

Appendix D. APC Exception Request with Addendum

ANADARKO PETROLEUM CORPORATION

MAIN (720) 929-6000
1099 18TH STREET, SUITE 1800 • DENVER, CO 80202



July 3, 2013
BLM Buffalo Field Office
Attn: Bill Ostheimer
1425 Fort Street
Buffalo, WY 82834

Subject: Request for exception – sage-grouse breeding and raptor nesting stipulations – reasonable access initiative drilling program

Dear Mr. Ostheimer:

Anadarko E&P Onshore LLC (Anadarko) is pleased to present its request for exception to certain conditions of approval (COAs) related to wildlife timing stipulations for six wells on three well pads in an effort to accomplish year-round drilling. This has been developed in cooperation with BLM to minimize potential impacts to wildlife species. While it has not been possible for us to coordinate drilling and completion operations to completely avoid all locations with stipulations, we have structured our schedule to drill outside the stip windows on most locations, and to drill during stips on locations with the least impact to sensitive birds nearby. We have also developed a plan for both on-site mitigation and off-site ecological enhancements to offset the effects of drilling and completion operations.

A significant majority of Anadarko's prospective development area is subject to wildlife timing stipulations. In May 2013, Anadarko met with representatives of the Bureau of Land Management (BLM) Buffalo Field Office to explore the potential for year-round oil and gas development operations in areas challenged by wildlife timing stipulations. As a result of that meeting, and through guidance of the BLM, Anadarko presents this multi-pad exception request as a first-step effort to accomplish an environmentally responsible year-round oil and gas development program in 2014. This effort is designed to address near-term needs for Anadarko's 2014 drilling program. Anadarko is proposing that this effort initiate further dialogue on the topic of wildlife timing stipulations as they relate to oil and gas operations. Anadarko believes that wildlife can be protected and that oil and gas development can occur during sensitive species time frames through early planning, thoughtful scheduling and mitigation (site-specific and off-site ecological enhancements) where necessary and/or appropriate.

As background on Anadarko's current operations in the Powder River Basin (PRB), Anadarko is currently in the exploration phase of horizontal oil and gas development. Exploration is the process of discovering locatable oil and gas reserves and testing the prospectivity of those reserves. Appraisal, the next phase, is the process of testing the prospective bounds and extent of the oil and gas reserves and then understanding the economic viability of fully developing those reserves. After appraisal, if it is

determined that the reserves are abundant and that development would be economically viable, full-field development is commenced through the acceleration of accessing and producing the oil and gas reserves.

In mid-2013 Anadarko plans to begin a hybrid appraisal/development program in its Mojave and Table Mountain Federal Unit prospect areas. Anadarko's exception requests are therefore limited to the known rig schedule needs for 2013 and the first half of 2014. Anadarko's ability to plan a future development program beyond these wells is limited and the future will not become clear until exploration and appraisal efforts are completed. However, Anadarko will engage BLM as early as possible to discuss potential options and needs regarding pads challenged by wildlife timing stipulations.

Anadarko proposes that allowing oil and gas operations in some instances can provide a net benefit to wildlife over the long term. While there is very limited opportunity for conducting operations outside of wildlife habitat, early planning with active BLM engagement will allow for early and thoughtful scheduling of well pads in areas that are least impactful to the species. Pads located in closer proximity to nests or leks or pads located in more active habitat can be scheduled during times where the species are least likely to be impacted. Pads that are located within the outer bounds of nest or lek buffers or pads that are located in less active habitat can be candidates for exceptions to wildlife stipulations. While this may result in many pads being actively operated during wildlife stips, it will allow for greater acceleration of the entire development program which will lead to early departure and sooner reclamation of the overall prospect area. The trade-off results in minor near-term impacts from operations on select pad locations and enhanced long-term benefits to species of interest due to the acceleration of the entire development, and subsequent reclamation, due to operations occurring for an additional six months every year.

