



U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
RAWLINS FIELD OFFICE



SEPTEMBER 30, 2008

TIERED EA, FONSI, AND DR FORM

Tiered to & Referencing the Atlantic Rim Natural Gas Development Project Environmental Impact Statement

ENVIRONMENTAL ASSESSMENT

EA NUMBER: WY-030-08-EA-238

Lease Numbers: WYW-128134, WYW-128663, WYW-129072, WYW-138667, WYW-138668, WYW-138669, WYW-138670, WYW-138671, WYW-141276, WYW-141277, WYW-148481, WYW-148483, WYW-162089 and WYW-167090

Proposed Action: Jack Sparrow POD: Natural Gas Wells, Water Reinjection Wells, Access Roads, Pipeline/Utility Corridors and associated Infrastructure

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9/30/08

Date

Location of Proposed Action

Jack Sparrow

Well # *	T	R	Sec	Aliquot
13-28	16N	91W	28	SWSW
13-28i	16N	91W	28	SWSW
13-29	16N	91W	29	SWSW
13-29i	16N	91W	29	SWSW
15-29	16N	91W	29	SWSE
1-32	16N	91W	32	NENE
3-32	16N	91W	32	NENW
5-32	16N	91W	32	SWNW
7-32	16N	91W	32	SWNE
9-32	16N	91W	32	NESE
11-32	16N	91W	32	NESW
15-32	16N	91W	32	SWSE
11-33	16N	91W	33	NESW
11-33i	16N	91W	33	NESW
13-33	16N	91W	33	SWSW
3-4	15N	91W	4	NENW
5-4	15N	91W	4	SWNW
7-4	15N	91W	4	SWNE
11-4	15N	91W	4	NESW
11-4i	15N	91W	4	NESW
13-4	15N	91W	4	SWSW
15-4	15N	91W	4	SWSE
1-6	15N	91W	6	NENE
15-6	15N	91W	6	SWSE
15-6i	15N	91W	6	SWSE
11-8	15N	91W	8	NESW
13-8	15N	91W	8	SWSW
5-10	15N	91W	10	SWNW

Jack Sparrow (cont.)

Well # *	T	R	Sec	Aliquot
3-15	15N	91W	15	NENW
5-15	15N	91W	15	SWNW
11-15	15N	91W	15	NESW
13-15	15N	91W	15	SWSW
13-15i	15N	91W	15	SWSW
3-17	15N	91W	17	NENW
5-17	15N	91W	17	
7-17	15N	91W	17	SWNE
7-17i	15N	91W	17	SWNE
10-17	15N	91W	17	NWSE
7-20	15N	91W	20	SWNE
7-20i	15N	91W	20	SWNE
9-20	15N	91W	20	NESE
11-20	15N	91W	20	NESW
1-21	15N	91W	21	NENE
3-21	15N	91W	21	NENW
12-21	15N	91W	21	SWNW
7-21	15N	91W	21	SWNE
9-21	15N	91W	21	NESE
9-21i	15N	91W	21	NESE
11-21	15N	91W	21	NESW
3-22	15N	91W	22	NENW
5-22	15N	91W	22	SWNW
11-22	15N	91W	22	NESW
(ST)9-16	15N	91W	16	NESE
(ST)13-16	15N	91W	16	SWSW
(ST)13-16i	15N	91W	16	SWSW
(ST)15-16	15N	91W	16	SWSE

"i" indicates an injection well, co-located with the preceding well listed in the table

(ST) indicates a State well (State minerals) underlying Federal (BLM) Surface. However, these wells are within the boundaries of and contribute to the Jack Sparrow Federal Unit, and therefore the surface use and associated disturbance will be analyzed and/or authorized with this EA and Decision Record, respectively.

Also see POD Master Surface Use Plan and project maps.

Applicant/Proponent: Anadarko E & P Company (Anadarko)

Conformance with Land Use Plan

This proposed action is in conformance with the Great Divide Resource Management Plan (RMP) that was approved on November 8, 1990. The RMP has been reviewed to determine if the proposed action conforms to the land use plan terms and conditions as required by 43 CFR 1610.5. Development of oil and gas reserves is in conformance with the RMP. On page 30, the RMP states "The entire planning

area [Great Divide Resource Area] is open to oil and gas leasing".

The development of this project will not affect the achievement of the Wyoming Standards for Healthy Rangelands (August 1997).

Remarks

Upon receipt, all NOSs or APDs included in the proposed action were posted for 30 days (beginning Dec. 16, 2006, Mar. 1, 2007, Mar. 6, 2007 and Apr. 24, 2008, respectively) in the Rawlins Field Office Information Access Center (Public Room) for review. Notification of preparation of this EA was also provided on the Wyoming BLM internet NEPA register (<http://www.wy.blm.gov/nepa/search>).

The Atlantic Rim Area Natural Gas Field Development Project Environmental Impact Statement (AREIS) was written to assess the potential foreseeable and cumulative effects of drilling operations and associated activities in the Project area. The Record of Decision (ROD) for this project was approved on March 23, 2007. The proposed action is in conformance with the AREIS.

The AREIS ROD provides for the drilling of natural gas wells and associated infrastructure, limiting total surface disturbance to 7,600 acres at any one time (not including surface disturbance that occurred prior to implementation of the Interim Drilling Policy). The ROD establishes a goal for per-well surface disturbance of 6.5 acres of short-term disturbance (less in "Category A" areas).

The surface disturbance cap is allocated to operators "...on a prorated mineral leasehold basis." (AR ROD, Page 2), and development is limited to no more than 8 well sites per 640-acre section. If in the event an Operator reaches the surface disturbance cap allocation, then "...further disturbance on federal minerals will not be permitted." (AR ROD, Page 3). The RFO will monitor and track disturbance areas for future proposals, in order to ascertain whether the disturbance cap would be exceeded by any future authorizations.

Note: Three state minerals/federal surface wells located in the POD are subject to the overall project disturbance cap, and are therefore included in the disturbance table within this document. However, as BLM has no jurisdiction over development of non-federal actions, these state APDs are neither being approved or denied herein. Where applicable, associated access to and/or use of BLM administered surface on behalf of state mineral actions is included within the analysis, and is included in the Decision Record for the project.

The APD's, Master Drilling Plan and Master Surface Use Plan with Water Management Plan and Conditions of Approval, contain a complete description of the proposed action. These components are considered an integral part of this Environmental Assessment and are incorporated by reference.

Modifications, or alternatives, to the original proposal received from the operator were identified as the result of the pre-approval onsite inspections. At the on-sites, all areas of proposed surface disturbance were inspected to ensure that potential impacts to resources would be reduced. In some cases, access roads were re-routed, and well locations, pipelines, and other water management control structures were moved, modified, or dropped from further consideration to alleviate or reduce environmental impacts. In addition, site specific mitigation and/or Conditions of Approval have been applied to alleviate or reduce environmental effects of the operator's proposal. Onsite changes, implementation of committed mitigation measures contained in the Master Surface Use Plan, Drilling Program and Water Management Plan, and site specific and Standard COAs are incorporated and analyzed in the Proposed Action Alternative.

All Jack Sparrow wells are located entirely within a Federal Oil and Gas Unit, the Jack Sparrow Unit, and as a result, no additional rights-of-way are required. However, a Right-of-Way (ROW) grant for construction of a buried pipeline is required to transport the produced gas from the Blue Sky Compressor site. The Right-of-Way grant for the pipeline would be issued under the authority of Section 28 of the Mineral Leasing Act of 1920, as amended (30 U.S.C. 185), and be subject to the terms and conditions in

43 CFR 2880 and rental payments as determined by 43 CFR 2885.20. The Right-of-Way would be subject to the terms and conditions set forth in the plan of development as found in the grant.

Purpose and Need for Proposed Action

Domestic natural gas production is an integral part of U.S. energy development and conservation plans due to its availability and the presence of existing market delivery infrastructure. Domestic production reduces immediate dependence upon foreign sources of energy, and maintains an adequate and stable supply of fuel to maintain economic well-being, industrial production, and national security. The environmental advantages of burning natural gas are emphasized in the Clean Air Act amendments of 1990.

