

Catalina POD G&I

Environmental Assessment And Finding of No New Significant Impact

**United States Department of the Interior
Bureau of Land Management**

January, 2011



The BLM's multiple-use mission is to sustain the health and productivity of the public lands for the use and enjoyment of present and future generations. The Bureau accomplishes this by managing such activities as outdoor recreation, livestock grazing, mineral development, and energy production, and by conserving natural, historical, cultural, and other resources on public lands.

BLM/WY/PL-11/008+1310

**Environmental Assessment Number
DOI-BLM-WY-030-2009-0155-EA**

ENVIRONMENTAL ASSESSMENT
AND
FINDING OF NO NEW SIGNIFICANT IMPACT

Tiered to & Referencing:
The Atlantic Rim Natural Gas Development Project
Environmental Impact Statement
And
Record of Decision

Lease Numbers:	For Pod I:	For Pod G
	WYW-137164	WYW-145698
	WYW-163520 (fka WYW-161910)	WYW-139366
	WYW139366	WYW-136955
		WYW-145698
		WYW-146996

Proposed Action:

Permit Catalina POD G&I including Right-of-Way Action for Main Access Route: Natural Gas Wells, Water Reinjection Wells, Access Roads, Pipeline/Utility Corridors, Central Delivery Points and associated Infrastructure

Rawlins Field Office Interdisciplinary Team

IDT Member	Title
Gary McDonald	Supervisory Natural Resource Specialist
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David Simons	Atlantic Rim Project Lead
Ray Ogle	Compliance Inspector

Applicant/Proponent: Double Eagle Petroleum Co.

Introduction

Background

Double Eagle Petroleum Co. (DEPC) has submitted plans of development (POD) for two PODs within the Atlantic Rim Project (ARP) area (Map1). They are entitled Catalina POD G and POD I. In addition to the APDs, DEPC submitted a right-of-way (ROW) request in December, 2007 for a ROW to access drilling opportunities on state lands in the area. The Rawlins Field Office (RFO) of the Bureau of Land Management (BLM) has combined the ROW and POD proposals into this environmental analysis, the Catalina POD G&I (POD G&I) Environmental Assessment (EA).

There are 51 wells proposed including 48 coalbed natural gas wells and 3 injection wells. In addition, roads, pipelines, wellpads and other associated developments are proposed for the project and detailed in the “*Proposed Action*” section below. The proposal includes State of Wyoming lands, private (fee) lands and lands of the National System of Public Lands managed by the BLM and is 4,242 in overall extent. The ARP was approved through the Atlantic Rim Natural Gas Development Project final environmental impact statement (AREIS) and approved by the Atlantic Rim Record of Decision (ROD), signed in 2007.

Domestic natural gas production is an integral part of the U.S. energy development program and economy. Domestic production reduces immediate dependence upon foreign sources of energy and maintains a stable supply of fuel to maintain the economic well-being of the U.S., efficient industrial production and national security. The environmental advantages of burning natural gas are emphasized in the Clean Air Act amendments of 1990. The action would allow Double Eagle, as leaseholder, to obtain reasonable access and exercise lease rights to explore and develop oil and gas resources within the project lease areas.

Purpose and Need for Action

The need for the action is established by the BLM's authority under the Minerals Leasing Act of 1920 as amended, the Mining and Minerals Policy Act of 1970, the Federal Land Policy and Management Act of 1976, the National Materials and Minerals Policy, Research and Development Act of 1980 and the Federal Onshore Oil and Gas Leasing Reform Act of 1987. In addition, this site-specific EA discloses information which would allow the Authorized Officer to determine whether to prepare an Environmental Impact Statement (EIS) or a Finding of No New Significant Impact (FONNSI).

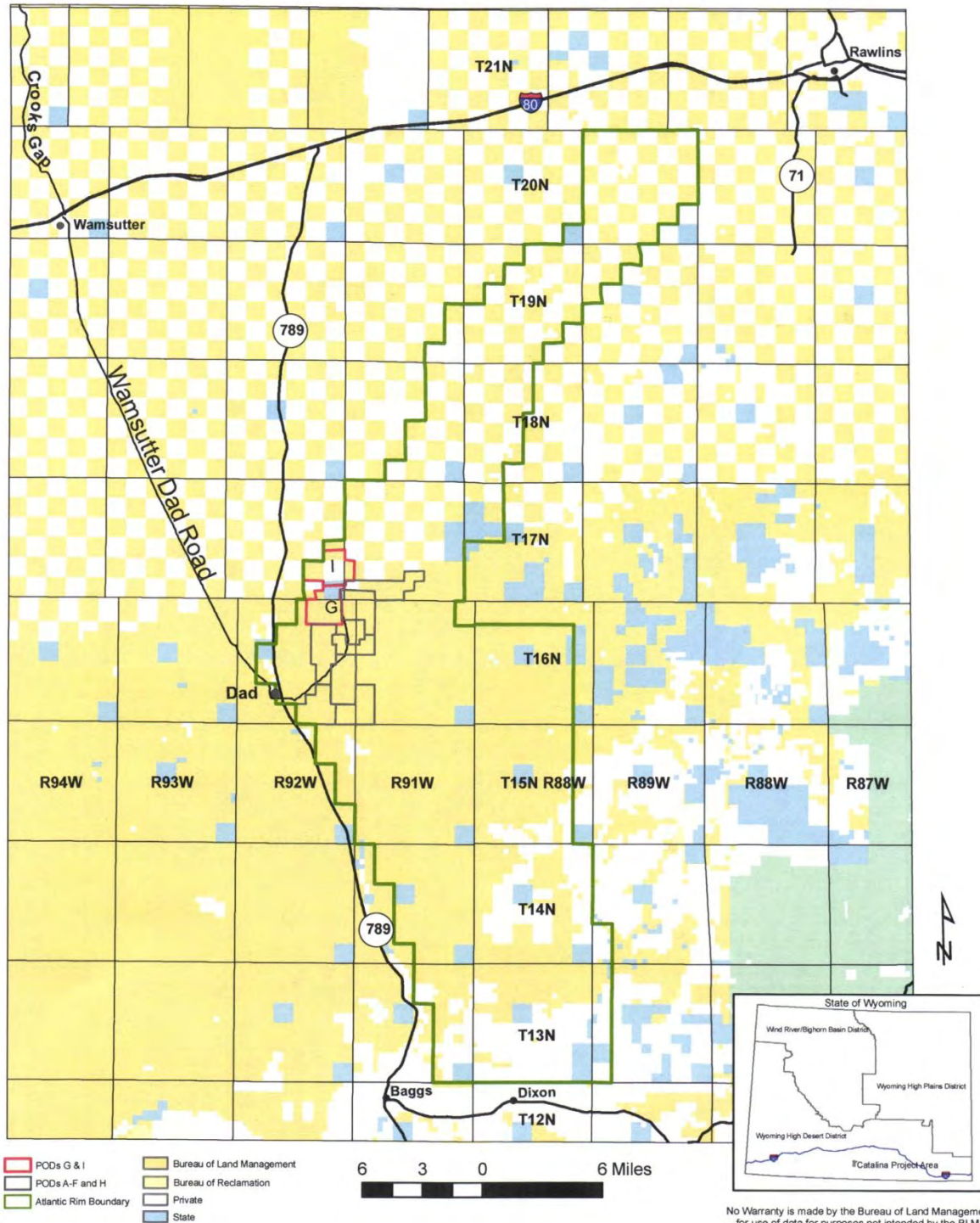
The Decision to be made

The BLM will decide whether to approve Double Eagle's proposed action, as submitted and modified, or to select an alternative main access route and/or other actions detailed in the alternative.

Relationship to Statutes, Regulations, or Other Plans

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

CATALINA POD G and I



No Warranty is made by the Bureau of Land Management for use of data for purposes not intended by the BLM.

MAP 1

The project is located within the area evaluated for natural gas development activities by the AREIS and ROD. The ROD for this action was approved in May, 2007. The proposed action is in conformance with this EIS. The Catalina POD G & I Proposed Action is located outside of the “Category A” area as identified in the AREIS ROD and thus is subject to a “disturbance goal” of 6.5 acres per well. The Catalina POD G & I Proposed Action meets the disturbance goal.

The AREIS ROD can be found at:

http://www.blm.gov/wy/st/en/info/NEPA/rfodocs/atlantic_rim.html.

The BLM consulted with the United States Fish and Wildlife Service (USFWS) regarding the effects of water depletions, sedimentation and threatened and endangered fishes in the Colorado River. In their Biological opinion response, dated August 09, 2006 they stated that there would be about a 10-acre foot / year depletion from the project and waived the depletion fee. In addition USFWS concurred with the BLM’s determinations for the various threatened and endangered species found in the area and downstream in the Colorado River (ROD, Appendix D; Formal and Informal Consultation for the Atlantic Rim Natural Gas Development Project).

These species include:

- Colorado River fishes
- Bald eagle
- Black-footed ferret
- Blowout penstemon
- Ute-ladies tresses
- Canada Lynx
- Preble’s meadow jumping mouse
- Wyoming Toad
- Colorado butterfly plant
- Platte River Species

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

Onshore Oil and Gas Order No. 1 (43 CFR 3164.1) requires that an APD provide sufficient detail to permit a complete appraisal of the technical adequacy of, and environmental effects associated with, the proposed project. The APD must be developed in conformity with the provisions of the lease, including the lease stipulations. The APD must provide for safe operations, adequate protection of surface resources and must include adequate measures for reclamation of disturbed lands. If the APDs are inadequate or incomplete, the applicant must modify or amend the APDs. The BLM can set forth design features that are necessary for the protection of the surface resources, uses and the environment; and for the reclamation of the disturbed lands. For the purpose of this analysis, the design features for these APDs are considered part of the Proposed Action.

This project does not fit any of the specified criteria allowing for Categorical Exclusion from NEPA analysis under Section 390 of the Energy Policy Act of 2005 and is therefore being analyzed herein.

The area was assessed as per the Wyoming Instruction Memorandum (IM) WY-IM-2010-012 (Greater Sage-grouse Habitat Management Policy on Wyoming Bureau of Land Management (BLM) Administered Lands including the Federal Mineral Estate). The IM directs the BLM to analyze Greater Sage-grouse habitat out to a minimum of four miles from the project location. This analysis is to occur both within and outside of the Greater Sage-grouse core areas (core areas as designated by the Wyoming Governor's Executive Order EO 2010-4). This project does not fall within a Greater Sage-grouse core area and conforms to the guidance above.

A four-mile buffer around the Catalina Pod G & I project area encompasses 67,056 acres (Greater Sage-grouse analysis area), of which 64,836 acres is Greater Sage-grouse habitat. The construction of the wells and associated infrastructure combined with existing disturbance already in the Greater Sage-grouse analysis area (wells, roads and infrastructure) would result in the loss of 2,629 acres of Greater Sage-grouse habitat, or 4.05% of the analysis area. The construction of Catalina POD G&I wells in combination with other approved or existing wells within the analysis area would result in 3.32 wells per square mile. Note: Pipeline disturbance associated with the development of Catalina POD G&I is not included in the above disturbance calculation. The average width of pipeline ROWs does not preclude movement of grouse, and depending on reclamation success, can lead to beneficial edge habitat where grouse can congregate to feed on insects, green shoots and forbs. This project and any potential population declines would be consistent with the Governor's Executive Order and BLM WY IM 2010-012 because the project is outside of core area.

Scoping, Public Involvement and Issues

The AREIS received extensive external scoping and public involvement, including formal scoping comments and comments to the Draft and Final AREIS. Over 53,000 comments were received to the ARP Draft EIS of which about 120 were substantive. The BLM reviewed and responded to the comments. The comments and responses are detailed in "Appendix O" of the AREIS. The Appendix is 396 pages in length. The Catalina POD G&I EA tiers to the AREIS and ROD, as directed by policy and regulation.

Upon receipt of the APDs included in the proposed action, the information required under 43 CFR 3162.3-1(g) was posted for review for a period of 30 days beginning May 5, 2005 in the Rawlins Field Office Information Access Center (Public Room). During the posting period APDs are available for public review and comment. Additional APDs were submitted and posted on August 28, 2008, October 30, 2008 and January 12, 2009. Notification of preparation of this EA was also provided on the Wyoming BLM internet NEPA register (<http://www.wy.blm.gov/nepa/search/index.php>) on April 08, 2009. No public comments have been received on the project to date.

The BLM interdisciplinary team (IDT) visited the POD G&I project area on numerous occasions prior to the initiation of this environmental assessment. During the on-sites, all areas of proposed surface disturbance for POD G&I were inspected to ensure that potential impacts to resources would be identified and appropriate design features, best management practices (BMPs) and mitigation measures were prescribed to reduce or avoid adverse environmental impacts. In some cases, access roads were re-routed and well locations, pipelines and other facilities were moved, modified, or dropped from further consideration to alleviate or reduce environmental impacts. The BLM IDT on-site changes, implementation of proponent-committed mitigation measures contained in the Master Surface Use Plan, Drilling Program and Water

Management Plan, Standard Operating Procedures (SOPs) and BMPs are incorporated and are analyzed as part of the Proposed Action Alternative.

