rng	Lease
Antelope Fed 4171-9-31 Well Pad						
1	Antelope Fed 4171 4-11TH	NWNE	9	41N	71W	WYW055069, WYW130033
2	Antelope Fed 4171 4-41TH	NWNE	9	41N	71W	WYW055069, WYW130033
3	Antelope Fed 4171 9-14TH	NWNE	9	41N	71W	WYW055069, WYW130033
4	Antelope Fed 4171 9-44TH	NWNE	9	41N	71W	WYW055069, WYW130033
Antelope Fed 4171-10-21 Well Pad						
5	Antelope Fed 4171 15-14TXH	NENW	10	41N	71W	WYW055069, WYW130033, WYW133561, WYW43560
6	Antelope Fed 4171 15-44TXH	NENW	10	41N	71W	WYW055069, WYW130033, WYW133561, WYW128995

1.1. Background

BLM approved APC's 6 APDs via a consolidated categorical exclusion 3, (CX3), WY-070-390CX3-13-257 to 262, on September 6, 2013, incorporated here by reference. BLM then set aside and remanded the decision on February 14, 2014 via state director review, SDR 2014-005, incorporated here by reference.

1.2. Need for the Proposed Project

The BLM's need for this project is to meet the management objectives of the Buffalo Resource Management Plan (RMP), 1985, 2001, 2003, and 2011 (to which this EA tiers). BLM must determine how and under what conditions to balance natural resource conservation with allowing APC to exercise lease rights to develop fluid minerals, as described in their APDs associated plans. Conditional fluid mineral development supports the RMP, the Mineral Leasing Act of 1920, the Federal Land Policy Management Act (FLPMA), and other laws and regulations.

1.3. Decision to be Made

The BLM will decide whether or not to approve the proposed development, and if so, under what terms and conditions agreeing with the Bureau's multiple use mandate, environmental protection, and RMP.

1.4. Scoping and Issues

BLM posted the proposed APDs for 30 days and will timely publish the EA, any finding, and decision on the BFO website. This project is similar in scope to other fluid mineral development the BFO analyzed. External scoping is unlikely to identify new issues, as verified with recent fluid mineral EAs that BLM

externally scoped. External scoping of the horizontal drilling in Crazy Cat East EA, WY-070-EA13-028, 2013, in the PRB area received 3 comments, revealing no new issues. The BFO interdisciplinary team (ID team) conducted internal scoping by reviewing the proposal, its location, and a resource (issue) list (see, AR), to identify potentially significantly affected resources, land uses, resource issues, regulations, and site-specific circumstances not addressed in the analyses incorporated by reference. This EA will not discuss resources and land uses that are not present, unlikely to receive significant or material affects, or that the PRB FEIS or other analyses adequately addressed. The extensive development in the area was material to this scoping; see Section 3, below.

2. PROPOSED PROJECT AND ALTERNATIVES

2.1. Alternative A – No Action

The no action alternative would deny these APDs requiring the operator to resubmit APDs that comply with statutes and the reasonable measures in the PRB RMP Record of Decision (ROD) in order to lawfully exercise conditional lease rights. The PRB FEIS considered a no action alternative, pp. 2-54 to 2-62. The BLM keeps the no action alternative current using the aggregated effects analysis approach – incorporating by reference the analyses and developments approved by the subsequent NEPA analyses for overlapping and intermingled developments to the proposal area. See, Table 3.1.

2.2. Alternative B Proposed Action (Proposal)

Overview. APC requests BLM's approval for 6 APDs from 2 pads and supporting infrastructure; see Table 1.1. The wells will be drilled from a non-federal surface into underlying federal minerals on lease numbers listed in Table 1.1. The proposals are to explore for, and possibly develop oil and gas reserves in the Turner Formation at depths found in the AR; see Tables 2.1 and 2.2. [BLM repeats the proposal and project description here for reader convenience.]

Table 2.1. Target Formations and Depths of Wells

#	Well Name/ Well #	Target Formation	MD (feet)	TVD (feet)
1	Antelope Fed 4171 4-11TH	Turner	14,742	9,831
2	Antelope Fed 4171 4-41TH		14,547	9,759
3	Antelope Fed 4171 9-14TH		14,750	9,913
4	Antelope Fed 4171 9-44TH		14,069	9,839
5	Antelope Fed 4171 15-14TXH		19,291	9,853
6	Antelope Fed 4171 15-44TXH		19,354	9,752

The project area is 21 miles southeast of Wright, Campbell County, Wyoming. Project elevations average 4,915 feet. The topography has gently sloped draws rising to mixed sagebrush and grassland uplands. Ephemeral tributaries of Antelope and Horse Creek drain the area. The area climate is semi-arid, averaging 10-14 inches annual precipitation, about 60% of which occurs between April and September.