In addition, the proposed action would allow Anadarko, as leaseholder, to exercise lease rights to explore and develop oil and gas resources within the project lease areas.

For these particular wells, the production is primarily natural gas and produced water from coal seams.

Development of Alternatives

In reviewing the proponent's submitted proposal (APDs, Master Surface Use Plan, Master Drilling Plan, Water Management Plan, etc.), the BLM conducted onsite reviews and considered known and potentially-occurring resources and conditions in the project area. As a result of this review, project components were moved, added, or eliminated in order to reduce potential environmental impacts, and in accordance with BLM policy and accepted Best Management Practices (BMPs). This resulted in the alteration of the proponent's submitted proposal to yield the Proposed Action, which incorporates the changes from the onsite inspections, BLM review, and mandated BLM mitigations (Conditions of Approval).

The AREIS considered several alternatives to development of the oil & gas resources in the project area (see DEIS, Pages S2-S3 and FEIS Page 1-20).

The site-specific NEPA contained herein is issue-driven and encompasses information found during on-site inspections and supporting documentation submitted by the operator in their Master Surface Use Plan, the Water Management Plan (WMP), and Master Drilling Plan and by BLM specialists. If particular resources did not exist in the project area, or in the area identified as the cumulative impact analysis area, they are not analyzed or discussed in this EA (40 CFR 1500.1(b), 1502.20 & 1508.28).

The BLM interdisciplinary team, in review of this Proposed Action (as modified during onsite inspections and subsequent review), identified no unresolved resource conflicts that would necessitate development of additional alternatives.

Description of Proposed Action Alternative

The proposed action includes the construction of access roads and well pads for the purpose of drilling 46 CBNG wells and 10 produced water re-injection wells for a total of 56 wells. Fifty-two of these are federal wells (APDs), while 4 are state wells (including 1 state injection well). The proposed action also includes the construction, operation and reclamation of associated underground gas gathering/sales pipelines, underground produced water-gathering pipelines, underground power-lines and utility corridors. The maps and illustrations attached to the APDs and Master Surface Use Plan display the locations of the proposed wells, access roads, gas and water-gathering pipelines, power-line (electrical) and other utility (gas and water) corridors. To minimize surface disturbance, the pipeline/utility corridors are located adjacent and parallel to the proposed or existing access roads and existing pipeline disturbances, except where not feasible or applicable.

The Central Delivery Point (CDP) for the Jack Sparrow unit is already constructed and in use.

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

Notice.

Water for drilling each well, below surface casing, would be obtained from existing wells within the Jack Sparrow Unit. Water for drilling could also be obtained from the pond located in NWSE of Section 12 (T16N/R92W), which collects flow from coalbed wells in the area under an approved WDEQ WYPDES permit. Water would be hauled by truck to each drill site over existing and proposed roads within the POD. Any changes in the water source or method of transportation would first require written approval by the BLM. To protect any shallow, fresh water aquifers or sources, drilling of surface casing for each well would use either air drilling techniques, or use non-produced (fresh) water from a State permitted local source.

Onsite inspections of the POD wells, well pads, access roads and pipeline/utility corridors were initiated on June 9, 2008 and completed June 13, 2008. Potential impacts to resources from the location of the well pads, access roads, utility corridors, and associated facilities were reviewed and assessed. As a result, numerous project components were relocated to reduce potential impacts to soils, vegetation, water, wildlife (including fisheries), cultural, and recreational resources.

The location of the proposed development is approximately 20 miles north of Baggs, Wyoming. Access to the area will be to travel from Baggs approximately 22.3 miles north on Wyoming Highway 789, turn right on Carbon County Road 608 and travel east-southeasterly approximately 5.9 miles to the northern most edge of the Jack Sparrow POD.

A discussion of the actions generally associated with drilling a well, including (1) a plan of operations, (2) construction of the access road and drilling pad, and (3) pipeline installation, can be located in the following portions of the AREIS or ROD:

- Chapter 2, Proposed Action and Alternatives (AREIS)
- Chapter 4, Analysis of Environmental Consequences (AREIS)
- Appendix A, Project Reclamation Plan (ROD)
- Appendix C, Operator-Committed Practices (ROD)

Mitigation and reclamation measures are described in Chapter 4 and Appendix B of the ROD (Project Performance-Based Monitoring and Best Management Practices). The following narratives summarize elements specific to the proposed action for this EA.

Construction

Well access roads, drill pads and pipeline/utility corridors must be constructed and/or re-constructed in order to drill, complete, and produce coal bed natural gas wells, and is considered a short-term disturbance. Upon completion of a well and placing it into production (gas sales), portions of the well (drill) pad not needed for production operations will be reclaimed. The pipeline/utility corridors will be reclaimed upon final construction/installation of the pipelines/utility lines. Upon the successful interim reclamation of the areas of the well pad and access/utility corridors not needed for production operations, the remaining surface disturbance in these areas is considered long-term. The entire well pad, access road and pipeline/utility corridor will be totally reclaimed (final reclamation) following well plugging and abandonment.

Overall short-term surface disturbance estimates for Jack Sparrow including the well pads and access road/utility/pipeline corridors are presented in the Table below (includes 3 state well locations and associated access): Overall short-term surface disturbance estimates for the POD, including the well pads and access road/utility/pipeline corridors are presented in the following tables.

Jack Sparrow POD Estimated Surface Disturbance (includes 3 state wells and associated access/utility corridors)

Project Component	Number (quantity)	Average Disturbance	Cumulative Acreage
Single CBNG wellpad	36	2.1 acres	75.6 acres

CBNG wellpad co-located with an injection well	10 (=20 individual wells, including injectors)	3.2 acres ²	32 acres
Access Roads w/ adjacent utility lines (gas/water/elec.)	83878.74 Linear ft.	80 ft. width	149.10 acres
Access Roads only	1734.59 Linear ft.	50 ft. width	2.08 acres
Utility Lines only	51435.49 Linear ft.	30 ft. width	39.76 acres ³
Total	137048.82 Linear ft.		298.54 acres

¹ Individual well pad disturbance areas are approximately equal to 300' x 300' (2.1 acres), including stockpiles and cut & fill slopes for all single-well locations.

² For wells co-located with an injection well, disturbance areas are approximately equal to 400' x 350' (3.2 acres), including stockpiles and cut & fill slopes.

³ Includes 50 ft. width for pipeline ROW applied for under WYW-167090.

The proposed action will result in approximately 298.54 acres of short-term disturbance, comprised of new or reconstructed access roads and adjacent & parallel pipelines, utilities, and infrastructure, as detailed above. The average short-term per-well disturbance is 5.3 acres. The proposed action is located outside of "Category A" areas, and thus is subject to a "disturbance goal" of 6.5 acres per well. This POD meets the disturbance goal provided in the AREIS ROD.

Access

The operator proposes to construct new or re-construct existing access roads to the proposed well locations. The new constructed or reconstructed roads will be constructed to meet BLM specifications for a "Resource Road", as specified in BLM Manual Section 9113. Proper drainage structures will be constructed/installed along the access roads. The width of the roadway (travel surface) will be a minimum of 14 feet within an average right-of-way width of 50 feet. Unless prohibited by terrain and or excessive surface disturbance or other such circumstances, the access road right-of-way will be combined with the pipeline/utility right-of-way into a road/utility corridor that will be a total of 80 feet in width. Some local connector or collector roads between multiple well locations, or where engineering design dictates, widths may vary and will be reported by the operator via annual disturbance calculations/summaries.

To minimize surface disturbance, the majority of pipeline/utility corridors are located adjacent and parallel to the proposed or existing access roads and existing pipeline disturbances, except where not feasible or applicable.

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

As provided for in the fourth edition of the BLM Gold Book (containing BLM guidance for consideration of oil & gas activities on BLM-administered public lands), "The appropriateness of primitive roads or routes is both site-specific and use specific and is typically based on many factors...." Non-constructed (primitive) roads were not mandated for this POD due to a lack of unresolved resource conflicts, scope of construction/drilling equipment needed, the necessity of year round access, and equipment operator safety. Should the BLM determine that alternate road designs are appropriate or necessary, the BLM may mandate the use of a reviewed and approved alternate design.