The proposed action requests access to the project area from a route off of State Highway 789. Site visits, records review, and internal scoping by the BLM IDT, as well as the State of Wyoming Game and Fish Department and the U.S. Fish and Wildlife Service, identified two broad categories of resource issues of concern from the Proposed Action. One issue is wildlife related and centers around development and disruptive activities in big game crucial winter range and mule deer seasonal migration range. The other issue is related to transportation and access within the POD area and the overall ARP area. Adoption of the proposed action could result in changes in transportation and travel within the ARP area and the resultant effect on the viability of mule deer crucial winter range. Alternative A was developed by the BLM to address these resource issues.

Other issues of concern identified by the BLM IDT, either generated through IDT review or from significant resources identified in the AREIS, include; transportation cultural/historic resources, livestock grazing, recreation/visual resources, soils and vegetation/weeds, water quality/hydrologic function, wildlife (including shrub nesting sensitive and non-sensitive migratory birds, Greater Sage-grouse and Muddy Creek sensitive fishes.

Additional resources considered, that were found not to be present in the Catalina POD G&I project area, that involve issues adequately addressed by design features, SOPs, BMPs and/or mitigation measures, or that were not elevated to a level of concern requiring further consideration in this EA (beyond the level of analysis in the AREIS) include: air quality (AREIS, Chapter 3.2, p. 3-14, RMP, p. 2-10); fire and fuels management (RMP, p. 2-13 and Appendix 19); forest management (RMP, p. 2-14 and Appendix 19); lands and realty (RMP, p. 2-16, Appendices 1, 6, 7 and 34); off-highway vehicles (RMP, p. 2-22 and Appendix 21); paleontology (AREIS, Chapter 3.1, p. 3-2, RMP, p.2-24); wild horses (AREIS, Chapter 3.16, p. 3-149, RMP, p. 2-51 and Appendix 12); hazardous materials (AREIS, Chapter 3.14, p. 3-148, RMP Appendix 32) and wildlife (includes; general wildlife (AREIS, Chapter 3.7.1, p. 3-84), elk Crucial Winter Range (CWR) (AREIS, Chapter 3.7.1.2, p. 3-91), other upland game birds (AREIS, Chapter 3.7.1.3, p. 3-97), raptors (AREIS, Chapter 3.7.1.4, p. 3-97), other non-sensitive fish species (AREIS, Chapter 3.7.2, p. 3-98), non-shrub nesting migratory bird species, threatened and endangered wildlife and plants (AREIS, Chapter 3.8.1, p. 3-102) and other sensitive wildlife and plants (AREIS, Chapter 3.8.2, p. 3-108).

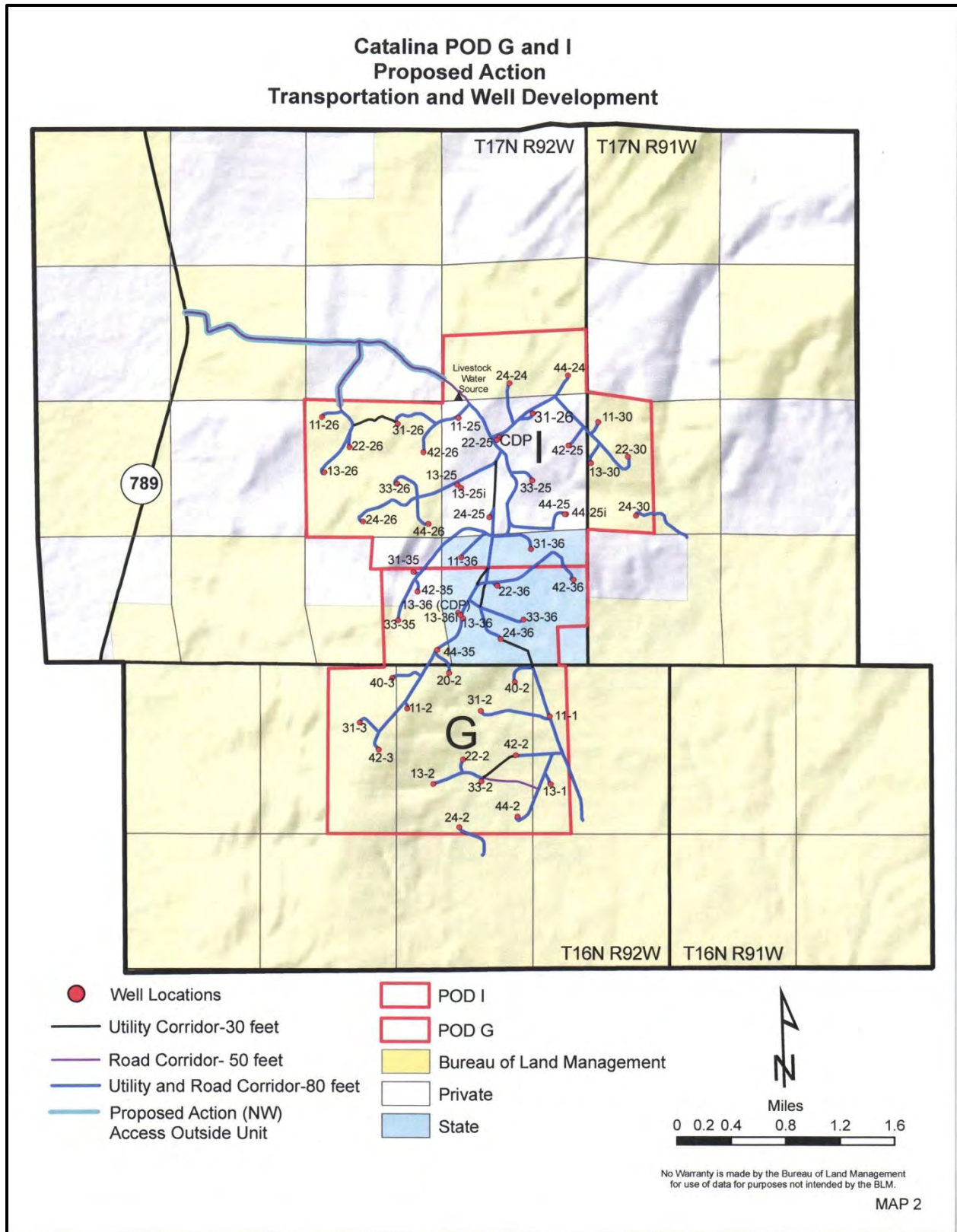
Proposed Action and Alternatives

Proposed Action

APD Component of the Proposed Action

The operator has proposed to develop 51 wells, 24 in Pod G and 27 in Pod I (Table 1 and Map 2 (Proposed Action). Three produced water re-injection wells are proposed, 1 in POD G and 2 in POD I. Well depths range from approximately 2000 feet to 8000 feet. The wells would be completed to underground coal deposits where removal of water pressure would allow natural gas trapped within the coal to dissociate and move to the well bores where it can be captured and transported for use. The well bores would transport “produced water” and natural gas from the coal seams.

The proposed action includes the construction and operation of well pads and access roads, as well as the construction, operation and reclamation of associated underground gas gathering/sales pipelines, produced water-gathering pipelines, underground power-lines and utility corridors. To minimize surface disturbance, the pipeline/utility corridors are generally



located adjacent to, and parallel with, proposed or existing access roads and existing pipeline ROWs, except where not feasible or applicable.

Location of Wells - Proposed Action
(Table 1)

Catalina Unit POD G

	Well #	T	R	Sec	Aliquot
Fed	33-35	17	92	35	Lot2(NW/SE)
Fed	44-35	17	92	35	Lot8(SE/SE)
Fed	40-3	16	92	3	Lot 9
Fed	31-3	16	92	3	Lot 16
Fed	42-3	16	92	3	Lot 17
Fed	20-2	16	92	2	Lot 11
Fed	11-2	16	92	2	Lot 13
Fed	40-2	16	92	2	Lot 9
Fed	31-2	16	92	2	Lot 15
Fed	22-2	16	92	2	Lot 19
Fed	42-2	16	92	2	Lot 17
Fed	13-2	16	92	2	NE/SW
Fed	33-2	16	92	2	NW/SE
Fed	24-2	16	92	2	SE/SW
Fed	44-2	16	92	2	SE/SE
Fed	11-1	16	92	1	Lot 13
Fed	13-1	16	92	1	NW/SW
St	13-36	17	92	36	NW/SW
St	13-36i	17	92	36	NW/SW
St	24-36	17	92	36	SE/SW
St	33-36	17	92	36	NW/SE
St	22-36	17	92	36	SE/NW
St	42-36	17	92	36	SE/NE
Fee	42-35	17	92	35	SE/NE

Catalina Unit POD I

	Well #	T	R	Sec	Aliquot
Fed	11-26	17	92	26	NW/NW
Fed	31-26	17	92	26	NW/NE
Fed	22-26	17	92	26	SE/NW
Fed	13-26	17	92	26	NW/SW
Fed	42-26	17	92	26	SE/NE
Fed	33-26	17	92	26	NW/SE
Fed	24-26	17	92	26	SE/SW
Fed	44-26	17	92	26	SE/SE
Fed	24-24	17	92	24	SE/SW
Fed	44-24	17	92	24	SE/SE
Fed	11-30	17	91	30	Lot8(NW/NW)
Fed	22-30	17	91	30	Lot10(SE/NW)
Fed	13-30	17	91	30	Lot16(NW/SW)
Fed	24-30	17	91	30	Lot18(SE/SW)
St	11-36	17	92	36	NW/NW
St	31-36	17	92	36	NW/NE
Fee	11-25	17	92	25	NW/NW
Fee	31-25	17	92	25	NW/NE
Fee	22-25	17	92	25	SE/NW
Fee	31-35	17	92	35	NE/NE
Fee	42-25	17	92	25	SE/NE
Fee	13-25	17	92	25	NW/SW
Fee	13-25i	17	92	25	NW/SW
Fee	33-25	17	92	25	NW/SE
Fee	24-25	17	92	25	SE/SW
Fee	44-25	17	92	25	SE/SE
Fee	44-25i	17	92	25	SE/SE

Note: Injection wells are not proposed on the BLM-administered lands within Pods G and I. Two injection wells are proposed on fee lands within POD I, one well on POD G.

Highlighted wells indicate that the CBNG well and injection wells are co-located on one pad.

(St) indicates a State well (State surface and minerals). (Fee) indicates a fee well (Fee surface and minerals). However, these wells are within the Catalina Federal Unit, and the right of way access to them will be authorized with this POD package, and not as separate Right(s)-of-Way. Also see POD Master Surface Use Plan and project maps.

A Central Delivery Point (CDP) facility is also proposed in each POD. These facilities would contain centrally-located facilities to pump produced water, compress natural gas and provide storage and measurement components within each POD. The CDP for POD I is located in Township 17N, Range 92W, section 25 on fee land. For POD G, the CDP is located in Township 17N, Range 92W, Section 36 on state land. Produced water and natural gas produced from wells located on the east side of POD G would be piped to the existing CDP

located to the east in POD B. The maps and illustrations attached to the EA, APDs and Master Surface Use Plan display the locations of these components of the Proposed Action.

Water for drilling the wells would be obtained from a pond located in NWSE of Section 12 (T16N/R92W), under an approved Wyoming Department of Environmental Quality Wyoming Pollution Discharge Elimination System permit. In order to protect shallow fresh water aquifers or sources and groundwater, only fresh water from a State (SEO) permitted local source may be used in the drilling and setting of surface casing (to a depth of 360 to 880 feet). The use of produced water or other unauthorized or unapproved water sources for the surface casing are prohibited. Water for drilling purposes would be hauled by truck to each drill site over existing roads approved within the Unit and POD and by authorized ROW's. Any changes in the drilling method, water source, route or transportation requires prior written approval by the BLM Authorized Officer.

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

Construction

Access roads, drill pads, pipeline/utility corridors and other facilities must be constructed or re-constructed in order to build the project. Construction activities result in disturbance of soil and surface features, including vegetation. The amount of surface that must be disturbed to drill a well is larger than the area needed for long-term production operations. Surface-disturbing activities fall into two categories, short-term disturbance and long-term disturbance. The area that is initially disturbed in order to access, drill and complete a well is considered short-term disturbance. Those areas that are needed for on-going production operations during the life of the project are considered long-term disturbance. Reclamation of short-term disturbance is started before the first growing season following disturbance with the intent of restoring the productivity of the land, preventing erosion of soil and minimizing the impacts of the overall project. The entire well pad, access roads, pipeline / utility corridors and other disturbance areas would be reclaimed (final reclamation) following the end of the project.

Over-all short-term surface disturbance estimates for POD G&I, including the well pads and access road/utility/pipeline corridors and CDPs are presented in the following tables.

Proposed Action
POD G and I Estimated Surface Disturbance (includes 8 State wells and 12 Fee wells)

Project Component	Number	Average Disturbance	Cumulative Acreage
Single CBNG wellpad	45	2.1 acres ¹	94.5 acres
CBNG well pad co-located with an injection well	3	3.2 acres ²	9.6 acres
Central Delivery Point	2	2.5 acres ³	5.0 acres
Access Roads w/ adjacent utility lines (gas/water/elec)	10,3183 Linear ft.	80 ft. width	189.5 acres
Access Roads only	18,295 Linear ft.	50 ft. width	21.0 acres
Utility Lines only	9,002 Linear ft.	30 ft. width	6.2 acres
Totals			325.8 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 The Central Delivery Point (CDP) overall disturbance area is approximately equal to 2.5 acres

Alternative A is located outside of “Category A” area and thus is subject to a “disturbance goal” of 6.5 acres per well. The PODs meet the disturbance goal provided in the AREIS ROD with an average disturbance of 6.38 acres / well (325.8/51).