Drilling, Construction & Production design features include:

Access

- Access is primarily via Edwards Road, Antelope Road, and Matheson Road.
- A road network will consist of existing improved all-weather roads and newly constructed crown and ditch template roads.
- APC proposes 1.31 miles of new or reconstructed access roads. The running surfaces will be 20 feet with a disturbance width of about 45 feet. The access roads will be template crown and ditch roads.
- 2,760 feet of new access will be constructed with a 4:1 ditch slope.
- All roads will be maintained to meet BLM standards during the entire life of the project area.
- APC submitted a federal road use application with the Forest Service for use where the access crosses Thunder Basin National Grassland ownership.

- During interim reclamation the ditches will be seeded with a BLM approved seed mix to prevent erosion and maintain topsoil viability.
- Multiple culverts will be installed on newly constructed access roads.

Well Locations

- The pads will have 2:1 slopes and reduced as much as possible during interim reclamation.
- The well pad will be constructed with cuts/fills and topsoil/spoil piles surrounding the pad surface. Disturbances are outlined in Tables 2.3a and 2.3b.
- The wells will use a semi-closed loop system. Lined pits at the pads will hold the cuttings.
- Up to 7 x 400 bbl tanks for oil and water will be placed on location for each well.
- No staging areas, man camps/housing facilities are anticipated to be used off-site. Working trailers and sleeping trailers will be placed on the well pad during the drilling and completion of the well.
- If the well becomes a producer, production facilities will be located at the well site and will include a pumping unit, storage tanks, buildings, oil-water separator (heater-treater). There will be no pits at these producing well locations.
- Dikes will be constructed completely around production facilities, i.e. production tanks, water tanks, and heater treater. The dikes will be constructed of corrugated steel, approximately 3 feet high, and hold capacity of the largest tank plus 10%. The load-out line will be outside of the dike area. A drip barrel or "Getty-Box" will be installed under the end of all load-out lines.

Drilling and Completion Operations

- Hydraulic fracturing (HF) operations are planned as a 'plug & perf' operation done in stages. All fresh water will be contained in either approximately 120-170 HF tanks or a large capacity storage tank (18,000-44,000 bbl) in conjunction with about 30 x 500 bbl HF tanks. No additional well pad disturbance is anticipated for HF operations. Completion flowback water will be held in tanks on location and trucked to a disposal facility permitted by Wyoming Department of Environmental Quality (WDEQ). See the AR for water sources.
- (120-170) 500-bbl HF tanks are spotted, taking 2 weeks to fill, prior to pumping the stimulation. All HF water, including excess, is present before starting.
- Flowback equipment and tanks are spotted 2-3 days before pumping. Sand silos are spotted and filled 2-3 days prior to pumping.
- Next pump trucks and chemical mixing equipment arrives and, when ready, operations continue for 36-48 hours or 3-5 days depending on the type of stimulation stage isolation (i.e. packers/sleeves or plug/perf respectively).
- Sand is continuously brought on site in semi-truck loads during pumping. It is necessary to have a safe turning radius available for these trucks. Pumping water may require heating in the winter months.
- A detailed completion operations plan is outlined in the surface use plan (SUP).
- Peak truck traffic to fill HF tanks for completion operations is estimated to be 700 roundtrips per well.

Table 2.2. Anticipated Drilling and Completion Sequence and Timing (per well)

Drilling and Completion Step	Approximate Duration
Build Location (roads, pad, and other initial infrastructure)	30 days
Mob Rig	2-4 days [1]
Drilling (24/7)	30 days [2]
Schedule/logistics	30 days
Completion (setup, completion, demobilization)	5-8 days

[1] Depending on distance and needed to add supplemental drilling equipment, such as skidding plates.
[2] By comparison, approximately 2 days are required to drill a CBM well. ICF 2012

Table 2.3a. Disturbance Summary Antelope Federal POD:

Activity	Length (feet)	Width (feet)	Acres of Disturbance	Interim Disturbance
Antelope Fed 4171-9-31 constructed pad with cuts/fills and topsoil/spoil disturbances.	varies	varies	14.24	4.30
Newly Constructed Access Roads	650	45	0.67	0.3
Above Ground Power Lines (preliminary estimate)	4,603	30	3.17	3.17
Total Disturbance for this location			**18.08**	**7.77**

Table 2.3b. Disturbance Summary Antelope Federal POD:

Activity	Length (feet)	Width (feet)	Acres of Disturbance	Interim Disturbance
Antelope Fed 4171-10-21 constructed pad with cuts/fills and topsoil/spoil disturbances.	varies	varies	11.70	4.67
Newly Constructed Access Roads	6,305	45	6.51	2.89
Above Ground Power Lines (preliminary estimate)	4,603	30	3.17	3.17
Total Disturbance for this location			**21.38**	**10.73**

The following explains why APC requests about 14.24 acres and 11.70 acres for a bladed and level pad sites. Multi-stage horizontal completions require all equipment and materials to be present before beginning operations. Necessary space must be available to work safely around all the equipment. All locations require extensive earthwork for creating sufficient area to complete the well. APC will then reduce the initial well site with interim reclamation. Individual well designs are in the individual APDs. While these 2 pads are larger than most to date they are more similar than different in that the 2 pads host multiple wells; their construction surface disturbance footprint is larger than their operational footprint; their construction footprint is quickly followed with interim reclamation; and the totality of the pads contribution to surface disturbance in the upper Powder River remains well within the totality of the per-well surface disturbance envisioned and analyzed in the PRB FEIS. The proposed size is necessary to safely accommodate the equipment necessary for an effective well completion.

Off Well Pad.
If gas or water gathering pipelines are needed, APC will submit a sundry notice to the BLM Authorized Officer for approval.

Plan of Operations.
The proposal conforms to all Bureau standards and incorporates appropriate best management practices, required and designed mitigation measures determined to reduce the effects on the environment. BLM reviewed and approved a surface use plan of operations describing all proposed surface-disturbing activities pursuant to Section 17 of the Mineral Leasing Act, as amended. This analysis also incorporates and analyzes the implementation of committed mitigation measures in the SUP, drilling plan, and the standard conditions of approval (COAs) found in the PRB FEIS ROD, Appendix A.

Reasonably Foreseeable Activity.
The reasonably foreseeable activity (RFA) for this and adjacent areas includes oil/gas exploration on 640 acre spacing and possible 320 acre spacing for horizontal wells and 80 acre spacing for vertical wells. (This does not preclude the RFA spacing analysis in the PRB FEIS or applying to drill multiple wells from this pad further reducing the surface disturbance per well.) The RFA in the project analysis area consists of 113 proposed notices of staking (NOSs) and APDs. The project analysis area is the area within 5 miles of these proposed wells. Potential APD submittals or reasonably foreseeable activity included in

this analysis could consist of multiple wells on an existing pad or tie into existing supporting infrastructure; tank batteries, pipelines, power lines, and transportation networks.

2.3. Conformance to the Land Use Plan and Other Environmental Assessments

This proposal does not diverge from the goals and objectives in the Buffalo Resource Management Plan (RMP), 1985, 2001, 2003, 2011, and generally conforms to the terms and conditions of that land use plan, its amendments, supporting FEISs, 1985, 2003 (2011), and laws including the Clean Air Act, 42 USC 7401-7671q (2006), the Clean Water Act, 33 USC 1251 et seq. (1972), etc.