Well Sites

In order to drill and complete the wells, a drill pad will be constructed for each well location. The average size of the 36 well pads is 2.1 acres, or 300 feet X 300 feet. Some well locations will also include an

additional produced water injection well, identified by an "i" at the end of the well number. The average size of the 10 well pads that have co-located injections wells is 3.2 acres, or 400 feet X 350 feet. In the event the wells become producers, cut and fill portions of the well site will be brought back to grade and reclaimed along with any other unneeded portions of the well site. Soil stockpiles will be re-spread or stabilized, and reseeded with native vegetation. The well pad will be reduced to less than one-half acre for the duration of production operations. Unless otherwise authorized and in conjunction with interim pad reclamation, the reserve pits will have been dried and backfilled within 180 days (six months) of well completion or plugging and abandonment. The entire well pad will be recontoured, ripped, seeded, and revegetated during final reclamation upon final plugging and abandonment.

Pipeline/Utility Corridors

The produced water and gas sales and gathering pipelines and power-lines would be buried upon completion of construction and installation, and the surface disturbed areas reclaimed soon thereafter. Upon well plugging and abandonment and or pipeline/power-line abandonment, the pipelines/power-lines would be properly abandoned in accordance with BLM procedures for abandonment and the right-of-ways and corridors appropriately reclaimed. Any major crossings of drainages have been engineered to insure design/construction adequacy and erosion protection. All channel crossings will comply with current BLM policies and mitigation measures appropriate to the crossings (see "Hydraulic Considerations for Pipelines Crossing Stream Channels," BLM Technical Note 423, April 2007).

Produced Water Disposal

Produced water from the proposed wells would be gathered and transported via buried water pipelines to water re-injection wells within the POD and the Jack Sparrow Unit. Produced water collection, transport and disposal, is addressed in detail in the MSUP and appended Jack Sparrow Unit Water Management Plan (WMP).

The only method of produced water disposal considered and analyzed under the "proposed action" and this EA is subsurface re-injection using underground injection disposal wells permitted by the State of Wyoming and approved by BLM.

At new injection facilities, it is anticipated that subsurface water sumps will be constructed in lieu of above ground storage tanks.

Produced water collection, transport and disposal, is addressed in further detail in the MSUP and Water Management Plan (WMP).

No Action Alternative

NEPA regulations require that alternative analyses in NEPA documents "include the alternative of no action" (40 CFR 1502.14(d)). For this analysis, "no action" means that the BLM would reject the proponent's proposal and "the proposed activity would not take place."

Potential Environmental Impacts of the "Proposed Action" Alternative

Environmental Element	Affected		Environmental Element	Affected	
	Yes	No		Yes	No
Air Quality	X		T / E Species		X
ACEC's		X	Wastes, Hazardous/Solid	X	
Cultural Resources	X		Water Quality		X
Prime/Unique Farmlands		X	Wetlands/Riparian Zones		X
Floodplains		X	Wild and Scenic Rivers		X
Native Amer. Rel. Concerns		X	Wilderness		X
Environmental Justice		X	Invasive, Nonnative Species	X	

In addition to the elements referenced above, reviews of potential effects upon paleontological, visual and recreational, soil, vegetation, and wildlife resources were conducted. All site-specific findings by the interdisciplinary review team are provided in the review documents that accompany the POD MSUP, BLM RFO lease/well and POD/Unit files, this EA and/or attached Conditions of Approval.

The affected environment and analysis of environmental impacts are discussed in the AREIS to which this EA is tiered.

Air Quality

Air quality impacts are also disclosed and analyzed in the AREIS; potential air quality impacts from the Proposed Action discussed herein are not expected to exceed air quality standards.

A cooperative working group, including operators and regulatory agencies (WY DEQ, WOGCC, WSGS, and the BLM) formed in March 2007 with the goals, in part, of surveying the project area for seep presence; understanding methane seep risks; considering actions (where applicable) to address the welfare, health and public safety of human and wildlife activity in the area; developing geological models to characterize seeps (including consideration of differing survey and gas and water sampling methodologies); ensuring methane seeps are not present prior to location construction; and monitoring methane seep activity during development of the field.

Methane (which is a greenhouse gas) emissions are not regulated (nor are there any national or state standards) by either the EPA or Wyoming DEQ. Currently the EPA has not established emissions thresholds for methane (or any other greenhouse gas). Without a method or meaningful metric established by EPA there are no jurisdictional or compliance responsibilities for the EPA or the State of Wyoming.

Methane seeps are disclosed and addressed in the AREIS and Record of Decision (ROD), including: FEIS, Chapter 4, Pages 4-32, 4-33, 4-49 and 4-52; and in the Record of Decision, Appendix B, Pages B-10 and B-11.

Cultural Resources

A discussion of the affected environment for cultural resources, including the historic trails, can be found in the final AREIS at Section 3.11 Cultural and Historical Resources, page 3-122. Potential impacts to cultural resources are described in the final AREIS at Section 4.11 Cultural Resources, page 4-116.

A Class III cultural resource inventory was conducted for each component of the proposed project so that appropriate mitigation measures could be developed to reduce or eliminate adverse impacts to cultural resources as well as historic sites. Archaeological resources identified during the inventory will be avoided where possible and/or mitigated as described in the final AREIS at Appendix I Cultural Resources Management, page I-8. Site-specific stipulations in the form of COA attached to the APD (e.g. archaeological monitoring, construction barrier fencing, etc.) are applied for specific locations, as necessary.

Most of the proposed project is located within two miles and within the view-shed of historic trails (Rawlins to Baggs Road and/or Cherokee Trail), and some project components will be visible from contributing segments of the historic trail/road. Certain measures were taken during field onsite inspections to relocate well pads, roads and utility corridors to less visible areas where possible and practical.

Since adverse affects to the historic trails and roads were identified in the AREIS, a Programmatic Agreement (PA) was executed between the BLM, SHPO, ACHP, proponents, and other interested parties to develop the necessary mitigation to minimize impacts to the setting of the historic trails and roads. As a result, additional general, project and site specific mitigation measures were developed. These restrictions or stipulations in the form of COA are added to the MSUP APD authorizations as appropriate.

Those stipulations are summarized below:

For all wells and associated infrastructure in the Jack Sparrow POD, except for those otherwise listed:

Jack Sparrow POD Cultural Stipulations

Well #	A ¹	B ²	C ³	D ⁴	E ⁵	F ⁶	G ⁷	H ⁸	I ⁹
3-4	X								
5-4	X				X	X	X	X	X
7-4	X	X	X	X	X	X	X	X	X
11-4	X				X	X	X	X	X
11-4i	X				X	X	X	X	X
13-4	X	X	X	X	X	X	X	X	X
15-4	X				X	X	X	X	X
1-6	X	X	X	X	X	X	X	X	X
15-6	X				X	X	X	X	X
15-6i	X				X	X	X	X	X
11-8	X				X	X	X	X	X
13-8	X				X	X	X	X	X
5-10	X				X		X	X	
3-15	X	X	X						
5-15	X	X	X						
11-15	X	X	X						
13-15	X								
13-15i	X								
3-17	X				X	X	X	X	X
5-17	X				X	X	X	X	X
7-17	X				X	X	X	X	X
7-17i	X				X	X	X	X	X
10-17	X				X	X	X	X	X
7-20	X	X	X	X					
7-20i	X	X	X	X					
9-20	X				X	X	X	X	X
11-20	X	X	X		X	X	X	X	X
1-21	X								
3-21	X								
12-21	X	X	X		X	X	X	X	X
7-21	X								
9-21	X				X	X	X	X	X
9-21i	X				X	X	X	X	X
11-21	X								
3-22	X								
5-22	X								
11-22	X								
13-28	X	X	X		X	X	X	X	X
13-28i	X	X	X		X	X	X	X	X
13-29	X				X	X	X	X	X
13-29i	X				X	X	X	X	X
15-29	X	X	X		X	X	X	X	X
1-32	X				X	X	X	X	X
3-32	X				X	X	X	X	X
5-32	X	X	X	X	X	X	X	X	X
7-32	X	X	X		X	X	X	X	X

9-32	X	X	X		X	X	X	X	X
11-32	X	X	X		X		X	X	
15-32	X								
11-33	X	X	X						
11-33i	X	X	X						
13-33	X								
9-16	X								
13-16	X	X	X						
13-16i	X	X	X						
15-16	X								

¹ Standard Cultural Stipulation

² An archaeologist with a current BLM permit will monitor construction of the well location and access road due to culturally sensitive soils in accordance with the approved Discovery Plan.