Within-Pod Collector and Individual Well Access Roads

The proposed action includes construction and re-construction of access roads to proposed well locations and other facilities within the project area. The access roads would be constructed to meet the BLM specifications for a “Resource Road”, as specified in the BLM Manual Section 9113. Drainage structures would be constructed/installed along the access roads to the BLM established standards. The width of the roadway (travel surface) would be a minimum of 14-feet within an average ROW width of 50 feet. To minimize surface disturbance, wherever possible, the access road ROW would be combined with the pipeline/utility ROW into a road/utility corridor that would be 80 feet or less in width. Some local connector or collector roads between multiple well locations, or where engineering design dictates, would be constructed to a minimum 16-20 feet wide travel width within the 80 feet wide ROW corridor.

To minimize surface disturbance, the majority of pipeline/utility corridors would be located adjacent to, and parallel with, the proposed or existing approved access roads and existing pipeline disturbances, except where not feasible or applicable. Utility corridors, upon completion of pipeline/power-line installation, along with any unneeded access road, would be reclaimed (to include re-contouring, ripping, seeding and re-vegetation as per the BLM approved Catalina POD G&I Reclamation Plan).

Well Sites

In order to drill and complete the coal bed natural gas (CBNG) wells, a drill pad (approximately 300 feet by 300 feet (2.1 acres) would be constructed for each well location (including spoil and topsoil stockpiles and cut/fill slopes.) Three CBNG wells would be co-located with an adjacent water injection well (POD I, 13-25 / 13-25i wells and 44-25 / 44-25i wells, POD G 13-36 / 13-36i). The co-located wells would require a drill pad of approximately 400 feet by 350 feet (3.2 acres). In the event the wells become producers, cut and fill portions of the well sites would be brought back to the approximate original contour and reclaimed along with any other unneeded portions of the well site. Soil stockpiles would be re-spread and reseeded with native vegetation in conformance with the provisions of Appendix A of the ROD. Interim well pad reclamation would reduce long-term disturbance to less than one-half acre for the duration of production operations. Following final well plugging and abandonment, the entire well pad would be reclaimed including re-contouring, ripping, seeding and re-vegetation as per the BLM approved Catalina POD G&I Reclamation Plan.

Pipeline/Utility Corridors

Any pipelines and powerlines would be buried and surface disturbance areas reclaimed upon completion of construction. When the project ends, pipelines/powerlines would be abandoned in accordance with the BLM procedures for abandonment and the corridors appropriately reclaimed as per the BLM approved Catalina POD G&I Reclamation Plan.

Major crossings of drainages would be engineered to ensure design/construction adequacy and erosion protection. All channel crossings would comply with current BLM policies and mitigation measures appropriate to the crossings (see “*Hydraulic Considerations for Pipelines Crossing Stream Channels*,” BLM Technical Note 423, April 2007).

Produced Water Disposal

Underground re-injection into the Deep Creek and/or Trout Creek Members of the Haystack Mountains Formation would be the primary method of water disposal proposed in POD G&I.

For the majority of wells, produced water would be gathered and transported via buried pipelines to a Central Delivery Point (CDP) within the POD and then piped to water re-injection wells. Additional re-injection capacity would be available at other permitted re-injection wells in adjacent PODs within the Unit and would be used as needed. Double Eagle is currently allowed to discharge untreated CBNG produced water to an on-channel reservoir via an ephemeral drainage under WDEQ's Wyoming Pollutant Discharge Elimination System (WPDES) permit # WY0042145. Another WPDES permit (# WY0054038) has also been approved by WDEQ for discharge of treated CBNG water. The BLM has approved the surface discharge of up to 1.3 cubic feet per second of produced water in the **Catalina Unit CBNG Produced Water Disposal Project II**, (EA# WY-030-07-EA-244, DR 03/03/08). This could provide an additional method of produced water disposal. Note: the extent to which Double Eagle can utilize either of these permits would be limited by water volume and salt load restrictions imposed by WDEQ on both permits.

Right-of-Way Component of the Proposed Action - Main Access Route from the Northwest to Pod I and west portion of Pod G

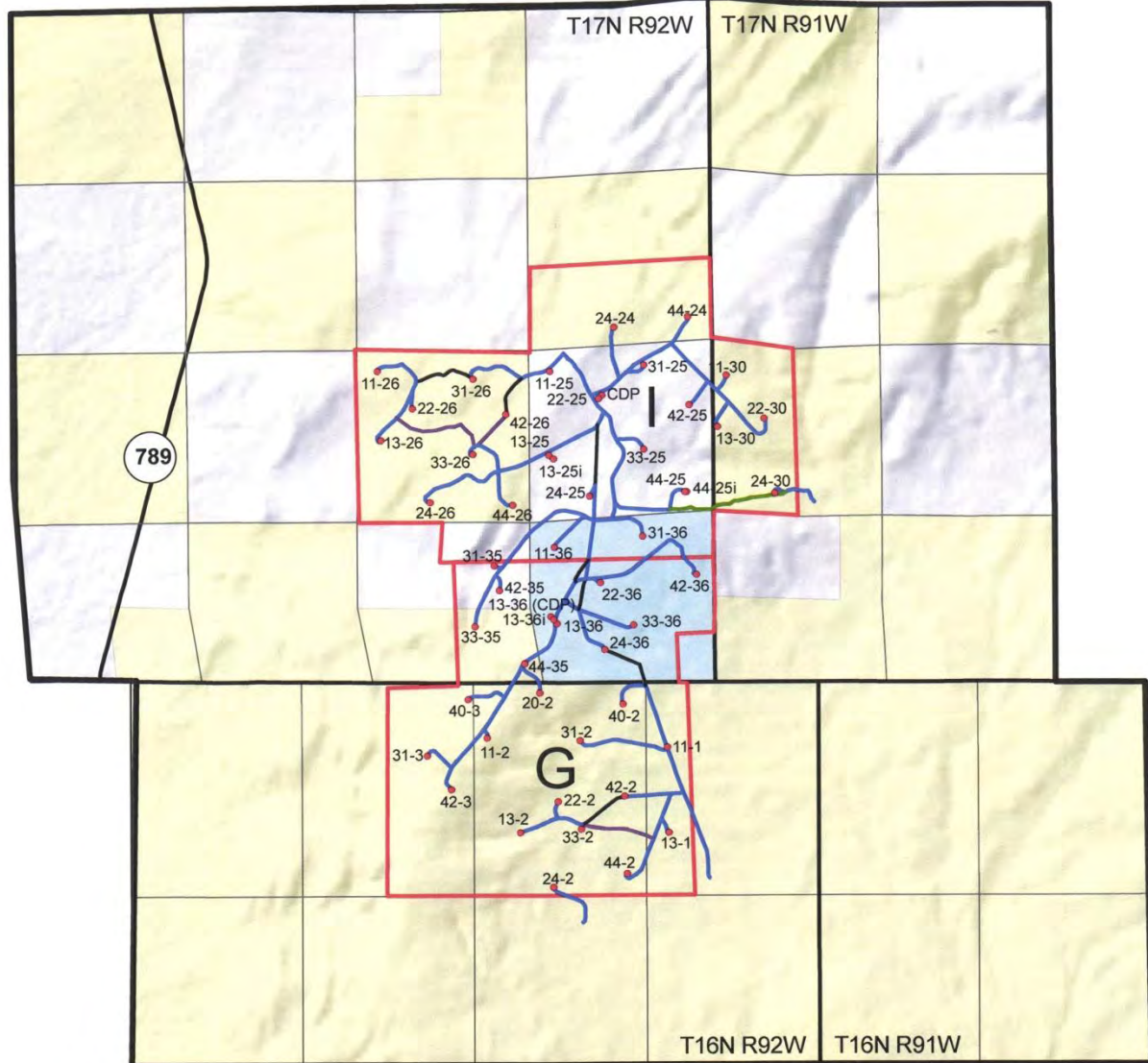
The proposed action includes a ROW request for the upgrade of an existing two-track road to function as the main access route connecting US Highway 789 from the northwest to Pod I and the west portion of Pod G. The location of the proposed northwest access route begins in Township 17 North, Range 92 West, Section 22 at the intersection with US Highway 789 (see Map 2). The road enters the northwest portion of Pod I in Township 17 North, Range 92 West, Section 24. The surface and mineral ownership of Section 22 and 24 is Federal and the surface and mineral ownership of Section 23 is privately held. The proposed northwest route follows an existing well developed two-track road that is primarily used for ranching and recreational activities. This proposal is not intended to provide access to other areas of the ARP.

Alternative A

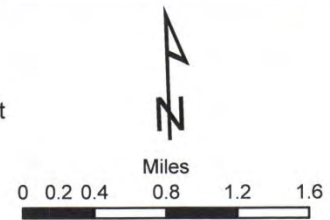
Access to Pod I and the west portion of Pod G would be provided by a new collector road (East route) constructed between the access road to Catalina POD C Well 1791-11-31 and the access road for POD I Well 44-25, a distance of about 0.7 miles (see Map 3). From POD I Well 44-25, the road system would access wells and other features as provided for in the Proposed Action with the following exceptions (see Map 4).

- A segment of road (segment 1) would be constructed within T17N, R92W, section 26 to access well sites 13-26, 22-26 and 11-26. The road segment would be approximately 0.5 miles long and have a 14-foot wide traveling surface.
- Another road segment (segment 2) in T17N, R92W, Section 26 would connect Segment 1 to well 42-26. Segment 2 would be about 1000 feet in length and have a 14-foot wide traveling surface.
- Segment 3 would be a buried utility corridor constructed in T17N, R92W, section 26. This utility corridor is 1300 feet in length and will connect well 42-26 to utility infrastructure between well 31-26 and well 11-25.
- Except for the east road, locations of wellpads, roads, pipelines and other features would otherwise stay the same as the proposed action. Design features, SOPs, BMPs, mitigation measures and any other impact reducing provisions would be applied the same as provided for under the proposed action.
- The Proposed Action northwest access route ROW from State Highway 789 to POD I would not be approved.

Catalina POD G and I Alternative A Transportation and Well Development



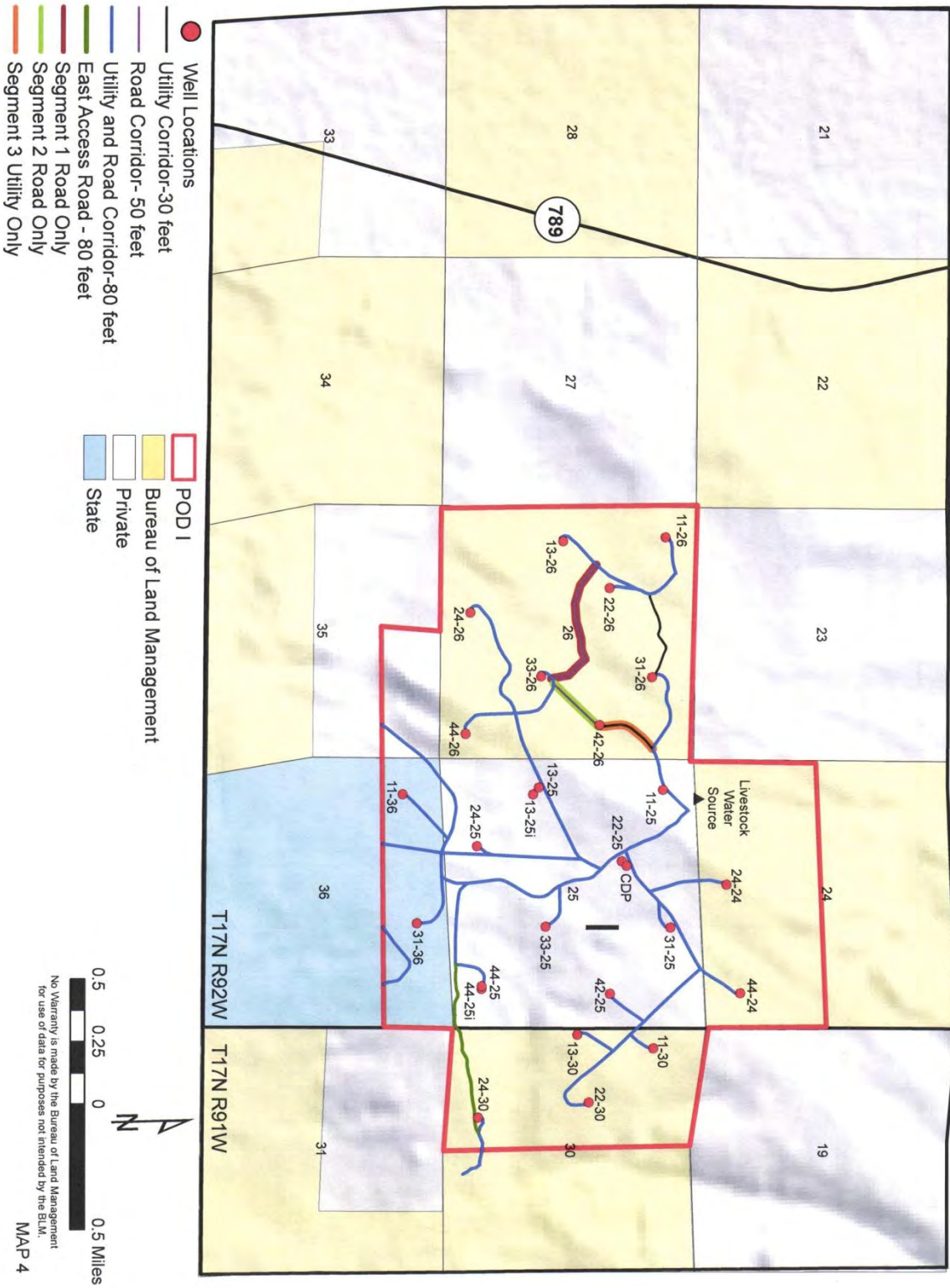
- Well Locations
- Utility Corridor-30 feet
- Road Corridor- 50 feet
- Utility and Road Corridor-80 feet
- Alternative A (East) Access Road-80 feet
- POD I
- POD G
- Bureau of Land Management
- Private
- State



No Warranty is made by the Bureau of Land Management for use of data for purposes not intended by the BLM.