3. AFFECTED ENVIRONMENT

This section briefly describes the physical and regulatory environment that may be significantly affected by the alternatives in Section 2, or where changes in circumstances or regulations occurred since the approval of analyses to which this EA incorporates by reference; see Table 3.1. The PRB FEIS considered a no action alternative (pp. 2-54 to 2-62) in evaluating a development of up to 54,200 fluid mineral wells. Nearly all of the PRB's coalbed natural gas (CBNG) wells and over 60% of the deep oil and gas wells are hydraulically fractured; BLM and Goolsby 2012. The BLM uses the aggregated effects analysis approach - incorporating by reference the circumstances and developments approved via the subsequent NEPA analyses for overlapping and intermingled developments coincident to this proposal area to retain currency in the no action alternative. 615 F. 3d 1122 (9th Cir. 2010). There are about 179 oil and gas wells within 2 miles of this project area, Wyoming Oil and Gas Conservation Commission (WOGCC) 2013. The number of conventional wells in the Buffalo planning area is 1313, which includes 783 horizontal wells (federal, fee, and state) (as of April 2013). This represents 41% of the projected 3,200 in the 2003 PRB ROD. This agrees with the PRB FEIS which analyzed the reasonably foreseeable development rolling across the PRB of 51,000 CBNG and 3,200 natural gas and oil wells. BLM determined a minimum of 115 townships from the northern borders of Sheridan and Campbell Counties to the southern border of Campbell County are a developed field for fluid minerals because of the existing federal developments. These APD proposals are in the developed field. The State of Wyoming and BLM also approved approximately 45 wells within 5 miles of the project area that operators may develop in the near future. In addition, other operators are likely to continue seeking permits to develop unconnected leases in or in the affects analysis areas near the project area; decisions to approve or deny future proposals will occur following APD submittal. Development occurring on non-federal surface and non-federal mineral estate would continue.

Table 3.1. Overlapping NEPA Analyses Which BLM Incorporates by Reference either as similar drilling analyses or as substantially similar analyses in the semi-arid sage-brush, short grass prairie

#	POD / Well Name	NEPA Analysis #	# / Type Wells	Approved Mo/Yr/Update
1	East Litton	WY-070-EA04-237	24 CBNG	8/2004 3/2011
2	Antelope Federal	WY-070-EA04-028	31 CBNG	2/2004 2/2010
3	Rochelle Hills	WY-070-EA04-235	37 CBNG	9/2004 7/2012
4	EOG Crossbow 3 wells	WY-07-3-084, -085, -090	3 Oil	9/2008
5	EOG Crossbow 3 wells	WY-070-09-155	3 Oil	9/2009
6	EOG Arbalest-Crossbow	WY-070-EA10-238	11 Oil	7/2010 1/2011 8/2012 12/2013
7	EOG Project 808	WY-070-EA11-284	44 Oil	9/2011 11/2011 12/2011 8/2012
8[a]	Mufasa Fed 11-31H Well	WY-070-EA12-062	1 Oil	3/2012
9[b]	APC Crazy Cat East	WY-070-EA13-028	24+/- Oil Pads	2/2013

See also: SDR WY-2013-005, particularly noting pp. 2-3, incorporating the entirety here by reference.

a. While not overlapping, incorporate those sections describing and analyzing hydraulic fracturing, its supporting analysis, and the Greater Sage-grouse Section 3.7.12 and 4.8.2.
b. While not overlapping, incorporate those sections describing and analyzing hydraulic fracturing and its supporting analysis to include but not limited to traffic, water, and air quality.

3.1. Air Quality

BLM incorporates by reference the updated air quality affected environment section from the nearby and upwind Porsche Wells EA, WY-070-EA14-85, Section 3.1.

3.2. Soils, Ecological Sites, and Vegetation

BLM incorporates by reference the soils and vegetation sections in the Antelope Federal EA, WY-070-EA04-028, pp. 6-8, and Section 3.2, from the East Litton EA, WY-070-EA04-237. Soils, ecological sites, and vegetation found in the areas of the Antelope Federal POD are similar to those occurring in Durham Ranches 1 POD EA, WY-070-EA13-83.

Table 3.2. Dominant Soils by Map Unit Symbol (MUS) in the Proposal Area

Well Location	MUS	Map Unit Name	Ecological Site
4171-9-31	157	Hiland-Bowbac Fine Sandy Loams, 0 to 6% slopes.	Sandy
4171-10-21	236	Vonalee-Terro Fine Sandy Loams, 0 to 6%slopes.	Sandy

NOTE: area of analysis includes access (proposed, new disturbance) to well location

3.3. Water Resources

The Wyoming State Engineer's Office (WSEO) has authority for regulating water rights issues and permitting impoundments for the containment of the State's surface waters. The WOGCC has authority for permitting and bonding off channel pits located over state and fee minerals. BLM incorporates by reference the regulatory scheme, topography and waters description from the Antelope EA, WY-070-EA04-028, p. 6, paragraphs 2 and 3, and pp. 16-17; and the Wetlands subsection 3.2.1, Waters Sections 3.5, 3.5.1, and 3.5.2, from the East Litton EA, WY-070-EA04-237. The area's historical use for groundwater was for stock or domestic water. A search of the WSEO Ground Water Rights Database showed 8 registered stock and domestic water wells within 1 mile of the proposed wells with depths ranging from 122 to 340 feet. Adherence to the drilling COAs, the setting of casing at appropriate depths, following safe remedial procedures in the event of casing failure, and using proper cementing procedures should protect any fresh water aquifers above the target coal zone. The operator will run surface casing to 1,500 feet, total vertical depth to protect shallow aquifers. The top of cement for the production string will be calculated to 4,100 feet above the Fox Hills formation. This will ensure that ground water will not be adversely impacted by well drilling and completion operations.