³ An archaeologist with a current BLM permit will inspect any open pipeline trench due to culturally sensitive soils in accordance with the approved Discovery Plan.

⁴ A construction barrier fence will be placed prior to construction (see site-specific below). Fence placement will be monitored by a BLM permitted archaeologist, and the fence will remain in place until final reclamation is complete.

⁵ The Operator shall select and use a seed mix most applicable to each disturbed location, with the goal of restoring individual disturbed sites to closely resemble the pre-disturbance native plant communities, as provided in Appendix A of the ROD, "Project Reclamation Plan."

⁶ All surface facilities will be painted a color compatible with the local environment.

⁷ The access road will be surfaced with material compatible in color with the local environment.

⁸ Unless otherwise authorized, the pipelines/utilities will be plowed or ripped into the un-bladed surface (using technology that does not require trenching). If such techniques are infeasible due to terrain or geology, the surface will be brush-hogged and the utilities will be placed no farther than the outside edge of the ditch slope.

⁹ No blading will be allowed outside the staked well location for placement or removal of the topsoil stockpile.

Pod well: AR Federal 1591 1-6:

1. A construction barrier fence will be placed along the western edge of the pipeline/utility corridor beginning approximately 300 feet south of the AR Federal 1591 1-6 access road take-off point, extending south approximately 400 feet (see attached map). The fence will be built prior to construction and placement will be monitored by a BLM permitted archaeologist. The fence will remain in place until final reclamation is complete.

Pod well: AR Federal 1591 7-4:

1. A construction barrier fence will be placed along the east side of the access road prior to construction (see attached map). Fence placement will be monitored by a BLM permitted archaeologist, and the fence will remain in place until final reclamation is complete.

Pod well: AR Federal 1591 7-20 and 7-20i:

1. A construction barrier fence will be placed along the north side of the access road/utility corridor beginning at the fence in the NWNWNW of T15N, R91W, section 21 and extend east to the intersection of the AR State 13-16 access road, then turn north up said access to the edge of the 13-16 well location prior to construction (see attached map). Fence placement will be monitored by a BLM permitted archaeologist, and the fence will remain in place until final reclamation is complete.

Pod well: AR Federal 1591 13-4:

1. A construction barrier fence will be placed from the northeast corner of the well pad around the southeast corner to the entrance of the access road onto the well pad, continuing southwest along the access road for approximately 600 feet (see attached map). The fence will be built prior to construction and placement will be monitored by a BLM permitted archaeologist. The fence will remain in place until final reclamation is complete.

Pod well: AR Federal 1591 5-32:

1. A construction barrier fence will be placed along the southwest edge of the well location, beginning at the southeast corner of the well pad continuing north/northwest to the access road. At the access road the construction fence will turn west to follow access for approximately 500 feet (see attached map). The fence will be built prior to construction and placement will be monitored by a BLM permitted archaeologist. The fence will remain in place until final reclamation is complete.

Additional cultural stipulations not specified elsewhere:

1. The access road and pipeline/utility corridor between Carbon County Road 608 north to the take-off point for the AR Federal 1591 3-4 access road ("east side road"), will have the following cultural stipulations:
 - a. Standard Cultural Stipulation.
 - b. The Operator shall select and use a seed mix most applicable to each disturbed location, with the goal of restoring individual disturbed sites to closely resemble the pre-disturbance native plant communities, as provided in Appendix A of the ROD, "Project Reclamation Plan."
 - c. The access road will be surfaced with material compatible in color with the local environment.
 - d. Unless otherwise authorized, the pipelines/utilities will be plowed or ripped into the un-bladed surface (using technology that does not require trenching). If such techniques are infeasible due to terrain or geology, the surface will be brush-hogged and the utilities will be placed no farther than the outside edge of the ditch slope.
2. The pipeline/utility corridor from the tie-in with the AR Federal 1591 11-15 west approximately 800 feet to where the Sun Dog to Brown Cow pipeline converges with Carbon County Road 608 will have the following cultural stipulations:
 - a. Standard Cultural Stipulation.
 - b. An archaeologist with a current BLM permit will inspect any open pipeline trench due to culturally sensitive soils in accordance with the approved Discovery Plan.
 - c. A construction barrier fence will be placed beginning at the intersection of Carbon County Road 608 and AR Federal 1591 11-15 access road take-off point north to the existing Sun Dog to Brown Cow pipeline disturbance, turn west and continue for approximately 800 feet (see attached map). The fence will be built prior to construction and placement will be monitored by a BLM permitted archaeologist. The fence will remain in place until final reclamation is complete.
3. The pipeline utility corridor along Carbon County Road from the AR Federal 1591 1-6 to the AR Federal 1591 11-15 will have the following cultural stipulations:
 - a. Standard Cultural Stipulation.

- b. An archaeologist with a current BLM permit will inspect any open pipeline trench due to culturally sensitive soils in accordance with the approved Discovery Plan.
- c. The Operator shall select and use a seed mix most applicable to each disturbed location, with the goal of restoring individual disturbed sites to closely resemble the pre-disturbance native plant communities, as provided in Appendix A of the ROD, "Project Reclamation Plan."
- d. All surface facilities will be painted a color compatible with the local environment.
- e. Unless otherwise authorized, the pipelines/utilities will be plowed or ripped into the un-bladed surface (using technology that does not require trenching). If such techniques are infeasible due to terrain or geology, the surface will be brush-hogged and the utilities will be placed no farther than the outside edge of the ditch slope.
- f. The pipeline/utility corridor will be placed along the northeast side of Carbon County Road 608 as close to the existing road disturbance as possible.
- g. Starting at the existing AR Federal 1591 9-8 access road south along the east side of Carbon County Road 608 for approximately 500 feet, the pipeline/utility corridor shall be placed between the county road and the well pad.

T & E Species and Other Wildlife Concerns

Portions of the proposed actions (wells, pads, access roads and pipeline/power-line right-of ways/corridors) are located within two miles (protective buffer) of sage grouse leks, within sage grouse winter concentration areas, within one mile (protective buffer) of nesting raptors (ferruginous hawks and golden eagles), within three-quarters of a mile (protective buffer) from all other raptor species, within pronghorn crucial winter range, and within potential mountain plover nesting habitat. There are two wells and an injection well that are located within CSU's for raptors. The CSU is variable depending on the raptor species. These three wells are immediately adjacent to the Wild Cow road (County road 608) and remained as proposed due to the location of the raptor nests, line of sight, topography, and nest condition. As a result of the above, seasonal restrictions or stipulations in the form of COAs were added to the MSUP APD authorizations as appropriate. Those stipulations are summarized below and graphically illustrated in the Conditions of Approval:

Jack Sparrow POD Wildlife Stipulations

Well #	Raptor ¹	Grouse ²	WSG ³	CWR ⁴	Plover ⁵
3-4	X	X			
5-4	X	X			X
7-4	X	X			X
11-4	X				rd
11-4i	X				rd
13-4	X				X
15-4	X				X
1-6	X	X	X	X	
15-6	X			X	
15-6i	X			X	
11-8	X			X	
13-8	X			X	X
5-10	rd	X			rd
3-15		X			
5-15		X			
11-15		X			
13-15					X
13-15i					X

3-17	X			X	
5-17	X			X	
7-17	X			rd	
7-17i	X			rd	
10-17	X			X	
7-20	X				rd
7-20i	X				rd
9-20	X				
11-20	X			X	rd
1-21					X
3-21					
12-21	X				
7-21					X
9-21	X				X
9-21i	X				X
11-21					X
3-22					X
5-22					X
11-22					X
13-28		X			
13-28i		X			
13-29	X	X	X	X	
13-29i	X	X	X	X	
15-29	X	X			
1-32		X			X
3-32	X	X			
5-32	X	X	X	X	
7-32	X	X			rd
9-32	X	X			pad
11-32	X	X		X	
15-32	X	X		rd	
11-33		X			
11-33i		X			
13-33	X	X			X
9-16					X
13-16	X				
13-16i	X				
15-16					X

¹Construction, drilling, reclamation and other activities potentially disruptive to nesting raptors are prohibited during the period of February 1 to July 31 for the protection of raptor nesting areas.