MAP 3

Catalina POD I - Alternative A Segments Different from Proposed Action



The east road would require upgrades and engineering to comply with the BLM road standards including the addition of turnouts and curve widening. The existing east access road services several existing CBNG well pads and facilities. Beginning at the DEPC main administrative site the road would continue predominately north 4.4 miles upon existing CBNG related roads to the POD I south eastern boundary. The road is currently built with a running surface of 14-18 feet. It runs through two well pads on federal surface that will require relocation of the road off the well pad to comply with safety standards. No modification to the existing road system accessing the eastern portion of POD G is necessary.

Alternative A

POD G and I Estimated Surface Disturbance (includes 8 State wells and 12 Fee wells)

Project Component	Number	Average Disturbance	Cumulative Acreage
Single CBNG wellpad	45	2.1 acres ¹	94.5 acres
CBNG well pad co-located with an injection well	3	3.2 acres ²	9.6 acres
Central Delivery Point (CDP)	2	2.5 acres ³	5.0 acres
Access Roads w/ adjacent utility lines (gas/water/elec)	104,707 Linear ft.	80 ft. width	192.3 acres
Access Roads only	6,621 Linear ft.	50 ft. width	7.6 acres
Utility Lines only	6,325 Linear ft.	30 ft. width	7.2 acres
Totals			316 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 The Central Delivery Point (CDP) overall disturbance area is approximately equal to 2.5 acres

Alternatives Considered but not Analyzed in Detail

Alternate routes for providing access to Pod I and the western portion of Pod G, other than the Proposed Action and Alternative A, were also considered. These potential alternatives are detailed below.

Timed Northwest and East Access Combined

The key elements of this alternative include:

- Develop the northwest access road for construction purposes - outside of crucial winter range timing stipulations and outside of Raptor timing stipulations (construction from August 1 to November 15) – and for operations.
- Allow operations traffic on northwest access road only outside of crucial winter range timing stipulations (i.e. from May 1 through November 15).
- Provide access to Pod I and west portion of Pod G from the east only during crucial winter range timing stipulations (i.e. from November 16 through April 30).
- Where feasible, berm or gate all oil and gas roads that would create a loop route system within the ARP area.
- All wells located in the east portion of Pod G would be accessed from the southeast, similar to the Proposed Action.

The presence of the north-west improved collector road would increase traffic in the area. The road would become a short-cut to other developed areas of the ARP that are accessible via

existing two-track routes. No feasible way is known to close the north-west route to traffic wishing to travel to other areas of the ARP due to the flat to rolling nature of the terrain and the many two-track routes that already exist. Balancing the need for continued commercial use (ranching) and recreational use by the public against the increased disruptive activities and surface disturbance from this alternative, the BLM believes the Proposed Action and Alternative A provide a sufficient range of alternatives for analysis and resolution of resource issues generated by the north-west access route .

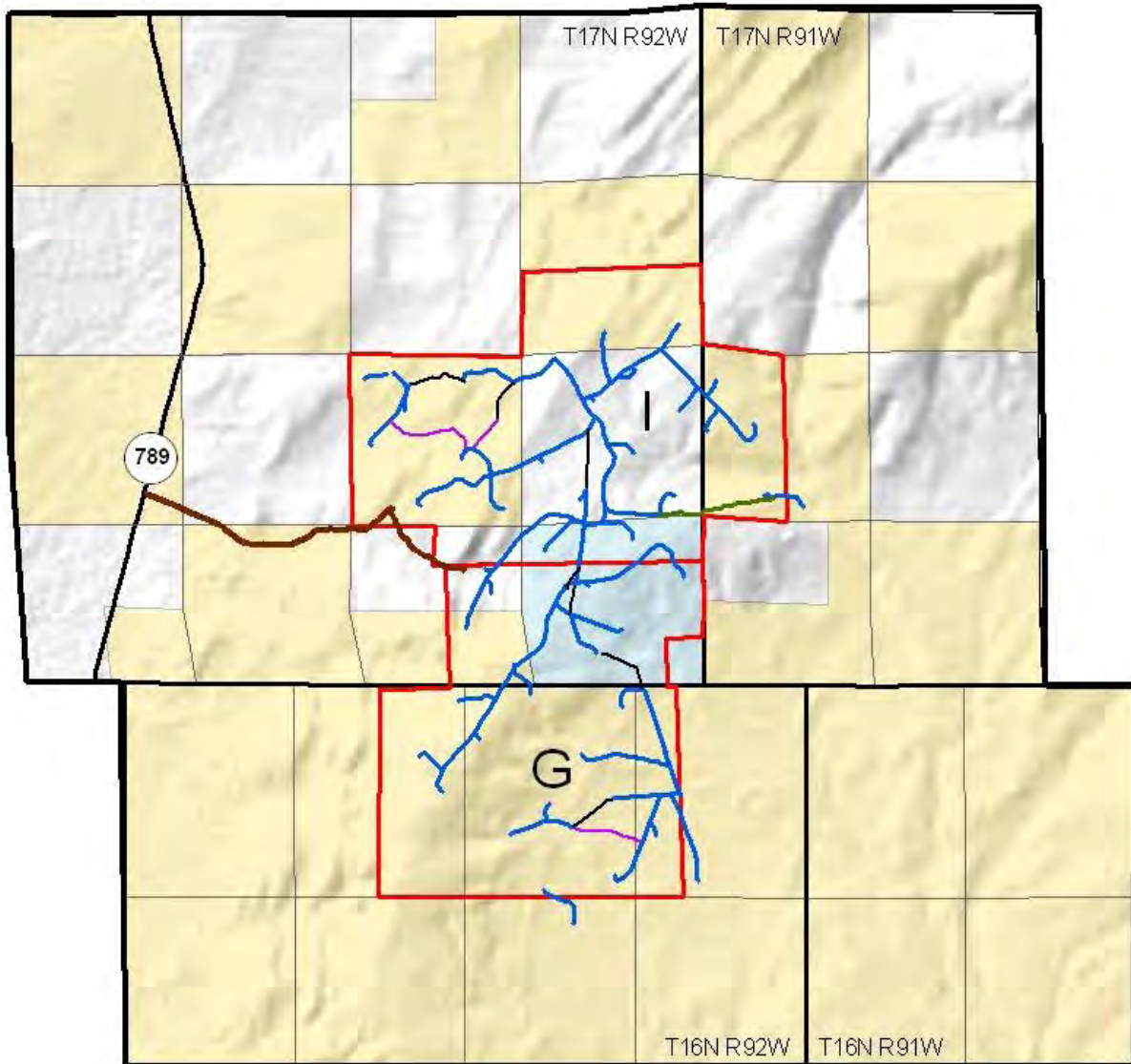
Alternative access from State Highway 789

An alternative access road to POD I and the western portion of Pod G from State Highway 789 was considered. This alternate access route would follow an existing, two-track road from State Highway 789 eastward to the south side of POD I (see Map 5). This alternative was eliminated from further consideration because of the additional engineering requirements that would be necessary to construct a collector road in the topographically difficult terrain at this location, a greater concentration of cultural resources and the presence of mule deer crucial winter range and migration corridors. This access route location would not resolve or reduce resource issues or conflicts originally identified by the BLM IDT and would, in the case of cultural resources and road construction, actually increase the issues and conflicts.

No Action Alternative

The No Action alternative was reviewed and assessed in the AREIS and ROD. The decision in the ARP ROD is to develop 1800 CBNG wells and 200 natural gas wells within the ARP. Under leasing provisions, the BLM has an obligation to allow mineral development if the environmental consequences are not too severe or irreversible. If the APDs are not approved the applicant is allowed to, and generally would, submit new APDs that correct the flaws in the originals. The APD process is designed to overcome the “no action” alternative by not accepting the APD as complete, until all site-specific environmental issues are adequately addressed or mitigated in either the Proposed Action or alternatives. For these reasons, the “No Action” alternative of not approving the APDs was considered, but was dropped and will not be analyzed further in this EA.

Catalina POD G and I Alternative Considered But Not Analyzed



- Alternate Considered But Not Analyzed
- Utility Corridor-30 feet
- Road Corridor- 50 feet
- Utility and Road Corridor-80 feet
- East Access Road-80 feet

- POD I
- POD G
- Bureau of Land Management
- Private
- State



Miles
0 0.2 0.4 0.8 1.2 1.6

No Warranty is made by the Bureau of Land Management for use of data for purposes not intended by the BLM.

MAP 5

Affected Environment

A detailed discussion of the affected environment can be found in Chapter 3 of the AREIS for all the resources evaluated in detail.

Environmental Effects

Where appropriate, some site-specific affected environment description is included as a preamble to the impact analyses in this section.

Transportation Affected Environment

The terrain in this portion of the ARP is generally flat to rolling and the area's grass and shrub communities easily traversed by motor vehicles. Two-track and other vehicle routes have been established in the past to fit the needs of commercial interests (ranching, utility construction/maintenance) and the public, primarily for hunting. These routes are generally not maintained, rough travelling, suitable for low speed traffic only and, in many cases, require all wheel drive and high clearance vehicles to traverse. Newly constructed roads would intercept and cross these routes, and, in many cases, be built on top of existing routes. This would serve to integrate the existing transportation network into the new, higher speed road network. Casual use by the public and ranchers occurs today and would continue into the future. It is the intent of the BLM to not alter the availability of access for use by ranchers and the public, as appropriate. Travel across the National System of Public Lands by vehicles for commercial purposes must be approved by a ROW. Without a ROW such travel is improper and the company responsible would be trespassing. It is possible for unpermitted vehicles of any company to cross the area and access the ARP under either alternative at the whim of the vehicle operator whether sanctioned by the company itself or not.

Effects common to all alternatives

Under either of the alternatives, traffic activity would increase above current conditions. Maximum traffic speed on the new and upgraded roads would increase by 15 to 25 miles per hour (MPH). Normally, traffic on a two-track route runs 10-15 MPH and on improved oil and gas roads 25-40 MPH. Increased access to existing two-track routes from upgraded roads both within and outside of the POD areas would occur under either alternative.

The Proposed Action Driving Time and Distance

A grant of ROW for only DEPC commercial vehicles would occur under this alternative using the proposed action route. The distance from DEPC administrative site in T16N, R91W, section 6 to the proposed action POD I Central Delivery Point (CDP) (in section 25 of T17N, R92 W) is about 15 miles. At an average travelling speed of 35 MPH (dirt roads and State Highway 789) travel time to that point is about 25 minutes. The distance from DEPC's pipe yard adjacent to State Highway 789 is about 5.6 miles and at 60 miles an hour average would take about 6 minutes to reach the POD I area. Traffic coming from State Highway 789 could enter the ROW and travel approximately 2.1 miles to the boundary of POD I.

Access to POD G&I and Atlantic Rim area in general

Approval of the proposed action with the resultant improvement of access from State Highway 789 would serve to encourage additional traffic through POD G&I and into the ARP area. The grant of a ROW would require 2.75 miles of road to be upgraded to the BLM collector road

standards (State Highway 789 to the POD I Central Delivery Point). This would allow oil and gas development equipment and vehicles access to POD G&I under the BLM road quality standards. The north-west access route could also increase access to other areas of the ARP via existing two-track routes in the area without the need to travel another 7.7 miles to the Dad turnoff and from there into the ARP. The ease of natural gas related vehicle access and the associated rise in traffic volumes would lead to an increase in traffic, noise, dust and disruptive activities.

Access time to existing PODs in the northern area of ARP development, would be shortened. No other companies have a ROW on this route, so any commercial use other than for ranching related activities would constitute trespass. "Taking the shortcut" on the proposed action ROW by non-DEPC personnel, along with the use associated with DEPC approved project activities, livestock operational use and public use would increase frequency of vehicle trips through the area. Unauthorized use of the north-west access route would be pursued through the BLM administrative procedures.