The ability to conduct operations during wildlife timing stipulations makes for faster, safer, less impactful and more efficient operations. Operating year-round allows operators to consistently apply techniques and practices, and to immediately implement lessons learned from one well to the next. By doing so, operators will be able to reduce cycle times at various stages of operations and for the overall operation. This reduces the total time an operator may be present on a pad and impacting wildlife. The consistent operations targeting similar formations in a specific part of the basin will result in increased familiarity and safer operations. Practice makes for better, faster and safer operations. Although an operator may be able to avoid wildlife timing stipulations by moving around the basin during different times of year, the ability to consistently apply operational techniques is limited due to the specific and varying geologic and reservoir conditions in different formations and different parts of the basin. To illustrate this point, using raptor stipulations as an example, an operator drilling single well pads may be limited to drilling and completing as few as two wells at a time. Raptor stips end July 31. The pad for the first well would then be constructed during the month of August (typically a 30 day process), drilled during the month of September (typically 30 days), prepped for completion during the month of November (typically 30 days) and completed during the first two weeks of December. The next well would be drilled during the month of November, prepped for completion during the month of December and completed during the first two weeks of January. A third well may be drilled during the month of December and prepped for completion during the month of January, but the whole operation would then have to shut down and relocate by February 1st to accommodate timing stipulations only to return August 1st to complete the well.

As noted above, Anadarko is in the infancy of our horizontal exploration and development program. The areas we are exploring and developing are all very different from each other in terms of depth, formation, rock properties and geologic complexity, and each area has a learning curve that must be overcome. Therefore, each time the operation has to relocate from one area to another, the rig, its crew and the operational team has to shift its focus to the particular needs of the new prospect area. Often times, the rig that returns to the original operating area may be different and have a different crew than the one that left. This is because of the substantial cost of moving rigs, crews and equipment around the basin. Such operational shuffling prevents operators from immediately, effectively and consistently applying lessons learned over the course of several similar wells with similar depth, geology and rock properties. Many operational efficiencies can only be fully gained by operating consistently over a continuous time frame in a constant operational environment.

Additional efficiencies that can be gained and result in a smaller impact to wildlife and the environment relate to an operator's ability to maximize shared resources in an area. Pad drilling and common resource infrastructure are often not feasible because of wildlife timing stipulations. Pad drilling requires an operator to be on location for longer because of the time it takes to drill and then complete all of the wells on the pad. If a well is subject to wildlife timing stipulations an operator may be limited to drilling less than all of the wells on the pad and would have to return to the pad at a later date or construct additional pads. If the operator has to return to the pad, that area cannot be reclaimed until all wells are drilled. The nearby environment would be affected multiple times by heavy equipment being moved on-and-off site multiple times. The pad would be larger because of the safety setbacks required to safely and appropriately drill subsequent wells on a pad shared with producing wells. Any time-saving advantages of having all the equipment, materials and personnel on location for drilling all of the pad wells would be lost and the overall human presence on the pad would be increased. If additional pads have to be constructed, there would be greater impact to the environment in terms of habitat loss and greater geographic extent of the operations.

Regarding shared resources, wildlife timing stipulations limit the economic viability of installing long-term infrastructure for resources such as completion water. Being able to construct a centralized water pipeline or staging facility would reduce the overall disturbance from pad size and truck traffic. However, this only becomes an option once sustained year-round drilling operations are achieved. Additionally, infrastructure for gas gathering may also be inefficiently installed since a comprehensive system would need to be serviced by a large number of wells. With operations limited in areas challenged by wildlife timing stipulations, infrastructure would likely be installed to serve only the wells that will efficiently utilize the system. Building infrastructure for the entire development constitutes waste until the development catches up to the infrastructure's capacity. This results in a piecemeal installation which may result in redundant or repeated disturbance to upgrade sizing or material and would greatly increase the overall time of installing infrastructure in the project area. Being able to plan for and execute a year-round development program will allow for the most operationally and environmentally efficient planning and installation of oil and gas infrastructure.

Wildlife timing stipulations also hamper the economic feasibility of horizontal oil and gas development. In addition to, and because of, all of the efficiency losses explained above, timing stipulations may make horizontal development uneconomic or uncompetitive within an operator's portfolio. The delays caused by timing stipulations create planning uncertainty and result in more expensive 3rd party services due to

the cost of moving crews to/from a project area and costs for maintaining staffed crews during slower development times such as during strips, greater costs for moving equipment, materials and personnel in and out of the project area, and slower return on the investment due to delayed production. If development becomes uneconomic or uncompetitive within an operator's portfolio because the costs of moving in and out of project areas every six months outweighs the return from such an investment, the operator may withdraw from developing certain areas and deploy its capital to other areas in other states or regions of the world. This would have a direct impact on the economy of certain regions that are dependent on the resources and/or jobs driven by the energy industry.