²Construction, drilling, reclamation and other potentially disruptive activities are prohibited during the period of March 1 to July 15 for the protection of strutting and nesting sage-grouse.

³Construction, drilling, reclamation and other activities potentially disruptive to wintering sage-grouse are prohibited during the period of November 15 to March 14 for the protection of sage-grouse winter concentration areas.

⁴Construction, drilling and other activities potentially disruptive to wintering wildlife are prohibited during the period of November 15 to April 30 for the protection of big game crucial winter habitat.

⁵ Construction, drilling, reclamation, and other activities are prohibited during the reproductive period of April 10 to July 10 for the protection of nesting plover. Additional protection measures may be applied if this area is later determined to be within occupied habitat.

Exceptions to Stipulations: In some instances, the operator may request consideration of a temporary exception to wildlife seasonal restrictions or stipulations. Such exceptions may be granted on a limited individual basis if a determination is made by a BLM wildlife biologist that the wildlife resource will not be adversely impacted.

The BLMs analysis of the proposed action included site-specific review of potential impacts to sensitive species, using the experience and expertise of the BLM biologists, including fisheries, as well as data and knowledge collected by the BLM, Wyoming Department of Game and Fish, U.S. Fish & Wildlife Service, and other organizations. Potential impacts to Muddy Creek's 6840 BLM Sensitive fish species were considered and accordingly, several project components were altered during the onsite. In addition, all actions that result in a water depletion to the Colorado River basin require consultation with the U.S. Fish & Wildlife Service. Section 7 consultation for this project is covered under the Biological Opinion for the Atlantic Rim EIS.

While the Jack Sparrow project does not propose point source surface discharges, all manner of possible best management practices are applied during project planning, development, interim reclamation, production, and final reclamation stages to control erosion/runoff and salt mobilization in sensitive catchments; the Atlantic Rim EIS/ROD and site-specific Conditions of Approval all address and minimize the project's potential erosional effects. In addition, BLM watershed and fisheries decisions are also consistent with BLM policies developed in consultation with agencies such as the Wyoming Department of Game and Fish.

In accordance with the Rawlins RMP and the AREIS, the wintering sage-grouse timing stipulation was applied to projects within areas identified as wintering sage grouse habitat. Several years data compiled by BLM and WGFD was used to identify wintering sage grouse locations and their associated wintering habitat. This information was then used to delineate the specific areas in which to apply the stipulation.

Analysis of the proposed action included site-specific review of potential impacts to sensitive species and habitats, using the experience and expertise of the BLM biologists. BLM also considered recently obtained data (including *Sawyer 2006 Progress Report for the Atlantic Rim Mule Deer Study*; *Sawyer 2007 "Final Report for the Atlantic Rim Mule Deer Study"*; and *Sawyer and Kauffman 2008 "Identifying Mule Deer Migration Routes in the Atlantic Rim Project Area"*) regarding mule deer migration routes in the project area, which was incorporated into the wildlife review of the project

At this time the BLM is considering common migration routes (Sawyer 2007) when conducting project reviews, in conjunction with Best Management Practices (BMPs). In addition, an interagency working group initiated by the adaptive management direction in the Atlantic Rim ROD is evaluating activities and infrastructure in areas identified as mule deer migration habitat. The objective is to use ongoing studies and monitoring to determine whether, where and how development places attainment of the performance goal for migration habitats at risk, and if so, how to mitigate those risks. The working group is evaluating current and exiting data to identify any potential impacts to migrating deer from current POD development. As a result, additional preventative stipulations or other mitigation measures for migration habitats potentially affected by this project have not been approved.

Hazardous Materials

Anadarko has indicated that some hazardous materials could be used during drilling, completion, and production of their proposed wells. The term "hazardous material" as used here means: 1) any substance, pollutant, or contaminant (regardless of quantity) listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, 42 U.S.C. 9601 et seq., and the regulations issued under CERCLA, 2) any hazardous waste as defined in the Resource Conservation and Recovery Act (RCRA) of 1976, as amended, and 3) any

nuclear or nuclear byproduct as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et seq.

It is possible that wastes created or transported during implementation of the proposed action (i.e., waste motor oils, drilling/completion additives) could be accidentally released to the environment. The operator will be required to comply with the Hazardous Materials Management Plan provided in Appendix C of the AREIS. Numerous State and Federal rules and regulations also apply that govern the handling, storage, and disposal of hazardous substances.

Anadarko or any contracted company working for Anadarko will have Material Data Safety Sheets available for all chemicals, compounds, or substances which are used during the course of construction, drilling, completion, and production operations for this project. Additionally, all chemicals will be handled in an appropriate manner to minimize the potential for leaks or spills to the environment.

Impacts to soils, surface and groundwater resources, wildlife, vegetation, and human health could result from the accidental exposure of hazardous materials. However, since the project operations will strictly comply with all applicable federal and state laws concerning hazardous materials, the Hazardous Materials Management Plan for this project, and the operator's Spill Prevention Control and Countermeasure Plan, no significant impacts are anticipated.

Water Quality

Regarding surface water quality, the Jack Sparrow project does not propose point source surface discharges. Similarly, all manner of possible best management practices are applied during project planning, development, interim reclamation, production and final reclamation stages to control erosion/runoff and salt mobilization in sensitive catchments; the Atlantic Rim EIS/ROD and site-specific Conditions of Approval address and mitigate these impacts.

The Jack Sparrow project impacts are not considered to meet either surface or groundwater significance criteria as defined in the EIS (Volume 1, page 4-24). To evaluate groundwater impacts in the area (including methane seep considerations), monitoring wells were required as part of the Interim Drilling Policy during preparation of the AREIS (see ROD, Appendix A). Additional monitoring wells are also required as part of the AR ROD (Appendix B at Page B-10) as a Condition of Approval when new federal units are developed. The BLM is evaluating information from these wells, along with other cooperative studies in the area, in order to appropriately respond to issues that may arise.

The Colorado River Basin Salinity Control Forum, with particular reference to salt loading, is discussed in the EIS (Volume 1, page 4-28). Its administration via the Wyoming Department of Environmental Quality (DEQ WYPDES), and compliance with the DEQ WYPDES Storm Water Program is an integral part of operator obligations; monitoring/reporting/mitigation are implicit in these permits. At this time, the Rawlins BLM is not aware of NEPA analysis, planning decisions and/or existing on-the-ground conditions within its Field Office boundaries/jurisdiction that violate the Colorado River Basin Salinity Control Act.

Recreation

Direct impacts to recreation from the proposed project will be an alteration of recreational settings from a physical middle country and social back country to rural and industrial settings. The recreational settings are the foundation for most recreational activities, experiences, and benefits. The alteration of the settings will displace recreationists to alternative areas with the desired settings. A thorough description of the impacts to recreation can be found in the AREIS, Section 4.9 Recreation Resources, page 4-98.

Visual Resources

The proposed project will introduce new elements of form, line, color, and texture which will contrast with the surrounding existing elements. Impacts to visual resources can be found in the AREIS, Section 4.10 Visual Resources, page 4-105. Mitigation to address the impacts will follow the best management

practices listed in Appendix H: Required Best Management Practices page H-6, Visual Resources. Every attempt has been made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape. Above ground facilities not requiring safety coloration should be painted with non-reflective Shale Green (5Y 4/2).

Invasive/Nonnative Species

Halogeton, other invasive weeds, White-top, Cheatgrass and Russian Knapweed are a significant concern for this project area. They presently are infrequent to not present in un-disturbed areas. These species have increased dramatically following soil disturbance near this project area. COAs have been added to control the spread, establishment, and plant community changes associated with weed infestation.