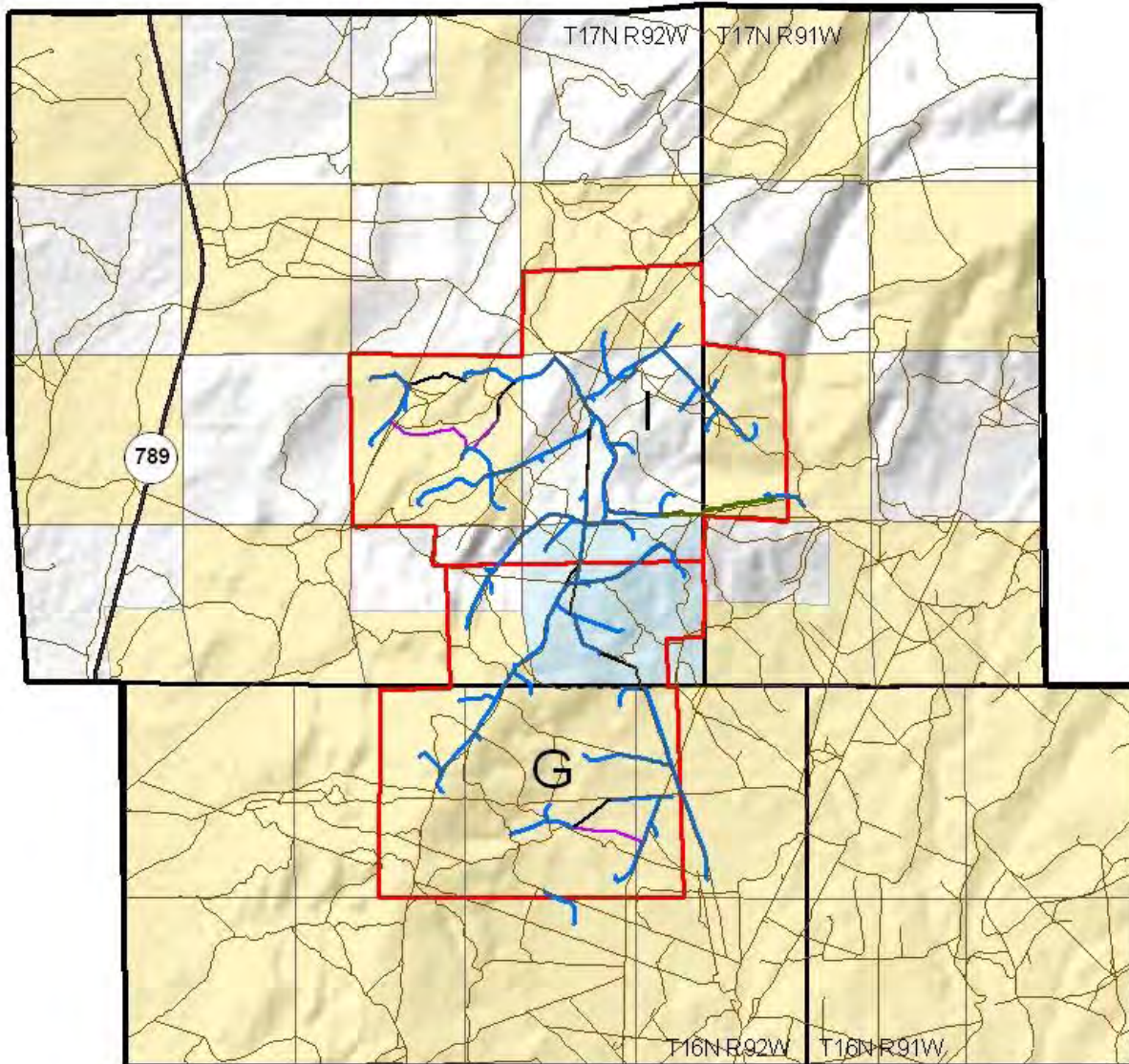
Alternative A Driving Time and Distance

The distance from DEPC's administrative site in T16N, R91W, section 6 to the POD I CDP is about 6 miles. At an average travelling speed of 25 miles an hour (dirt roads) travel time to that point is about 15 minutes. The distance from DEPC's pipe yard adjacent to State Highway 789 to the POD I CDP is about 11.4 miles and at 35 miles an hour average (some highway mostly dirt roads) would take about 20 minutes. Traffic from State Highway 789 would enter onto Carbon County Road 608 at Dad, Wyoming. From that point the nearest approved well site is about 2.3 miles east at Catalina POD F. From the Dad turn-off to the beginning of the east access route is about 7.9 miles over a maintained dirt road. The distance from the Dad turnoff to the beginning of POD I is about 9.1 miles.

Access to POD G&I and Atlantic Rim area in general

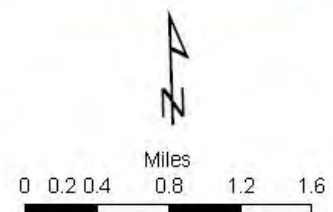
The east access route requires POD G&I related traffic to move through the ARP area via the Dad access route. ARP traffic would be required to travel farther on unpaved roads and at slower speeds (est. 20 to 35 miles/hr.). Natural gas production related traffic to, and through, POD G&I would be restricted to POD G&I related activities. Ranchers and the public would continue to use the north-west access route off of State Highway 789 as they do today; oil and gas development traffic would not. Commercial interests working in the ARP area without a ROW for the north-west access route would be in trespass on the National System of Public Lands. Offenders could be identified and the company they are associated with could be cited by the BLM for non-compliance. Approval of the east access route would not further encourage additional or improper traffic through the PODs. The east access route would result in longer trip times for DEPC and its contractors due to slower vehicle speed requirements. This is especially true for vehicles coming south on State Highway 789 going to POD I or the west portion of POD G. Travel times would be about the same for traffic originating from the south on State Highway 789 but would occur at slower speeds once within the ARP itself.

Catalina POD G and I Existing and Proposed Road Network



- Existing Other Access Routes,
2 Tracks, Roads
- Utility Corridor-30 feet
- Road Corridor- 50 feet
- Utility and Road Corridor-80 feet
- East Access Road-80 feet

- POD I
- POD G
- Bureau of Land Management
- Private
- State



No Warranty is made by the Bureau of Land Management
for use of data for purposes not intended by the BLM.

MAP 6

Vegetation

General descriptions of the project area vegetation communities, including weeds, are found in the Atlantic Rim Final Environmental Impact Statement, (AREIS; Chapter 3 Section 3.5, pg. 3-68 to 3-80, 2007). Invasive weed species were noted during on-site inspections of individual well pads, roads, pipelines and facility locations. Halogeton, alyssum and cheatgrass are common throughout the project area depending upon the soil textures. Additional site specific vegetation inventory data would be collected by the company and submitted as part of any approved Reclamation Plan as per the Wyoming Reclamation Policy (March 2009), the Rawlins Resource Management Plan (RMP) Appendix 36 (Dec. 2008) and the ROD (March 2007) (p. A-3, Section 1.3.1) prior to any surface disturbance. The DEPC Reclamation Plan would include a weed management plan to address weed control.

Effects common to all alternatives

The impacts anticipated with the construction of this project, and already realized on previously implemented projects, are the same as those identified in the AREIS: *“Direct impacts to existing native shrub/grassland communities in the ARP resulting from project implementation include a short-term reduction of herbaceous vegetation and a long-term loss of shrub cover”*. No new impacts were identified.

Construction activities will disturb soils and remove vegetation including grass and shrubs. Following disturbance and completion of construction activities portions of the disturbed sites would be reclaimed. Short term disturbance such as pipelines and excess areas of wells pads not needed for natural gas production activities would be reclaimed and vegetation established. Long term disturbance areas include roads, portions of well pads, central delivery points and ancillary facilities would remain unreclaimed during the duration of the project. The table below details the difference in surface disturbance between the proposed action and Alternative A.

POD I Estimated Surface Disturbance

POD G&I Combined	Acres of Disturbance	# Wells	Acres Disturbance/Well
Proposed Action	326	51	6.4
Alternative A	316	51	6.2

Proposed Action

The difference between the alternatives is the extent of surface disturbance with its associated vegetation removal.

Alternative A

The difference between the alternatives is the extent of surface disturbance with its associated vegetation removal.

Soils

Affected environment

A general description of the project area soils and their limitations are found in the AREIS (Chapter 3 Section 3.3, pg. 3-22 to 3-33). Soil properties were noted during onsite inspections of individual well pad, road, pipeline and facility locations. Soils with high salt content and high sand content, as well as shallow soils on moderately steep slopes were identified. Additional site specific soil parameters would be collected by the company and submitted in their

Reclamation Plans per the Wyoming Reclamation Policy (March 2009), the Rawlins Resource Management Plan (RMP) Appendix 36 (Dec. 2008) and the ROD, (March 2007) (p. A-3, Section 1.3.1) prior to any surface disturbance. Additional mitigation measures may be developed at that time to address soil issues identified.

Effects common to all alternatives

Potential impacts to soil resources are discussed in the AREIS (Ch. 4 Section 4.3, p. 4-16 to 4-19). The impacts anticipated with the construction of this project, and already realized on previously implemented projects, are the same as those identified in that document: *“Removal/damage of existing native vegetation and surface litter would increase wind erosion potential, increasing raindrop impacts to exposed soils, water borne erosion potential and increasing soil surface temperature; removal/damage of biological soil crusts; removal/damage of topsoil and sub-soil fauna (macro- and microorganisms); compaction of soils; mixing of topsoil horizons, especially when mixed with sub-soils of high salt content; thus increasing topsoil salinity content; increasing potential for undesirable (invasive / noxious / poisonous) plant invasion and establishment; increasing potential for sedimentation / salt loads to the watershed, including stock ponds; and decreasing topsoil productivity”* (AREIS p. 4-17).

Soils with high salt content and high sand content, as well as shallow soils on moderately steep slopes would be disturbed by this project. The impacts are equivalent to those identified in the AREIS and would contribute to the significant impacts identified in the AREIS. In general, the extent of these impacts to the soil resource would be influenced by the success of mitigation and reclamation efforts. Reclamation success, in part, depends on the amount of surface area disturbed, quality of topsoil salvaged, stockpile/redistribution methods in disturbed areas, precipitation, soil type and moisture availability. The company submitted Reclamation Plans would address these identified issues in an attempt to reduce the soil loss and degradation associated with construction of the project.

Road re-construction would modify the surface hydrology by intercepting and concentrating surface runoff, and in certain instances (e.g., a road cut into a hillside) intercept and alter groundwater flow. Road surfaces decrease infiltration and concentrate flows. Roads would also contribute sediment to downstream drainages from the road surface and from surface disturbance based on construction and road maintenance activities.

Proposed Action

The Proposed Action would have more road re-construction as compared to the Alternative A route. This would lead to more erosive soils exposed to wind and water erosion outside the actual project development areas. The sediment and salts would also be mostly within the Muddy Creek/Antelope Creek sub basin which directly feeds into an impaired segment of Muddy Creek. This parallels the impacts identified in the AREIS (Ch. 4, Section 4.4, p 4-27).

Alternative A

This alternative reduces the amount of road to be upgraded as compared to the Proposed Action. This reduces the amount of erosive soil exposed to wind and water erosion, surface and groundwater altered flows and sediment and salt carried downstream. This route is also entirely in a different sub basin which allows for more opportunity to catch and filter sediment and salt before reaching Muddy Creek.

Hydrology

Affected Environment

Catalina Unit POD G&I are drained by Muddy Creek, which is located in the Colorado River Basin. Ephemeral tributaries to Muddy Creek located in the project include Dry Cow Creek and Cow Creek, as well as numerous unnamed drainages. A large headcut stabilization structure divides Muddy Creek into two major segments: Lower Muddy Creek and Upper Muddy Creek. The project area is located within the Lower Muddy Creek segment. Lower Muddy Creek is highly erosional, has abundant channel incisions and contains channel substrates that consist of predominantly very fine-grained sediments (Beatty 2005). Streamflow in Muddy Creek and its tributaries is predominantly snowmelt dominated with rainfall contributions from late season thunderstorms and varies with location along the drainage. Losses to irrigation, seepage and evapotranspiration deplete the flows such that Lower Muddy Creek flows intermittently and is generally dry and prone to periodic flash events (BLM, 2006). Further discussion of the affected environment for water resources including surface water and groundwater can be found in the AREIS Chapter 3, Affected Environment Section 3.4 Water Resources, pg. 3-33. Groundwater in the project area is predominantly located in the Almond Formations of the Mesaverde Group (AREIS Section 3.4.5.1 Groundwater Location and Quantity pg. 3-60). Quality of groundwater in the Project Area is variable and depends on aquifer depth, rock type, flow between aquifers and length of time the groundwater has contact with surrounding bedrock. A more detailed analysis of groundwater quality can be found in the AREIS Section 3.4.5.2 Groundwater Quality, pg. 3-63.

Effects common to all alternatives

Impacts to water resources from well pad, road ancillary feature construction include increased surface water runoff, wind erosion, water erosion and off site sedimentation of drainages due to vegetation removal and soil disturbance (AREIS Chapter 4 Section 4.4.1.1 Surface Water Impacts, pg. 4-21). Increased runoff, erosion and sedimentation would lead to changes in channel geometry, gradient and undesirable aggradation and/or degradation of drainages. Changes in streamflow and water quality would result from increased loads of sediment and salts. Impacts related to disturbance are likely to last through the construction and production phases of the project and into the reclamation phase. Interim and final reclamation would be essential to reducing soil erosion and associated impacts.