It is important to note the benefits of horizontal development of oil and gas versus vertical development. While more costly (a horizontal well can cost up to \$15 million whereas a vertical well costs less than \$1 million), horizontal wells are much more efficient and productive because they allow for greater and faster resource recovery. Horizontal wells also require less overall disturbance. A single horizontal well takes the place of eight to 16 vertical wells depending on spacing. Horizontal drilling requires an average initial disturbance of 10 to 12 acres for the well pad and takes three to four months to construct, drill and complete. Conversely, each vertical well pad averages four to five acres and a vertical well takes one to two months to construct, drill and complete. Therefore, a full section development with horizontal wells could be developed by one to two wells on one to two pads over the course of six to eight months with a total of 10 to 24 acres of disturbance whereas vertical development of a section would require eight to 16 wells on four to 16 pads over the course of eight to 32 months with a total disturbance of 16 to 80 acres. Overall, horizontal development is much more efficient and much less impactful than vertical development.

Finally, the delays in project development and the limitations caused by wildlife timing stipulations have a direct impact on the regional economy and community resources. Delays in the overall project development delay the production domestic energy resources and delay Federal, state and private royalty income. Furthermore, wildlife timing stipulations create timing uncertainty for future development planning. This uncertainty limits the ability to communicate to municipalities and other governmental agencies, and those municipalities' and agencies' abilities to plan accordingly, the long-term plan, associated timing and needs of future development. By allowing for some flexibility to the wildlife timing stipulations in order to operate during those timeframes on the least impactful locations, operators will be able to better plan and add more consistency to the regional economy.

The attached schedule shows the 19 wells on 12 pads Anadarko intends to drill over the next 13 months. Please note that the schedule reflects conservative dates and timelines may shift forward as we become more efficient. The table below indicates four phases of operations – Pad Construction, Drilling, Completion (prep) and Completion (stimulation)—and the associated timing stipulations that affect those operations. Pad construction is complete on four locations and is not shown on the schedule or reflected in the table.

Number of wells	No stips	Sage Grouse and Raptor	Raptor only
Pad Construction	14	1	2
Drilling	14	0	5
Completion (prep)	12	2	5
Completion (stimulation)	12	2	5

Anadarko requests exceptions to sage grouse breeding and raptor nesting stipulations on three pads representing six wells. Appendix A lists each of these locations, the species potentially affected at each site, operational phase and proposed mitigations for the pad.

Anadarko would like to offer our on-going ecological enhancement efforts for consideration which could serve to supplement this request for exception. Projects we discuss below, such as foregoing development of and plugging leases within greater sage-grouse connectivity corridors and cheat grass treatment would benefit not only sage-grouse, but the whole ecosystem including raptors and passerines.

In areas where sage-grouse leks or habitat are within our zone of influence, we would propose off-site ecological enhancements. We have two projects underway that would benefit sage-grouse connectivity habitat. The first of these projects is plugging and reclamation of coal bed methane (CBM) well locations in the Big Corral / Jewell Draw area. Anadarko has permitted 110 wells and drilled 88 wells. Our lease includes over 30,500 acres with both shallow and deep rights, and plugging these wells would mean further development of this lease is entirely at BLM's discretion. While the reclamation of these sites is required, it is the acceleration of the plugging and abandoning operations that demonstrates Anadarko's commitment to the environment and wildlife. These operations could be conducted over time or other CBM areas could be plugged and abandoned instead. For instance, Anadarko is only required to plug those wells on expired BLM leases. There are 15 expired leases in the Big Corral/Jewell Draw area, and those would be plugged, abandoned and reclaimed within a certain timeframe of the BLM sundry being approved. This would be the minimum that would be done in this area absent other circumstances. However, a primary driver for the timing of this plugging, abandoning and reclamation effort is the desire to restore valuable sage-grouse connectivity corridor habitat in this area. In a BLM Idle Well Review meeting earlier this year, BLM emphasized that reclaiming this area (and other connectivity areas) would be of high value towards benefitting the sage -grouse populations in the PRB. That input from BLM heavily influenced Anadarko's plugging and abandoning plans for 2013.