Reclamation

Interim reclamation is typically initiated and completed within 6 months of drilling completion. The drill pads will be reduced to a less than one-half acre production well site at each location. Total reclamation of all new disturbances will take place as the wells and facilities are no longer productive or needed and are plugged and abandoned. Appendix A of the ROD contains the reclamation success criteria by which the reclamation status will be evaluated. The approved Master Surface Use Plan and Conditions of Approval also contain reclamation measures pertaining to reclamation standards.

Potential Environmental Impacts- No Action Alternative

Under the No-Action Alternative, the proposed action would not be authorized. The 61 federal wells would not be constructed or drilled, and gas production from the proponent's lease would not occur. Existing development would continue to occupy the project area, along with impacts associated from the existing development and development on nearby private (fee) and or state leases.

Description of Impacts and Mitigation Measures

A discussion of the actions generally associated with drilling projects and their associated impacts may be found in the Atlantic Rim Environmental Impact Statement and Record of Decision. Mitigation of potential effects is part of the proposed action, and specific mitigation details can be found in the Master Plan Elements including the Conditions of Approval.

Residual Impacts/Cumulative Impacts

The potential residual and cumulative impacts are discussed in the AREIS, Chapter 5, and Cumulative Impacts Analysis. The proposed action entails the addition of 46 federal CBNG wells (3 state CBNG wells not under BLM's administrative authority), and 10 produced water re-injection wells (one state water injection well not under BLM's authority) and associated facilities and infrastructure.

Residual impacts resulting from the proposed action would include permanent loss of oil and/or gas reserves should the wells become productive. In addition, the well pads, production equipment, and the access roads could remain in place for 30 years or more (until plugging and abandonment, and final reclamation).

The access roads and well/production pads may remain visible for a period of approximately 20 to 30 years after they are abandoned and reclaimed. The oil and gas resource will be permanently lost. All needed mitigation is part of the proposed action.

Standard mitigation guidelines are addressed in the ROD's Appendix A, Project Reclamation Plan. Additional mitigation measures are also provided in Appendix B, Performance-Based Monitoring and Best

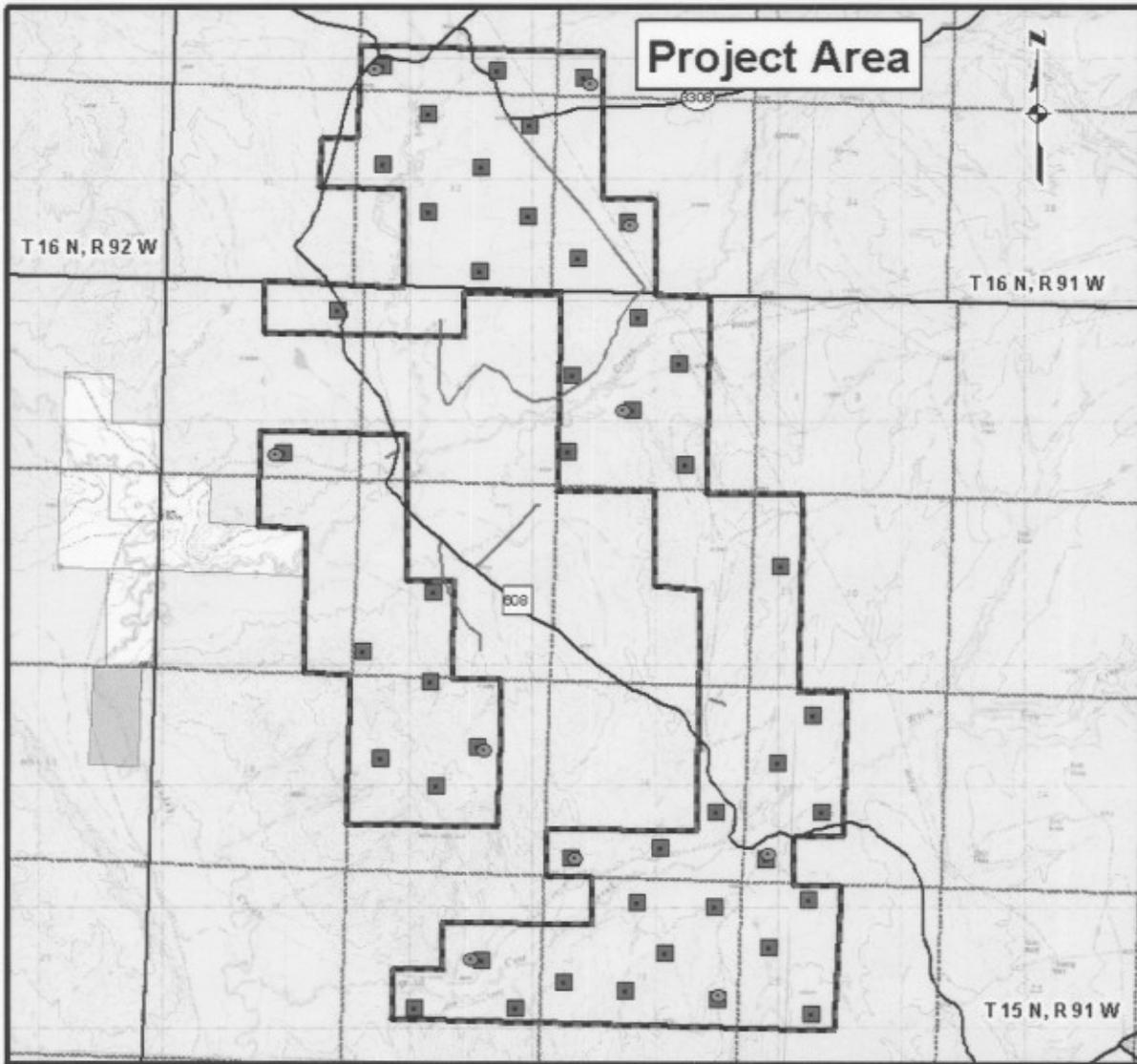
Management Practices, and Appendix C, Operator-Committed Practices. All needed mitigation, for that portion of the proposed action on public land, is part of the proposed action.

Additional mitigation measures are addressed in the AREIS, under; Appendix A: Reclamation Plan; Appendix C Hazardous Materials, and; Appendix D Wildlife Protection Plan. All recommended mitigation for that portion of the proposed action on public land, is part of the proposed action and plan of operation found in the well POD MSUP with COA and APD.

Other Persons/Agencies Contacted and or Consulted

Individual	Discipline	Organization
Gary Sundberg	Permitting Consultant	Surface Consultants LLC
Laura Gianakos	Supervisory Natural Resource Specialist	BLM
John Ahlbrandt	Natural Resource Specialist	BLM
Gary McDonald	Natural Resource Specialist	BLM
Cade Powell	Wildlife Biologist	Wyoming Game and Fish Department
Travis Sanderson	Wildlife Biologist	US Fish and Wildlife Service