For the following wells located in Catalina POD G and I, the project impacts were not expected to contribute to significant surface water impacts as outlined in the AREIS (Chapter 4 Section 4.4.2 Impact Significance Criteria, pg. 4-24 to 4-25):

Table 1:
Wells located in Catalina POD G and I that are not expected to contribute to significant hydrologic impacts.

POD G	POD I
11-1	22-30
13-1	13-30
44-2	11-30
22-2	44-24
13-2	24-24
24-2	33-26
40-2	44-26
44-35	24-26
20-2	13-26
42-3	31-26
42-2	22-26
11-2	

The AREIS determined that within the ARP area indirect impacts to surface water resources would be significant and included changes in water quality, channel stability and salt and sediment transport. Additionally, impacts would be considered significant to the reach of Muddy Creek located adjacent to State Highway 789 that is currently on the EPA's 303(d) list of Impaired and Threatened Waterbodies (AREIS Section 4.4.3.5 Alternative D pg. 4-48; see also AREIS Map M-17). As Catalina Unit POD G&I is located entirely within the Muddy Creek drainage, lies to the northeast of the impaired section of Muddy Creek and several tributaries originating in the Project Area drain directly into Muddy Creek, this development would contribute to the impacts to an already impaired stream reach.

The following wells impacts would contribute to the significant impacts to water resources described in the AREIS:

Table 2: Wells located in Catalina Unit POD G and I that are expected to contribute to significant hydrologic impacts.

POD G	POD I
31-2	24-30
31-3	42-26
33-2	11-26
33-35	
40-3	

Site Specific Well Impacts in POD G

Well # 31-2

The proposed well pad would be built directly on top of an ephemeral drainage, which would change the geometry and gradient of the ephemeral drainage and would lead to undesirable aggradation of the existing channel. Although these impacts cannot be mitigated, the channel upstream and downstream of the well pad must be maintained such that water flow is not impeded. This would be accomplished by using the spoils pile as a berm to reroute water flow around the well pad. A diversion ditch would not be constructed as part of the Proposed Action or Alternative A to achieve this.

Well # 33-2

The pipeline associated with this well (linking wells #33-2 and #42-2) travels cross-country and does not follow either the proposed road route or existing disturbance. The pipeline would cross several ephemeral drainages. This would change drainage geometry due to vegetation removal, soil disturbance and bank instability, resulting in sedimentation, headcutting and further erosion. The banks of the disturbed drainages must be recontoured to pre-disturbance conditions, re-vegetated as rapidly as possible. Cross sections and longitudinal profiles would be collected from these drainages prior to disturbance to aid in reclamation of the banks. Silt fences would be required to be installed.

Well # 31-3

This proposed well pad is located at the head of an ephemeral drainage. This pad location would affect channel geometry and gradient of the drainage and result in sedimentation and undesirable aggradation of the channel. Although these impacts cannot be avoided, they can be mitigated by using the spoils pile as a berm on the upslope side of the pad (no diversion ditches should be constructed to achieve this) to ensure connectivity of flow.

Well # 33-35

This proposed well pad is located on steep slopes with unstable soils and the disturbance is likely to lead to accelerated erosion and resultant sedimentation of drainages in valley bottoms. Sediment fences, hay bales, straw wattles and erosion mats should be used to prevent erosion from the steep slopes. Revegetation of the disturbed areas would be implemented as rapidly as possible.

Well # 40-3

This proposed well pad is located on steep slopes with unstable soils and the disturbance of such is likely to lead to accelerated erosion and resultant sedimentation of drainages in valley bottoms. Sediment fences, hay bales, straw wattles and erosion mats should be used to prevent erosion from the steep slopes. Revegetation of the disturbed areas would be implemented as rapidly as possible.

Site Specific Well Impacts in POD I

Well # 24-30

There is a mapped ephemeral drainage in close proximity to the proposed well pad location of Well # 24-30. The primary impacts to surface water from the nearby well pad include but are not limited to increased stormwater runoff volumes and velocities, increased erosion and increased sedimentation. All these impacts can cause a number of processes to begin within the stream system such as stream channel degradation, head cut formation and a decrease in surface water quality. In order to mitigate these impacts, silt fences would be installed around the downhill side of the well pad.

Well # 42-26

Well 42-26 is located on a slope and would cause rills and gullies to form through and around the pad if additional mitigation measures are not implemented. Rills and gullies contribute to higher runoff velocities, increased erosion and increased sedimentation. Along with the formation of rills and gullies, the location of the pad would also lead to flooding on the well pad itself. To mitigate these impacts, a berm would be implemented as well as straw wattles.

Well # 11-26

The proposed access road to Well # 11-26 crosses a mapped ephemeral drainage. When a road crosses a stream or drainage, even if additional mitigation measures are applied, the channel morphology is altered in such a way that it would contribute to accelerated channel

degradation. Vegetation is stripped and soil is removed which causes localized increased erosion; consequently this increased erosion causes increased sedimentation and an alteration in water quality downstream of the road crossing. Culverts allow for water to flow under the road and to an extent culverts help alleviate some of the impacts caused by road crossings. However, if culverts are not sized appropriately, then their level of effectiveness diminishes drastically. A culvert that is too small would force the water to bypass the culvert and flow over the road. Stormwater flow over a road would erode away the road causing more erosion and sedimentation. The culvert that is to be placed where the access road for Well # 11-26 crosses the ephemeral drainage would be sized appropriately or it would not be effective in allowing stormwater to flow under the road. This culvert needs to be sized according to the local hydrology. A hydrology report as well as engineering designs need to be submitted to the BLM by the proponent for approval prior to installation of this culvert.

Groundwater Impacts

As detailed in the AREIS, groundwater impacts associated with development in the project area are expected to contribute to significant impacts due to changes in flow volumes and would affect springs, seeps and aquifers in the area (AREIS Chapter 4 Water Resources Section 4.4.4 pg. 4-49). Development of Catalina Unit POD G and I is expected to contribute to the significant impacts described in the AREIS (Chapter 4 Water Resources Section 4.4.3.2 pg. 4-42). The primary impacts to groundwater as a result of this development would be the removal of groundwater contained in coal aquifers and the subsequent recharge of aquifers with produced water following re-injection (AREIS Chapter 4 Section 4.4.1.2 Groundwater Impacts, pg. 4-21). Produced water in the Catalina POD G&I would originate from the Mesaverde formation. Underground re-injection is the primary method of water disposal in the Catalina Unit and water produced from the development of POD G and I would be disposed of in existing injection wells located in adjacent Catalina PODs, possibly through approved surface discharge points or additional re-injection wells yet to be drilled. Groundwater quality in the proposed development area meets Class II injection well standards and would be monitored on a regular basis with results sent to the BLM (Double Eagle Water Management Plan, Catalina Unit POD G&I, December 21, 2010).

Proposed Action

Roads are a considerable source of sediment even when constructed and maintained adequately. Roads on sideslopes facilitate erosion by concentrating runoff, intercepting runoff and acting as sediment conduits (Martherne 2006). Length, slope and soil features determine the intensity of erosion; proximity to drainages determine water resource impacts. The proposed action access road would follow an existing two-track that would require upgrading to meet the BLM road construction standards as outlined in the BLM Manual 9113 and the Gold Book, as well as requirements from both the Rawlins Resource Management Plan (RRMP) and the AREIS. Road construction that conforms to the BLM requirements includes crowning, ditching, proper culvert installation and often road surfacing to manage water transport.

The proposed action access road would result in 2.1 miles of surface disturbance including the construction of a crowned and ditched road and impacts associated with road construction. Disturbance from road construction includes removal of vegetation, fuel and hazardous liquid spills and changes in drainage morphology from culvert installation and interception. The proposed action access road traverses moderately steep slopes, which would accelerate naturally occurring erosion. The re-construction of this road would increase traffic within the area. This would increase erosion from roads (as a result of increased use), require frequent maintenance (including, but not limited to, clearing roadside ditches, installing rock check dams, hay bales and/or straw wattles), require extensive dust abatement measures and is likely to

result in damage to culverts and other drainage crossings. The impacts from the development of this road would continue throughout the life of the project.

In steeper terrain (on grades greater than 8%) engineered designs of roadways would be delivered to the BLM and complex drainage crossings (as identified by either the BLM Hydrologist or Civil Engineer on a site specific basis) and those that require multiple culverts would require hydrologic analysis. Appendix H of the AREIS outlines measures to reduce road construction and use impacts on drainages and the surrounding environment. The proposed action access road would be located near to the impaired section of Muddy Creek (please see AREIS Map M-17) and would contribute sediment and salt to ephemeral drainages flowing directly into Muddy Creek and Muddy Creek itself.

Alternative A

The Alternative A road access would be constructed through terrain that is currently an existing two-track route and would result in the disturbance of 0.7 miles of road reconstruction. Impacts associated with this alternative would be similar to those associated with the proposed action but would occur on a shorter length of road. Additionally, Alternative A would reduce total road construction in the entire project. The construction of this access road would contribute sediment and salts to the Muddy Creek watershed; however, due to the shorter re-construction distance of the alternative, contributions would be less than those that would occur under Alternative A. Additionally, runoff from the Alternative road would not drain directly into the impacted section of Muddy Creek, but would be filtered through several ephemeral drainages before reaching Muddy Creek itself.

Summary of Water Resource Impacts

As outlined in the AREIS, impacts to surface water resources include sediment and salt transport, increased runoff, erosion and off site sedimentation of drainages that would result in channel instability and degradation of water quality and aquatic habitat (AREIS Section 4.4.3.1 Direct and Indirect Impacts Common to All Alternatives pg. 4-25). Both alternatives are expected to contribute to the significant impacts anticipated in the AREIS, particularly in an impaired reach of Muddy Creek (see Map M-17, AREIS) located southwest of the Catalina Unit POD G&I development area. Indirect impacts, including changes in water quality, rainfall-runoff relationships and contributions of salt, are also expected to contribute to significant effects. Significant impacts to groundwater are anticipated in the ARP and the AREIS and include changes in hydrostatic pressure, water quality the flow of springs, seeps and wells in the area (AREIS Chapter 4 Water Resources Section 4.4.4 pg. 4-49). However, no new significant impacts to groundwater are anticipated in the development of Catalina Unit POD G&I.

Cultural Resources Affected Environment

Cultural resources within the project area include prehistoric lithic scatters, open campsites and historic debris scatters common to the region. A detailed discussion of the affected environment for cultural resources, including the historic trails, can be found in the AREIS Section 3.11 Cultural and Historical Resources, page 3-122 – 3-155. Potential impacts to cultural resources are described in the AREIS at Section 4.11 Cultural Resources, page 4-116 – 4-120. Class III cultural resource inventories were conducted for the entire project area in order to identify any cultural properties that might be affected by the proposed project. The inventories included analyses of any physical impacts to cultural properties that might occur from construction

activities as well as any visual impacts to properties where the historic setting is an important aspect of integrity.

Effects common to all alternatives

The Catalina POD I 1792 24-26 and the Catalina POD G 1692 22-2 well locations were relocated to avoid physical disturbance to identified cultural properties. No other historic properties were identified that would be adversely affected by the proposed project, however, areas of culturally sensitive soils where archaeological discoveries might occur were identified within the project area. Standard and site specific measures such as monitoring are incorporated in the project design features and would be included in the project APDs in order to mitigate any potential impacts (see Appendices 1 and 2).

Proposed Action

The historic Overland Trail is located near the proposed action's northwest access road that comes from Wyoming State Highway 789. Visual analysis shows that the proposed access road would be visible from contributing segments of the historic trail. Improvements to the access road would change the character of the historic setting of the Overland Trail and cause an adverse effect to this historic property.

Adverse affects to the historic trails and roads were identified in the AREIS. A Programmatic Agreement (PA) was executed between the BLM, the State Historic Preservation Office, the Advisory Council on Historic Preservation, 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 and design features were developed. These restrictions or stipulations in the form of Standard Operating Procedures, Best Management Practices and design features would be incorporated in the project design features and would be included in the project APDs in order to mitigate any potential impacts (see Appendices 1 and 2).

Alternative A

No part of the project would be visible from the historic Overland Trail. No historic properties would be adversely affected under this alternative.

Recreation and Visual Resources Affected Environment

Recreation opportunities within the POD G & I project area and within the greater ARP include hunting, camping, hiking, wildlife viewing, off-highway recreational vehicle use and sightseeing. Hunting is the primary recreational use in the ARP and occurs during the fall months. Most other recreational use occurs at a relatively low rate compared to the level of hunting related activity. Additional discussion on the recreational opportunities within the ARP can be found in the AREIS, Chapter 3, page 3-115 – 3-119.

A portion of Catalina Pod I is located within the checkerboard land pattern created by the Union Pacific Railroad land grant.

Catalina Pod G and I are proposed to be developed in an area that is relatively undisturbed. Current development located in the proposed Catalina G&I project area includes a power line, previous seismic projects, livestock fencing and water improvements. The general area is

relatively open with rolling hills that support sagebrush shrub communities along the eastern half of the project area and juniper vegetation communities to the west.