Anadarko plans to plug and abandon 400-500 CBM wells per year. There are three areas of higher priority for plugging and abandoning operations because those wells are later in their life cycle compared to those in the Big Corral/Jewell Draw area. If the plugging and abandoning operations in Big Corral/Jewel Draw had not been prioritized on the basis of sage-grouse habitat considerations, it is likely that the area may not be reclaimed until 2015. As currently proposed, Anadarko will attempt to plug all CBM wells in the Big Corral/Jewel Draw area by the end of October 2013 with the goal of completing reclamation and seeding prior to the ground becomes frozen. This timeline is limited only by the sundry

approval process. Additionally, should the proposed exceptions be granted by BLM, Anadarko would also commit to up to 1,000 acres of cheatgrass spraying in the connectivity area within the Big Corral unit (specifically portion of Sections 4, 5, 9 and 10 of 53N-78W; an active sage-grouse lek is located in Section 5 of 53N-78W). Anadarko has already engaged BLM and contractors regarding a cheatgrass control project. Spraying for cheatgrass as part of the reclamation efforts would provide enhanced habitat improvement for sage-grouse and other sage-steppe dependent species in the area as well as aide in the control of Leafy Spurge (noxious weed) within the project area. The acceleration of the reclamation of this area combined with the additional ecological enhancement goes above and beyond the regulatory minimum requirements.

In addition to the plugging and reclamation project, Anadarko has also participated in the Fortification Creek project which treated around 8,000 acres within the Fortification Creek Planning Area. This project was intended to “improve the native plant community and forage in order to maintain a healthy ecosystem for the elk herd by chemically treating cheatgrass and potentially other invasive species or noxious weeds¹.” The treatment also benefited the three sage-grouse leks within the vicinity of the Fortification Creek cheat grass project. Sage-grouse lek buffers of two miles encompass just over 8,000 acres, approximately the same as the area Anadarko participated in treating. While the initial intent of the project was to enhance elk habitat, the benefit to sage-grouse habitat was realized. The second year of the cheat-grass project included Anadarko funding and matched funds from the BLM’s PRB Initiative with the purpose of enhancing sage-grouse habitat. There are approximately 3,487 cheat-grass treated acres within two miles of leks identified by Wyoming Game and Fish Department (WGFD), 7,176 cheat-grass treated acres within four miles of leks and 7,277 cheat-grass treated acres within six miles of leks. This is illustrated on Appendix C.

Anadarko will continue to stand by its policy of treating for West Nile virus within its lease areas. We also would provide and install fence markers on all fences within the affected lek buffers if approved by landowners. Anadarko will also continue to strive for operational and environmental excellence by adhering to the best management practices listed in Appendix B. Anadarko would like BLM to consider all of these efforts in its review of the exception requests that are the subject of this letter.

We appreciate your time in reviewing and responding to this request. Please contact me or Tammi Hitt (307-670-6032; Tammi.Hitt@anadarko.com) with any questions.

Sincerely,



G.E. “Bill” Gonzalez, III
Project Manager – PRB Deep
Anadarko Petroleum Corporation
1099 18th St., Suite 1800
Denver, CO 80202
(720) 929-6544
Bill.Gonzalez@anadarko.com

¹ – Rocky Mountain Elk Foundation PAC Project Proposal, Fortification Creek Planning Area Habitat Improvement Project, submitted January, 2012.

Appendix A: Wells, Stipulations, Exception requests, and Additional Info

- Mojave Fed 4277-27-31

Wells = Mojave Fed 4277-27-44F-H and Mojave Fed 4277-22-41F-H

Stips = Greater sage-grouse (1.85 miles to Bushwhacker Creek III, active 2013); sage brush obligate

Exception needs = Pad construction during July 2013 (last month of sage brush obligate stip)

Additional info = Surveyed pad location for obligate nests, then mowed location following BLM review of report. Anadarko will have a pre-construct meeting with BLM before beginning construction.