Preparer:  Date: 9/30/08
Erik Norelius, Natural Resource Specialist



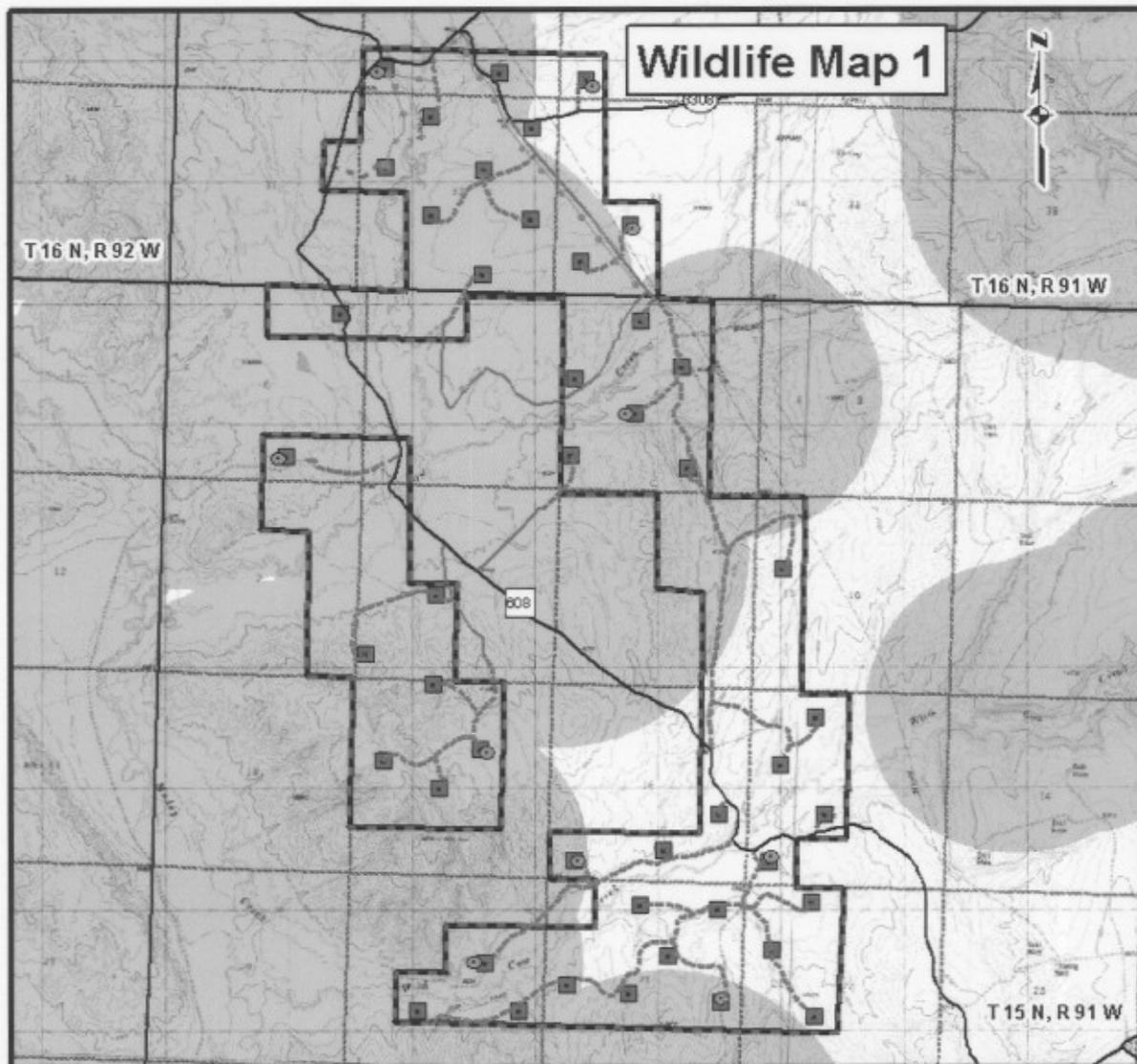
0 0.25 0.5 0.75 1 Miles

1:45,000

No warranty is made by the Bureau of Land Management as to the accuracy, completeness, or reliability of the information presented.

Drafted: 8/20/2008

Legend	
Jack Sparrow Wells	
Pod_ID	
	Jack Sparrow
	Jack Sparrow Injection
Pod_Name	
	J Sparrow
SURFACE OWNERSHIP	
	Bureau of Land Management
	Private
	State



0 0.25 0.5 0.75 1 Miles

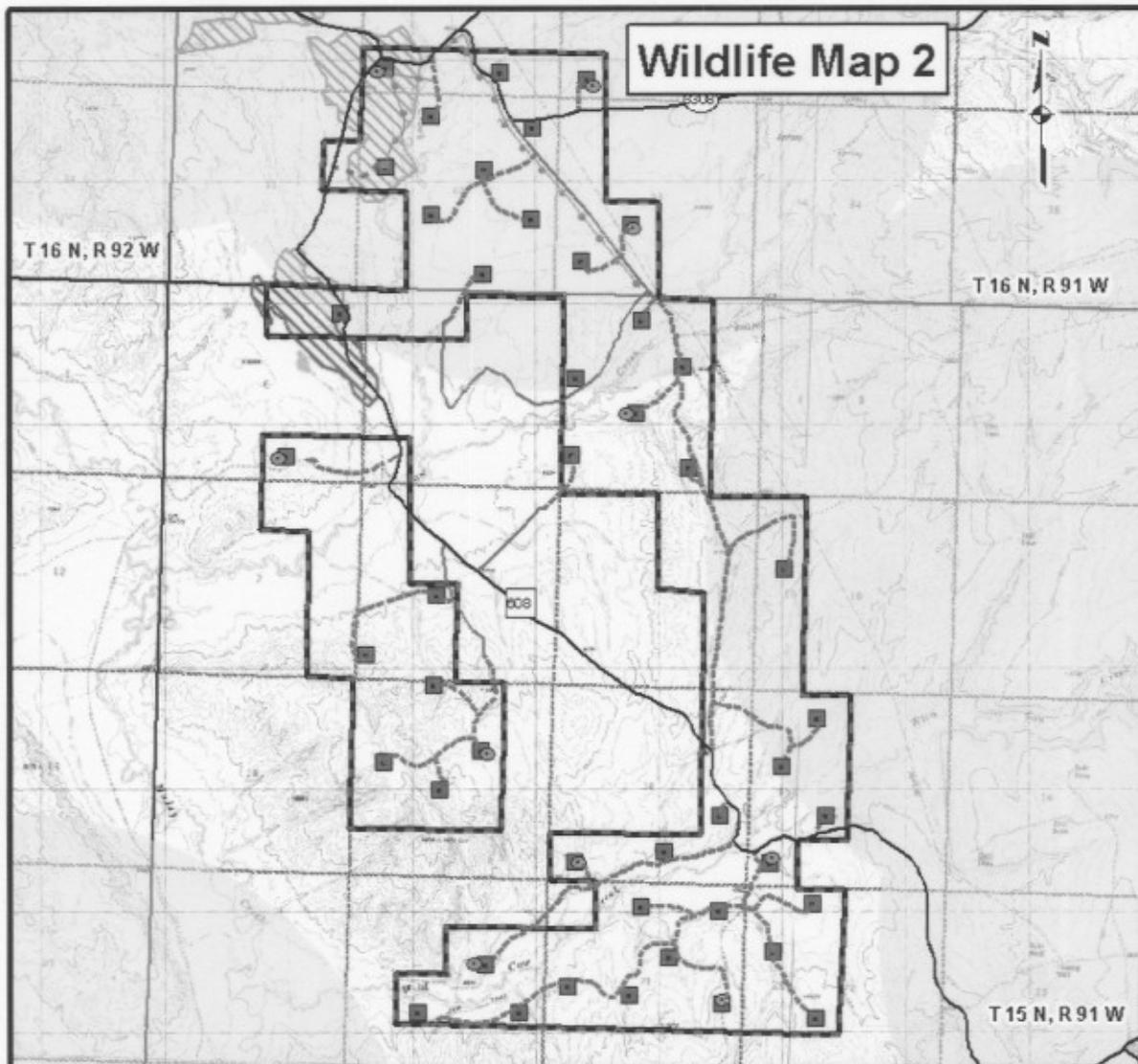
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Drafted: 8/20/2008

Legend

- Raptor Timing Stips
- Jack Sparrow Wells**
- Pod_ID**
- Jack Sparrow
- Jack Sparrow Injection
- Pod_Name**
- J Sparrow