At the time of permitting, the volume of water that will be produced in association with these federal minerals is unknown. APC will have to produce a well for a time to be able to estimate the water production. In order to comply with the Onshore Oil and Gas Order #7, Disposal of Produced Water, APC will submit a Sundry to the BLM within 90 days of first production which includes a representative water analysis as well as the proposal for water management. Historically, the quality of water produced in association with conventional oil and gas has been such that surface discharge would not be possible without treatment. Initial water production is low in most cases. There are 3 common alternatives for water management: Re-injection, deep disposal or disposal into pits. All alternatives would be protective of groundwater resources when performed in compliance with state and federal regulations.

3.4. Invasive or Noxious Species

BLM incorporates by reference the invasive species subsections from the East Litton EA, WY-070-EA04-237, Section 3.2.2, and Antelope EA, WY-070-EA04-028, p. 8. Field conditions remain materially similar to these analyses.

3.5. Wildlife

A BLM wildlife biologist reviewed the proposed APDs and determined that the proposals, combined with the COAs (and design features), are: (1) consistent with the FEIS and its supplements, the RMP and the above incorporated EAs; and (2) consistent with the programmatic biological opinion (ES-6-WY-02-F006), which is an update from the PRB FEIS, Appendix K. The biologist performed an onsite visit to the project area on December 6, 2012. The affected environment for wildlife are discussed in, and anticipated to be similar to that analyzed in the EAs in Table 3.1.

3.5.1. Threatened, Endangered, Candidate, Special Status (Sensitive) Species

The Buffalo BLM receives a species list periodically from the FWS concerning threatened, endangered, proposed, and candidate species. Species included on that list that would be impacted by the proposed project will be discussed below.

Greater Sage-Grouse (GSG)

Neither well pad location is within 4 miles of any known GSG leks. In March, 2012, WY BLM released the report, "Viability analyses for conservation of sage-grouse populations: Buffalo Field Office, Wyoming," indicating that a viable population of GSG remains in the PRB, but the combined impacts of multiple stressors, including West Nile virus (WNv) and energy development, threaten that viability (Taylor et al 2012). The information in the report identified that the effects of energy development are detectable at a larger spatial scale than analyzed in the documents listed in Table 3.1, above. Additional information on the population viability analysis and its influence on cumulative effects from energy development is found in the affected environment section, Section 3.7.12 of the Mufasa Fed 11-31H Well EA, WY-070-EA12-062, incorporated here by reference.

3.5.2. Migratory Birds

The proposed well pad 4171-9-31 is in migratory bird habitat. Nesting season for Brewer's sparrows (a BLM special status (sensitive) specie (SSS) typically occurs mid-May to mid-July. Some young fledge in late July. Sage thrashers (BLM SSS) may lay a second clutch of eggs as late as mid-July. Lark sparrows in northern latitudes lay eggs from early May to mid-July. BLM biologists observed active Brewer's sparrow nests containing eggs during the last week of June. Only a percentage of known nests are active any given year, so the protections for migratory birds from June 30 to July 31 will depend on how many raptor and mountain plover nests are active.

3.5.3. Raptors.

The affected environment for raptors was analyzed in the EAs listed in Table 3.1 – those sections are incorporated here by reference. Subsequent field inspections revealed no new nests.

3.6. Cultural.

In accordance with Section 106 of the National Historic Preservation Act (NHPA), BLM must consider impacts to historic properties (sites that are eligible for or listed on the National Register of Historic Places (NRHP). For an overview of cultural resources found in Buffalo planning area refer to the Draft Cultural Class I Regional Overview, Buffalo Field Office (BLM, 2010). A previously reviewed and accepted Class III cultural resource inventory (BFO # 70040133) adequately covered the proposal area. The following resources are in or near the proposal.