- Mojave Fed 4277-26-41

Wells = Mojave Fed 4277-23-31F-HI and Mojave Fed 4277-26-34F-H

Stips = Red-tailed hawk; great horned owl; golden eagle (Nest 10653 inactive 2013) (12 raptor nests within ½ mile of well site all inactive 2013)

Exception needs = Need to finish drilling 2nd pad well during first 3 weeks of raptor stips (~Feb. 1 – 21), prep site for completion during next 5 weeks of raptor stips (~Feb. 22 – ~Mar. 29) and conduct completion operations during next 2 weeks of raptor stips (~Mar. 30 – ~Apr. 12), a total of 10 weeks.

Additional info = Stip is triggered by proximity to existing, improved road that will be utilized by Anadarko to reach the pad. The nest is approximately 0.14 miles from the road and 1.14 miles from the pad. The nest location is approximately 1 mile of Highway 387 with its attendant noise and traffic. Anadarko explored options for changing the order of this pad on the drill schedule to avoid raptor stips, but were unable to do so because of mineral land/title constraints that will not be resolved in time to accommodate an earlier drill date. We will have continuous operations on the pad starting in late Nov. 2013. We expect to have construction completed and drilling operations underway before the stipulation window begins.

As a suggested mitigation to protect the golden eagle, Anadarko would post signs at both points where the road crosses into the ½ mile radius stating “No Stopping on Road”. Other site-specific mitigation would include dust mitigation to minimize impact from truck traffic related to Anadarko operations as well as other traffic using the existing, improved road between HWY 387 and the well pad.

Since traffic along the road is relatively constant, and given the proximity to HWY 387, a raptor is unlikely to be alarmed by road traffic unless there is actual human traffic near the nest. The proposed mitigation is designed to prevent human traffic within ½ mile of the nest.

As a suggested off-site ecological enhancement effort, Anadarko would commit to installing an artificial nest structure at a location suitable to both BLM and Anadarko to add an additional location for future raptors to use for nesting. This would provide a direct benefit to the raptor population. Anadarko would suggest a location where a previous nest has been deteriorated or destroyed or a location where the existing raptor population would most benefit from its presence. In addition to providing additional substrate for golden eagles, such an artificial structure could benefit ferruginous hawks by elevating the nest and preventing predation by ground species such as skunks.

- Mojave Fed 4277-11-31 Pad

Anadarko is no longer seeking an exception to operate on this pad. Upon further review of the well pad locations following the May 2013 meeting with BLM, Anadarko has been able to combine the 2 wells that would have been drilled from this pad into a single well with a lateral that is twice as long and targets 2 sections. That “long-lateral” horizontal will be drilled back-to-back with the Mojave Fed 4277-14-34F-H on a shared pad in Sec. 14-42N-77W, and that pad is not subject to any wildlife timing stipulations.

- TMFU 4577-10-44 Pad

Wells = TMFU 4577-15-14SH-H, TMFU 4577-10-12SH-H, TMFU 4577-15-44SH-H

Stips = Golden eagle (Nest 3915, approx. 0.27 mi. from pad)

Exception needs = potentially none. We have rearranged our drill schedule to drill this pad before the TMFU 4577-27-44SH-H well. While this is a less than ideal development order, we are making the concession to avoid activities during golden eagle season. Anadarko was able to revise the schedule to help avoid potential impacts to golden eagle at this location. However, we may request an exception to the raptor timing stipulations to begin construction in July.

Additional info = Nest is 0.27 miles from pad and is out of line of sight. There is heavy activity in the area due to existing oil and gas operations and uranium mining activities.

Permit timing may be an issue since we are not expecting approval until June. We request BLM to expedite approval of this permit to allow timely access to the well.

- TMFU 4577-27-31 Pad

Wells = TMFU 4577-27-44SH-H and TMFU 4577-22-41SH-H (will not be drilled as a pad, sec. 22 will be drilled at a later date);

Stips = Greater sage-grouse (1.24 miles to Irigaray II, inactive 2013, 1.67 miles to Irigaray, inactive 2013); red-tailed hawk; great horned owl (Closest 0.33 miles from nest, 3 nests inactive 2013).