0 0.25 0.5 0.75 1 Miles

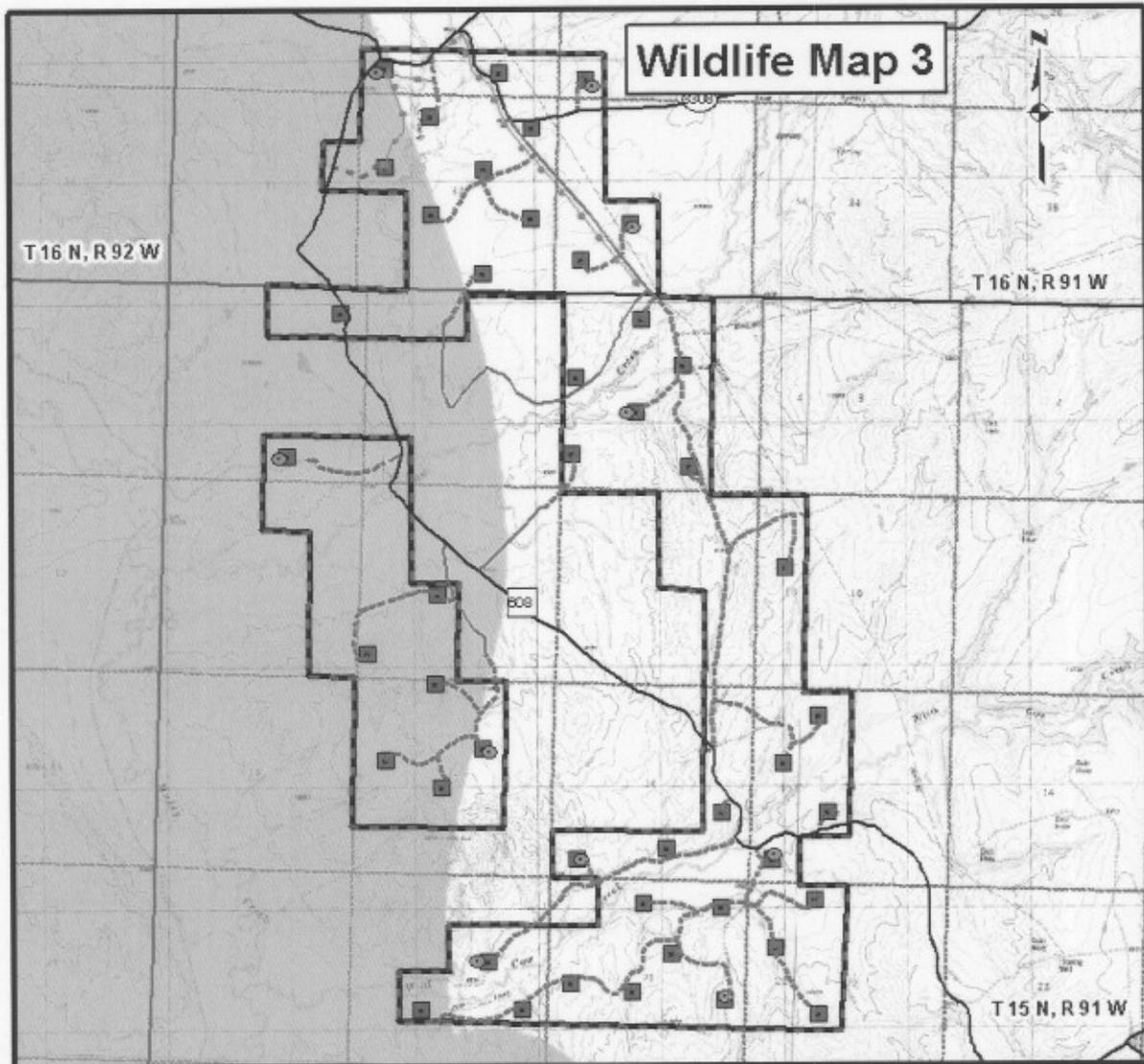
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Drafted: 8/20/2008

Legend

- Sage Grouse Timing Stipulation
- GSG_WinterRange Timing Stips
- Jack_Sparrow Wells**
- Pod_ID**
- Jack Sparrow
- Jack Sparrow Injection
- Pod_Name**
- J Sparrow



0 0.25 0.5 0.75 1 Miles

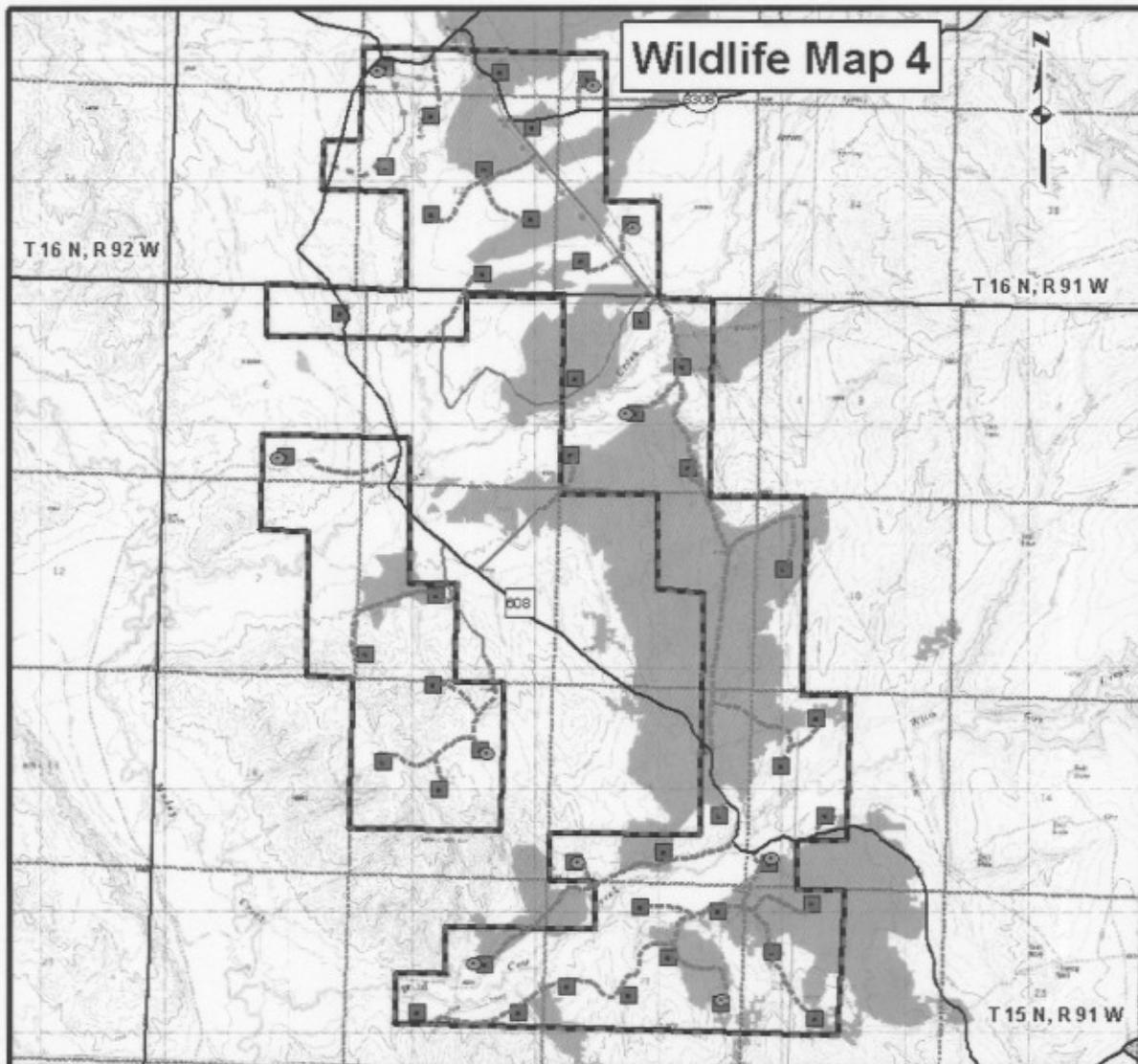
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Drafted: 8/20/2008

Legend

-  RFO Big Game CWR Timing Stips
- Jack Sparrow Wells**
- Pod_ID**
-  Jack Sparrow
-  Jack Sparrow Injection
- Pod_Name**
-  J Sparrow



0 0.25 0.5 0.75 1 Miles

1:45,000

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Drafted: 8/20/2008

Legend

Mountain Plover Timing Stips
Hab_Type
 ■ Occupied
 ■ Potential habitat

Jack Sparrow Wells
Pod_ID
 ■ Jack Sparrow
 ⊕ Jack Sparrow Injection

Pod_Name
 □ J Sparrow