The Visual Resource Management (VRM) Classes for the project area, as designated in the Rawlins RMP, include VRM Class III and IV. Approximately 85 percent of the project area is VRM Class III and 15 percent is VRM Class IV. Additional discussion of the VRM program and VRM class objectives can be found in the AREIS, Chapter 3 on pages 3-119 – 3-122.

Proposed Action (North-West) Access Route

The north-west access road is currently a two-track road. The NW access route starts at State Highway 789 and proceeds east into the proposed Catalina Pod I area (see Map 2). The proposed route crosses private land in T. 17 N., R. 92 W., Section 23. The use on the two-track road is low during most times of the year and is generally related to livestock grazing activity and hunting. Immediately before and during hunting season use of the two-track road and general activity in the area increases. Types of vehicles used include all-terrain vehicles (ATV), high clearance vehicles and utility terrain vehicles (UTV).

Alternative A (East) Access Route

The Alternative A access route is currently a two-track road. The route originates from Catalina POD C to the east of the project area (see Map 3). No direct access to, or from, State Highway 789 exists other than two-track routes.

Environmental Effects

Effects common to all alternatives

The construction of this project would not result in a loss of recreational activity in the area. However, the quality of the recreational experience would be diminished by the physical presence of Catalina Pod G&I CBNG wells and related facilities, CBNG development and operational activities, noise and traffic. A large segment of the recreating public would be adversely impacted by the construction of this project to the point of greatly reduced, or discontinued, use of the area. Additional discussion of impacts to recreation can be found in the AREIS, Recreational Resources, Sections 4.9 and 5.2.9.

This project is located within an area that is beginning to experience major oil and gas development as predicted in the AREIS. The proposed oil and gas facilities would contrast with the form, line, color and texture of the surrounding landscape. Due to the minimal relief provided by the existing landscape, facilities, or portions thereof, would be visible above the topographic horizon. The structures would be only partially screened by the terrain and therefore, noticeable. The proposed facilities would interrupt the line or flow of the continuous terrain but not dominate the view of the observer. The texture of the road and pad would contrast with the surrounding landscape features primarily due to the absence of vegetation that exists in the surrounding area. Additionally, the generally light tan soil color of the graded surfaces would contrast with the darker colors and shades of vegetation and soils surrounding the pad and road. The scale and quantity of the facilities being placed on the landscape would be noticed by the public. The required paint color would blend the facilities with the background colors of the vegetation. The overall absorption of this project on the landscape would be noticeable due to the size and scale of the structures and variation of the landscape. While the oil and gas facilities decrease the scenic quality of the project area, the contrast is acceptable under both the VRM Class III and IV management objectives.

The chart below lists individual Catalina Pod G&I well locations. Well locations which required visual modification in order to be consistent with VRM Class III and IV management objectives have been identified. Modifications were made by BLM during site-specific evaluations and are supported by the Visual Contrast Rating forms completed for the project. Visual Contrast Rating forms are retained in the Catalina Pod G&I project files at the BLM Rawlins Field Office.

Catalina G		
Well Pad	VRM Class	Visual modification
42-3	IV	Yes
31-3	IV	Yes
40-3	IV	Yes
11-2	III	Yes
20-2	III	Yes
44-35	III	
33-35	III	Yes
40-2	III	
31-2	III	
11-1	III	
42-2	III	
13-1	III	
44-2	III	
33-2	III	
22-2	III	
13-2	III	Yes
24-2	III	

Catalina I		
Well Pad	VRM Class	Visual modification
13-26	IV	
11-26	IV	Yes
22-26	IV	
24-26	IV	
33-26	III	
44-26	III	
42-26	III	
31-26	III	
24-24	III	Yes
44-24	III	
24-30	III	
11-30	III	
13-30	III	Yes
22-30	III	

The Proposed Action

Improvement of the existing two-track road (with the DEPC proposed 20 mile per hour speed limit and gate on private property in Section 23) would provide natural gas related access into the Catalina Pod G and I area. Recreational users may be drawn to the area by the upgraded, higher quality collector road off of State Highway 789 but legal public access would not be available beyond Section 22 (see Map 2) due to the presence of privately owned lands.

Creating this additional improved road into the Atlantic Rim project area would result in better vehicle access and opportunity for year-round recreation access (with landowner permission). Additional discussion of impacts to recreation can be found in the AREIS, Recreational Resources, Sections 4.9.3 and 5.2.9. Any long-term reduction in the big game population as described in the wildlife section of this EA would result in a corresponding reduction in recreational hunting opportunities and use.

Alternative A

Approval and improvement of the Alternative A (east) access route would result in recreation travel and use levels consistent with historic levels for the ARP and the Pod G&I area. The east access route is not directly accessible from State Highway 789, other than two-track routes. Therefore, a second access point into the ARP would not be established. The east access route through Catalina POD C on existing POD C resource roads and a 0.7 mile upgrade of two-track road would maintain traffic volumes at levels required to construct and operate the Pod G&I wells only.

Range Resources Affected Environment

The entire project area is open to livestock grazing and is within the Doty Mountain Allotment. Range improvements in the area include pasture fences, water pipelines, water wells and reservoirs. There are range water facilities located in T17N, R92W sections 24 and 25 that are adjacent to the proposed action's access road. The water facilities include a water pipeline from a well located outside the project area, two tire troughs and a storage tank that provide water to three adjoining pastures. The next nearest reliable water source is approximately one mile to the southeast and only provides water in one of the three pastures. Wire gates are located where pasture fences cross two-track roads.

The Doty Mountain Allotment is grazed as part of a cow/calf operation (650 cow/calf pairs). The livestock in the allotment graze from April 1 to December 31 and rotate through multiple pastures. The allotment contains approximately 56,000 acres and is 67 percent public land. The allotment is allocated 5,643 animal unit months (AUMs) of forage with an average of 8.2 AUMs per acre on the public lands. The project area lies within the north central region of the allotment and encompasses multiple pastures and range improvements.

This allotment was assessed in the "*Upper Colorado River Basin Watershed Standards and Guidelines Assessment*" completed in 2001. The results of the assessment for the Doty Mountain allotment were that the allotment met all of the standards for rangeland health. This allotment is scheduled to be reassessed in 2011.

Effects common to all alternatives

Potential impacts to rangeland resources are discussed in the AREIS Section 4.6.3 Page 4-61. Impacts include vegetation and soil disturbance associated with construction activities, disruptive activities to wildlife and livestock, reclamation, weed control, road issues (i.e., dust and animal collisions), fence maintenance, water management and increased recreational use by the public.

Project construction during the scheduled grazing period (April-December) would temporarily displace livestock. Livestock would likely return to the area after project construction activities cease.

The potential disturbance area of either alternative represents less than one percent of the total acreage (approximately 66,000 acres) within the local range allotment. It is not expected that a

reduction in permitted AUMs would be necessary from the over 300 acres affected by project construction. There would be a total of approximately 36 AUMs of forage availability directly lost from surface disturbance. Changes to the amount of permitted AUMs would be based on vegetation and utilization monitoring of the allotment. Revegetation of disturbed areas would be designed on a site-specific basis in consultation with the BLM to maintain or enhance the quantity and quality of livestock forage within the allotment.

In areas with lower reclamation potential soils, such as those soils with a higher salt content layer or elevated SAR values, the potential vegetation community that the site would support, may be altered. Changes to the soil chemistry due to the mixing of soil layers would cause areas to no longer have the same potential vegetation community reducing the productivity for upland habitat. This change would result in the area not meeting standards for rangeland health (STANDARD 4 – Wildlife/Threatened and Endangered Species/Fisheries Habitat Health and Weeds) on localized sites. This project would contribute to the significant impacts to range resources described in the AREIS Page 4-66 Section 4.6.4.4

The Proposed Action

Livestock forage on 326 acres of surface disturbance within the allotment would be temporarily or permanently eliminated, as a result of ground-disturbance from construction of well pads, access roads and other facilities. The proposed action increases natural gas industry traffic in an area (see map 2, NW, T17N, T92W, section 25) that has a heavily used livestock water source. The amount of natural gas related traffic would increase under this alternative since the proposed access road would funnel most of the traffic for Pod G&I and potentially other Pods, within 100 yards of the livestock water facilities. This would result in increased disturbance to livestock in an area of concentrated livestock use. Livestock would frequently cross, or remain on, the proposed access road which would increase the risk of collisions with natural gas related vehicle traffic. An associated effect would result in an increased risk to human health and safety and potential livestock loss. There would be a need to develop new water sources for livestock near the existing water sources.

Alternative A

Livestock forage on 316 acres within the allotment would be temporarily or permanently eliminated, as a result of surface disturbance from construction of well pads and access roads. The access road for well 11-25 would pass adjacent to the water facilities (see map 2, NW, T17N, T92W, section 25) and would result in disturbance to livestock in an area of concentrated use. Livestock disturbance in this high use area would be greatly reduced compared to the proposed action. Under this alternative the nature of the road would be a resource road with less traffic and slower traveling speeds. This would eliminate the need to develop new livestock water sources and the disturbance caused from those projects

Additional Mitigation Measures - Proposed Action

Water sources for livestock adjacent to the access road in T17N, R92W, section 25 would need to be modified and relocated to reduce the risk of livestock and vehicle impacts.

Wildlife Resources
Affected Environment

BLM Wyoming Rawlins Field Office Sensitive Species

Habitat Presence in POD G&I¹

Species	Habitat	Occurrence
Rabbit, Pygmy	Basin-prairie and riparian shrub	Habitat Present
Bat, Townsend's Big-eared	Forests, basin-prairie shrub, caves and mines	Habitat Present
Prairie Dog, White-tailed	Basin-prairie shrub, grasslands	Known to occur
Prairie Dog, Black-tailed	Short-grass prairie	No habitat present
Myotis, Long-eared	Conifer and deciduous forests, caves and mines	Habitat Present
Myotis, Fringed	Conifer forests, woodland-chaparral, caves and mine	Habitat Present
Pocket Gopher, Wyoming	Meadows with loose soil	Habitat Present
Fox, Swift	Grasslands	Habitat Present
Preble's Meadow Jumping Mouse	Heavily vegetated, shrub-dominated riparian (streamside) zones	No habitat present
Goshawk, Northern	Conifer and deciduous forests	No habitat present
Sparrow, Baird's	Grasslands, weedy fields	No habitat present
Sparrow, Sage	Basin-prairie shrub, mountain-foothill shrub	Habitat Present
Owl, Burrowing	Grasslands, basin-prairie shrub	Habitat Present
Hawk, Ferruginous	Basin-prairie shrub, grassland, rock outcrops	Known to occur
Sage-grouse, Greater	Basin-prairie shrub, mountain-foothill shrub	Known to occur
Plover, Mountain	Short-grass & mixed-grass prairie, openings in shrub ecosystems, prairie dog towns	No habitat present
Cuckoo, Yellow-billed	Open woodlands, streamside willow and alder groves	No habitat present
Swan, Trumpeter	Lakes, ponds, rivers	No habitat present
Falcon, Peregrine	Tall cliffs	No habitat present
Eagle, Bald	Primarily along rivers, streams, lakes and waterways	No habitat present
Shrike, Loggerhead	Basin-prairie shrub, mountain-foothill shrub	Habitat Present
Curlew, Long-billed	Grasslands, plains, foothills, wet meadows	No habitat present
Thrasher, Sage	Basin-prairie shrub, mountain-foothill shrub	Habitat Present
Ibis, White-faced	Marshes, wet meadows	No habitat present
Sparrow, Brewer's	Basin-prairie shrub	Habitat Present
Grouse, Columbian Sharp-tailed	Grasslands and shrub lands	No habitat present
Sucker, Bluehead	Bear, Snake and Green drainages, all waters	No habitat present, habitat off-site may be affected

¹ Sensitive species occurrence is specific to the Catalina PODs G&I. Sensitive species not known to occur within these PODs may occur within the AREIS area.

Sucker, Flannelmouth	CO River drainage, large rivers, streams and lakes	No habitat present, habitat off-site may be affected
Chub, Roundtail	CO River drainage, mostly large rivers, also streams and lakes	No habitat present, habitat off-site may be affected
Chub, Hornyhead	Lower Laramie and North Laramie River Watersheds	No habitat present
Trout, Colorado River Cutthroat	CO River drainage, clear mountain streams	No habitat present, habitat off-site may be affected
Toad, Boreal	Pond margins, wet meadows, riparian areas	No habitat present
Frog, Northern Leopard	Beaver ponds, permanent water in plains and foothills	No habitat present
Spadefoot, Great Basin	Spring seeps, permanent and temporary waters	Known to occur ²
Laramie Columbine	Crevice of granite boulders & cliffs 6,400-8,000'	No habitat present
Meadow Milkvetch	Sagebrush valleys and closed-basin drainages in moist alkaline meadows at 6500-6620 ft	No habitat present
Cedar Rim Thistle	Barren, chalky hills, gravelly slopes, & fine textured, sandy-shaley draws 6,700-7,200'	No habitat present
Gibbens' Beardtongue	Sparsely vegetated shale or sandy-clay slopes 5,500-7,700'	No habitat present
Limber Pine	Timberline and at lower elevation with sagebrush. Associated species are Rocky Mountain lodgepole pine, Engelmann spruce, whitebark pine, Rocky Mountain Douglas-fir, subalpine fir, Rocky Mountain juniper, Mountain Mahogany, and common juniper	No habitat present
Persistent Sepal Yellowcress	Riverbanks & shorelines, usually on sandy soils near high-water line	No habitat present
Laramie False Sagebrush	Cushion plant communities on rocky limestone ridges & gentle slopes 7,500-8,600'	No habitat present

Effects Common to All Alternatives

General Wildlife

Shrub nesting birds

Surface disturbance and disruptive activities during POD G & I construction and operation, such as human presence, dust and noise may displace or preclude wildlife use of disturbed areas. Wildlife sensitivity to these impacts varies considerably with each animal species. Displacement is unavoidable in the short-term and this displacement has the potential to have the most effect on wildlife. The extent of displacement would be related to the duration, magnitude and the visual prominence of the activity, as well as the extent of construction and operational noise levels above existing background levels. This displacement is impossible to predict for most

² Surveys conducted after the AREIS ROD was signed have identified existing populations within the AREIS planning area.

species since the response severity varies from species to species and can even vary between individuals of the same species. After initial avoidance, some wildlife species may acclimate to the activity and begin to re-occupy areas previously avoided. This acclimation and reoccupation would be expected to occur following construction and drilling as the project moves into the production phases when less noise and human activity would take place.