Site Number	Site Type	Eligibility
48CA5004	Historic and Prehistoric Site	Not Eligible

4. ENVIRONMENTAL EFFECTS

No Action Alternative. BLM analyzed the no action alternative as Alternative 3 in the PRB FEIS and it

subsequently received augmentation of the effects analysis in this EA through the analysis of mineral projects, their approval, and construction; and through the analysis and approval of other projects. BLM incorporates by reference these analyses in this EA; see Table 3.1. This updated the no action alternative and cumulative effects. The project area has surface disturbance from existing roads, well pads, and oil and gas facilities. Under the no action alternative, on-going well field operations would continue as would the development of approved single and multi-well pads, consisting of horizontal wells with approved APDs and other approved APDs. The production and the drilling and completion of these new wells would result in noise and human presence that could affect resources in the project area; these effects could include the disruption of wildlife, the dispersal of noxious and invasive weed species, and dust effects from traffic on unpaved roads. Present fluid mineral development in the PRB is under half of that envisioned and analyzed in the PRB FEIS. There is only a remote potential for significant effects above those identified in the PRB FEIS to resource issues as a result of implementing the no action alternative.

Alternative B, Proposed Action (Proposal)

4.1. Air Quality

BLM incorporates by reference the air quality direct, indirect, cumulative, and residual effects from the analyses in Table 3.1, above as they are materially similar to those for these proposals. BLM incorporates by reference the analysis found in the August 2012 Lease Sale EA, WY-070-EA12-44, pp. 45-51 (air quality, greenhouse gas emissions, and visibility). Air quality impacts modeled in the PRB FEIS and Cumulative Air Quality Effects, 2009 concluded that PRB projected fluid and solid development would not violate state, or federal air quality standards and this project is within the development parameters.

4.2. Soils, Ecological Sites, and Vegetation

Impacts anticipated occurring and mitigation considered with this proposal will be similar to those analyzed in the following EA which has similar characteristics to the Antelope Federal POD: Durham Ranches 1 POD EA WY-070-EA13-83, Affected Environment (pp. 6-7); and Direct and Indirect, Cumulative, Residual Effects (pp. 12-14) – all incorporated here by reference. These incorporated EA sections analyze the historical values and settings for soils, ecological sites, and vegetation. Although soil types in the Antelope POD are not identical to the soils in the Durham Ranches 1 POD, effects and mitigation are similar. This proposal clearly lacks wilderness characteristics as it has no federal surface.

4.3. Water Resources

Adherence to the drilling COAs, the setting of casing at appropriate depths, following safe remedial procedures in the event of casing failure, and using proper cementing procedures should protect fresh water aquifers above the drilling target zone. Compliance with the drilling and completion plans and Onshore Oil and Gas Orders Nos. 2 and 7 minimize an adverse impact on ground water. The volume of water produced by this federal mineral development is unknowable at the time of permitting. BLM incorporates by reference the surface water resources direct, indirect, cumulative, and residual effects from the East Litton EA, WY-070-EA-4-237, pp. 28-33, and the surface and ground water from the Arbalest-Crossbow EA, WY-070-EA11-284, Sections 4.1.2, and 4.1.3. APC proposes the pads and access in flat locations and there are no major drainages adjacent or overlapped in the proposed surface disturbance areas. The short, proposed roads and do not cross any drainages.

4.4. Invasive Species

BLM anticipates the proposal's direct, indirect, residual, and cumulative effects to invasive species proliferation will be materially similar to those found in the Arbalest-Crossbow EA, WY-070-EA11-284, Section 4.1.5, incorporated here by reference. APCs committed measures negate a need for mitigation.

4.5. Wildlife

Alternative B – the Proposal: The impacts associated with alternative B are discussed below.

4.5.1. Wildlife Threatened, Endangered, Proposed and Candidate Species Greater Sage-Grouse (GSG)

BLM incorporates by reference here, Section 4.8.2 of the Mufasa Fed 11-31H Well EA, WY-070-EA12-062. This proposal should result in no direct, indirect, residual, or cumulative effects to GSG. Given that the 2 proposed well pad locations are not within 4 miles of GSG leks, the new information from the Taylor report (see Section 3.5.1, above) does not substantially change the analyses found in the Table 3.1 EAs. No mitigation is needed for GSG.

4.5.2. Special Status (Sensitive) Species (SSS)

BLM anticipates no direct, indirect, residual, or cumulative effects to SSS (aside from some passerines discussed below). BLM requires no mitigation for SSS.