Exception needs = We will need to finish completion prep during first 3 weeks of raptor stips (~ Feb. 1 – 21) and stimulate the well during the next 2 weeks (~ Feb. 22 – Mar. 8). Operations should be completed before sage grouse stips.

Additional info = We may have to revisit this pad in the future as part of a later phase development program. We will be on location for construction starting in Nov. 2013 and drilling will be completed by mid-January 2014.

- TMFU 4577-25-34 Pad

Wells = TMFU 4577-26-41SH-H, TMFU 4577-36-44SH-H, TMFU 4577-24-13SH-H

Stips = Great horned owl; red-tailed hawk (Nest 3644) (Six nests within ½ mile of pad all inactive 2013)

Exception needs = We will need to finish drilling the 1st pad well and then drill the next 2 pad wells during the first 3 months of raptor stips. We will need to then prep the pad for completions and stimulate the wells during the next 2 months of stips. All operations should be complete by July 15.

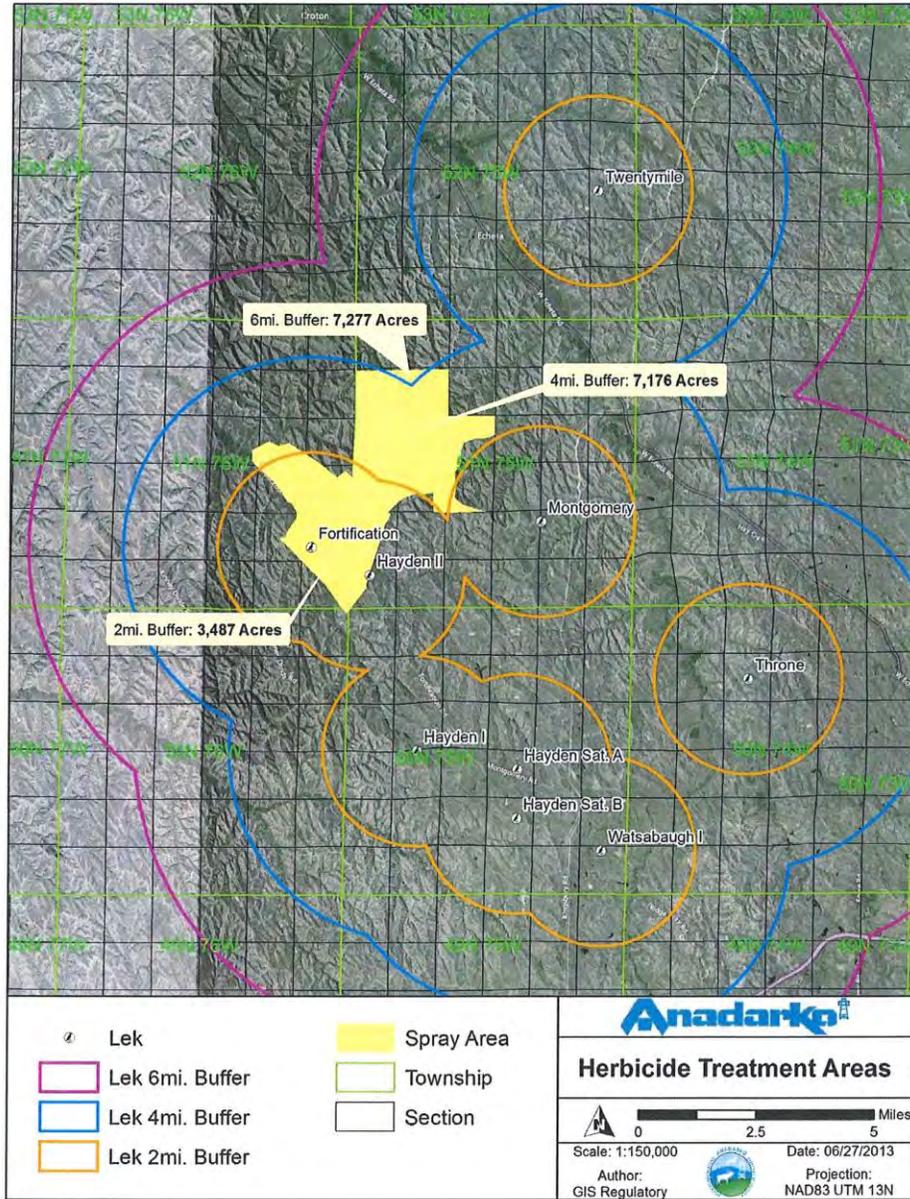
Additional info = The subject nest is 0.17 miles from the pad and is out of line of sight. Continuous operations will begin with construction in Dec. 2013.