4.5.3. Migratory Birds

To reduce the direct or indirect effects, the likelihood of a "take" under the MBTA, the BLM recommends mitigation - that the 4171-9-31 pad construction (vegetation removal) occur outside of the breeding season for the greatest quantity of BLM SSS passerines (May 1- July 31) where suitable nesting habitat for sagebrush obligates is present. This restriction would apply to habitat removal, unless a pre-construction nest search (within approximately 10 days of construction planned May 1-July 31) is completed. If surveys will be conducted, the operator will coordinate with BLM biologists to determine protocol. The nest search will consist of in areas where vegetation will be removed or destroyed. The BLM recommends that the proposed 4171-9-31 pad and its infrastructure have timing limitations applied for well pad construction during the nesting season for sagebrush obligate passerines (May 1 to July 31).

Direct, indirect, residual, and cumulative effects to migratory birds from surface disturbing and disruptive activities associated with development of the 2 proposed well pads are similar to the wells previously analyzed in the consolidated CX3 analysis, for Bonita Federal Com. 11H-WY-070-390CX3-13-41, Lone Moose Federal Com. 13H-WY-070-390CX3-13-73, Cousins Federal Com. 22H-WY-070-390CX3-13-74 and Rocky Butte Federal Com. 29H-WY-070-390CX3-13-75, pp. 6-9 (incorporated here be reference), see Table W1.1, below. BLM determined this proposal is in compliance with Instruction Memorandum No. WY-2013-005 Interim Management Guidance for Migratory Bird Conservation Policy on Wyoming Bureau of Land Management (BLM) Administered Public Lands Including the Federal Mineral Estate.

Table W1.1. NEPA Analyses, Incorporated by Reference Here, for Wildlife Analysis

#	Well Name & #	Qtr	Sec	Twp	Rng	CX Number
1	Bonita Federal Com 11H	NENE	10	43N	73W	WY-070-390CX3-13-41
2	Cousins Federal Com 22H	SWSE	2	43N	74W	WY-070-390CX3-13-74
3	Lone Moose Federal Com 13H	NWNW	26	44N	74W	WY-070-390CX3-13-73
4	Rocky Butte Federal Com 29H	NENW	4	43N	73W	WY-070-390CX3-13-75

4.5.4. Raptors

The effects to raptors were analyzed in the EAs listed in Table 3.1. The only raptor nest within 0.5 miles of the pad locations is gone. The proposal results in no direct, indirect, residual, or cumulative effects to raptors. No mitigation is needed to protect raptor nests from the proposal.

4.6. Cultural Resources

BLM policy states that a decision maker's first choice should be avoidance of historic properties (BLM Manual 8140.06(C)). If historic properties cannot be avoided, mitigation measures must be applied to resolve the adverse effect. No historic properties will receive direct, indirect, cumulative, or residual effects from the proposal. Following the State Protocol Between the Wyoming Bureau of Land Management State Director and The Wyoming State Historic Preservation Officer, Section VI(A)(1), the

BLM notified the Wyoming State Historic Preservation Officer (SHPO) on April 29, 2013 that no historic properties exist in the area of potential effect (APE). If any cultural values (sites, features or artifacts) are observed during operation, they will be left intact and the Buffalo Field Manager notified. If human remains are noted, the procedures described in Appendix L of the PRB FEIS and ROD must be followed. Further discovery procedures are explained in Standard COA (General)(A)(1).

BLM used the aggregate effects method to update the cumulative effects for this EA; see Table 3.1.

5. List of Preparers: Persons and Agencies Consulted (BFO unless otherwise noted)

Position/Organization	Name	Position/Organization	Name
NRS/Team Lead	Dustin Hill	Archaeologist	Ardeth Hahn
Supr NRS	Casey Freise	Wildlife Biologist	Don Brewer
Petroleum Engineer	Matthew Warren	Geologist	Warren Garrett
LIE	Sharon Soule	Supr NRS	Kathy Brus
Assistant Field Manager	Clark Bennett	Assistant Field Manager	Chris Durham
NEPA Coordinator	John Kelley	Wyoming State Historic Preservation Officer	Mary Hopkins

6. References and Authorities (BLM incorporates by reference here the references and authorities from the Porsche Wells EA, WY-070-EA14-84, pp. 29-33.)

Figure 1.1. Antelope Federal POD Top & Bottom Hole Locations