Appendix B: Best Management Practices

Anadarko follows Best Management Practices in the design and operation of its leases. Examples include:

- Reducing the size of well pads to that which provides safe, efficient operations.
- Reclaiming locations to the smallest practical interim size as quickly as possible.
- Corridorizing buried pipes and power next to the road.
- Drilling multiple wells from a single pad.
- Eliminating mortality hazards to wildlife.
- Constructing power lines to APLIC standards.
- Limiting traffic speeds.
- Implementing controls such as tank covers, bird cones, and escape ramps.
- Providing escape ramps to landowners at no charge.
- Remotely monitoring production where practical.
- Designing pads to fit the landscape.
- Minimizing road design standards.
- Coordinating pipeline construction to facilities after initial testing.
- Using field development planning to limit roads and traffic.
- Using portable mud tanks rather than digging pits on well locations.
- Treating all standing water on Anadarko lease with larvicide.

Appendix C: Fortification Creek Lek Buffers





1400 E. Lincoln
Gillette, WY 82716

August 14, 2013
BLM Buffalo Field Office
Attn: Bill Ostheimer
1425 Fort Street
Buffalo, WY 82834

Subject: Addendum to Request for exception – sage grouse breeding and raptor nesting stipulations – reasonable access initiative drilling program

Dear Mr. Ostheimer:

In June of this year, Anadarko E&P Onshore LLC (Anadarko) presented BLM with a request for reasonable access to allow year-round drilling. Our request inadvertently omitted some information and we would like this opportunity to correct the file.

The Irigaray II lek was incorrectly listed as inactive in 2013. That lek actually had two males in 2013, and has been active since surveys began in 2005.

The description of the TMFU 4577-25-34 pad did not list two sage grouse leks within two miles. Those leks are the Christensen Ranch 4 and 5. The Christensen Ranch 4 lek had 15 males in 2013, and lies approximately 1.9 miles from the pad. The Christensen Ranch 5 lek had 0 males in 5 of the last 7 years including 2012 and 2013, and sits approximately 1.5 miles from pad. Anadarko hereby requests exception to the Sage Grouse timing stipulation for the drilling and completion of this pad.

In conjunction with these corrections, Anadarko would like to expand our commitment to cheat-grass herbicide treatment to 1,250 acres. We appreciate your time in reviewing and responding to this request.

Thank you,

A handwritten signature in cursive script that reads "Tammi Hitt".

Tammi Hitt
Senior Regulatory Analyst
Anadarko E&P Onshore LLC
1400 E. Lincoln
Gillette, WY 82716
o. (307) 670-6032
c. (307) 682-4502

Appendix A: Wells, Stipulations, Exception requests, and Additional Info

- TMFU 4577-25-34 Pad

Wells = TMFU 4577-26-41SH-H, TMFU 4577-36-44SH-H, TMFU 4577-24-13SH-H

Stips = Great horned owl; red-tailed hawk (Nest 3644) (Six nests within ½ mile of pad all inactive 2013)
Greater sage-grouse (Within 2 miles of the Christensen Ranch (CR) 4 and 5 leks, CR4 lek had 15 males in 2013, approximately 1.9 miles from pad; CR5 had 0 males in 5 of the last 7 years including 2012 and 2013, approximately 1.5 miles from pad)

Exception needs = We will need to finish drilling the 1st pad well and then drill the next 2 pad wells during the first 3 months of raptor stips. We will need to then prep the pad for completions and stimulate the wells during the next 2 months of stips. All operations should be complete by July 15.

Additional info = The subject nest is 0.17 miles from the pad and is out of line of sight. Continuous operations will begin with construction in Dec. 2013.