The primary songbirds (common and BLM-sensitive species) that may be displaced by the reduction in habitat and disruptive activities are vesper sparrow, green-tailed towhee, lark sparrow, sage sparrow, sage thrasher, loggerhead shrike and Brewer's sparrow. Although there is no way to accurately quantify these changes, the displacement would be long-term. Birds are highly mobile and would disperse into surrounding areas and use suitable habitats to the extent that they are available. The long-term loss/reduced usability of shrub habitat would lead to an increase in use of remaining habitat by all species. This increase in use of the remaining habitat would then lead to a long-term reduction in shrub habitat quality and quantity outside of the immediate project disturbances. Catalina POD G & I standard design features, SOPs, BMPs and mitigation measures for other species (big game, raptors and Greater Sage-grouse) would indirectly benefit songbirds during critical time periods. Development of Catalina POD G&I would contribute to the significant impacts on nesting and foraging habitats disclosed in the AREIS. For further discussion of impacts to shrub dependent songbirds see the AREIS, Chapter 4, Section 4.7.3.1, pps. 4-69 to 4-72.

Big Game

The "*Baggs Mule Deer Crucial Winter Range Analysis*", prepared in 1994 concluded that the decline in the Baggs crucial mule deer winter range is not a recent occurrence, that much of the damage to the browse stands on the winter range appears to be the result of historic and continued overutilization by wildlife, the poor range conditions and the loss, or severe reduction, in many of the key herbaceous species can mostly likely be traced to sheep and cattle use that caused severe range damage at the turn of the century and probably, in many cases, has not yet been adjusted to fit the existing range carrying capacity (Nelson et al, 1994). Increased levels of energy development across southwest Wyoming have created a variety of concerns for wildlife and the habitats they occupy; impacts include direct and indirect habitat losses that can potentially result in reduced population performance (Sawyer et al. 2006a). Direct habitat loss occurs when native vegetation is converted to access roads, well pads, pipelines and other project features. Indirect habitat losses occur when wildlife are displaced or avoid areas near infrastructure because of increased levels of human disturbances (e.g., traffic, noise, pollution, human presence) (Sawyer, 2007).

Impacts to big game species from construction and development of Catalina POD G&I would include the removal and modification of habitat, displacement due to increased human activity, increased potential for vehicular collisions due to increased traffic on existing highways and increased potential harvest success due to easier hunter access. The magnitude of disturbance to big game species would depend upon the season the POD G & I area is used by each species, the ability of a species to habituate to the disturbance, the corresponding drilling schedule and the density of wells in the area. In addition, pronghorn and mule deer may not move to other habitats or other suitable habitats may not be available to them. Therefore, the inability to relocate would result in increased stress from competition for forage and cover.

The project is partially located within pronghorn (see Maps 9 & 10) and mule deer crucial winter range (CWR) (See Maps 7 & 8). The WGFD classifies big game CWR as a vital habitat and recommends that habitat function be maintained so that the location, essential features and species supported by the crucial habitat are unchanged (WGFD 2004). The application of the BLM seasonal restrictions to prevent drilling on CWR between November 15 and April 30

concentrates the construction and drilling activity during the non-winter seasons when big game animals are in better condition to react or adjust. Construction and drilling activities are the most disruptive aspects of oil and gas development on big game due to the high volume of vehicle traffic and the amount and variety of heavy equipment and engine noise that occurs. Concentration of construction and drilling activity outside of the winter season eliminates the displacement, disturbance and stress on big game animals when they can least afford it.

There is no equivalent migration/transition corridor seasonal timing restriction for the construction/drilling phase of oil and gas operations. Big game animals would be displaced from the source of any construction or drilling activity that might occur within migration/transitional ranges. This displacement would occur both during the fall and spring migration. Big game animals are in prime condition in the fall as migration begins and may be better able to absorb the added stress related to avoidance of construction and drilling activity. However, any additive loss in body condition and fitness that might occur during migration, when added to the rigors of breeding and maintenance requirements during the winter, would jeopardize an animal's chances of survival or successful parturition. Construction during the spring migration period would further exacerbate the additive loss of animal condition and result in higher late winter/early spring mortality or parturition failure. The loss of recruitment into a population and the mortality of adults would eventually result in long-term declines in population numbers.

Project facilities and the associated disruptive activities that occur throughout the operational life of the project would reduce the effectiveness of CWR and lead to long-term displacement of animals. This displacement increases the overall browse use levels on remaining transitional and CWR and results in reduced shrub vigor, increased shrub mortality and a decline in cover of the remaining sagebrush (AREIS, Chapter 4, pg. 4-71).

Project facilities and the associated disruptive activities that occur throughout the operational life of the project would alter historic migration patterns for both pronghorn and mule deer. Several general pronghorn migration routes and several documented mule deer migration routes transverse the project area and the POD G & I well pads and access roads could block or alter these existing migration routes. Use of these migration corridors and the CWRs that big game rely on to survive the worst winters is imperative for maintenance of viable big game populations. Without the use of these areas, significant winter mortality could take place during severe weather.

There is no equivalent CWR timing restriction during the production phase of oil and gas operations and animals may be displaced from the source of any disruptive activity (USDI-BLM 2004c). Disruptive activities related to the production phase of oil and gas development contribute to increased stress and decreased body condition. Loss of overall condition or fitness can result in reduced reproductive rates of big game animals as they travel farther and may have to use lower-quality range (AREIS, Chapter 4, pgs. 4-73 and 4-74). Possible consequences of such displacement are lower survival, lower reproductive success, lower population recruitment and ultimately lower carrying capacity with reduced populations (WGFD 2004d).

The location and magnitude of habitat loss and continued human presence of the Catalina POD G & I wells and infrastructure would contribute to the exceedance of the significance criteria (criteria numbers 3 and 4) for pronghorn and mule deer as described in the AREIS (Chapter 4, Section 4.7.3.5, p. 4-83). For further discussion of impacts to big game see the AREIS, Chapter 4, Section 4.7.3.1, pps. 4-72-4-75 and Section 4.7.3.5, pps. 4-82-4-83.

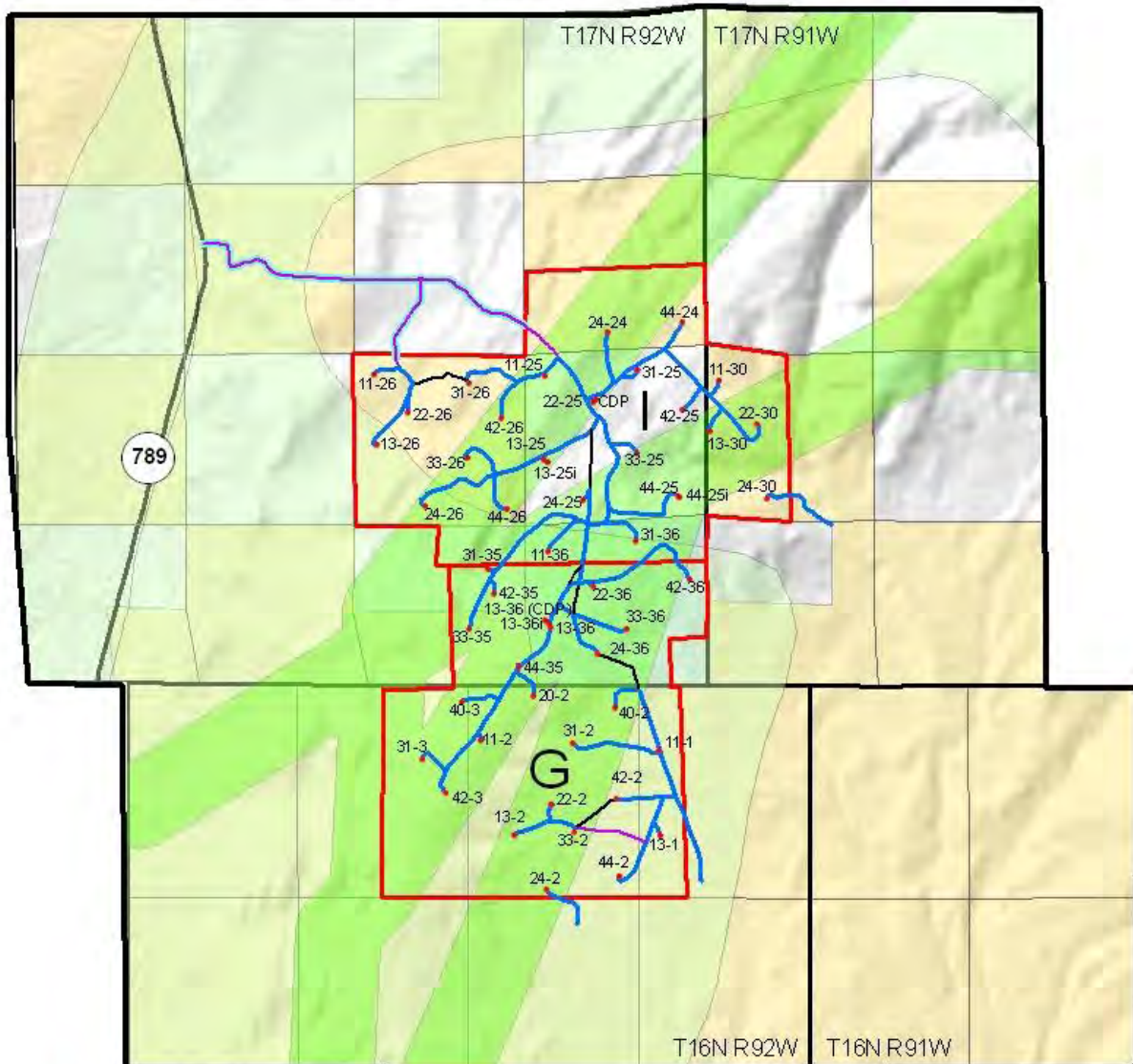
Mule Deer

Catalina POD G is located entirely within mule deer crucial winter range (CWR). Catalina POD I overlaps mule deer CWR along the southern and western boundary of POD I. CWR also is present to the north, west and south of the Catalina POD G & I complex (see Maps 7 and 8). Migration corridors were identified within POD G&I from recent studies by Sawyer (Sawyer 2006; 2007; 2008). Radio-collared mule deer migration routes were buffered by 0.25 mile on either side of the actual radio-collar geographic position data points as shown on Map 7. While these migration routes are depicted as 0.5 mile wide corridors, it can be concluded, based on the widespread distribution of mule deer throughout their winter range that actual corridors may be wider or more widespread throughout the area.

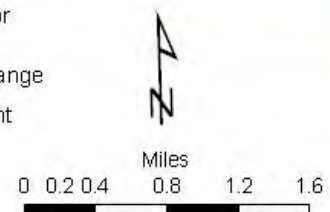
Disruptive activities associated with POD G & I development during the winter can impose a severe burden on a mule deer's energy budget, with potential for starvation and increased mortality during later winter for deer that winter within the POD G & I project area. In addition, the location of Catalina POD G&I would likely force a shift in migration to the north and west of POD G&I. Movement of animals to the east of POD G&I appears less likely due to the presence of other Catalina POD development. Movement of mule deer to the north and west, away from POD G&I, would concentrate animals on the remaining CWR and against the State Highway 789 ROW. Increased presence of mule deer in close proximity to State Highway 789 could lead to increased vehicle collisions and animal mortality as deer attempt to cross the highway.

Increases in heart rate have been shown to precede big game flight response. Increased heart rates have even been shown to occur when animals are disturbed but do not run. The time spent in a state of heightened attention takes away from feeding. The animals may often relocate to suboptimal habitat areas. If an animal is unable to compensate for these increases in its cost of living, then reproductive fitness, growth and survival may be adversely affected. Increased energy costs are more harmful during critical times of the year when animals are already in a state of depleted energy reserves, such as periods of severe weather and late-term pregnancy.

Catalina POD G and I Proposed Action Mule Deer Migration Corridors and Crucial Winter Range



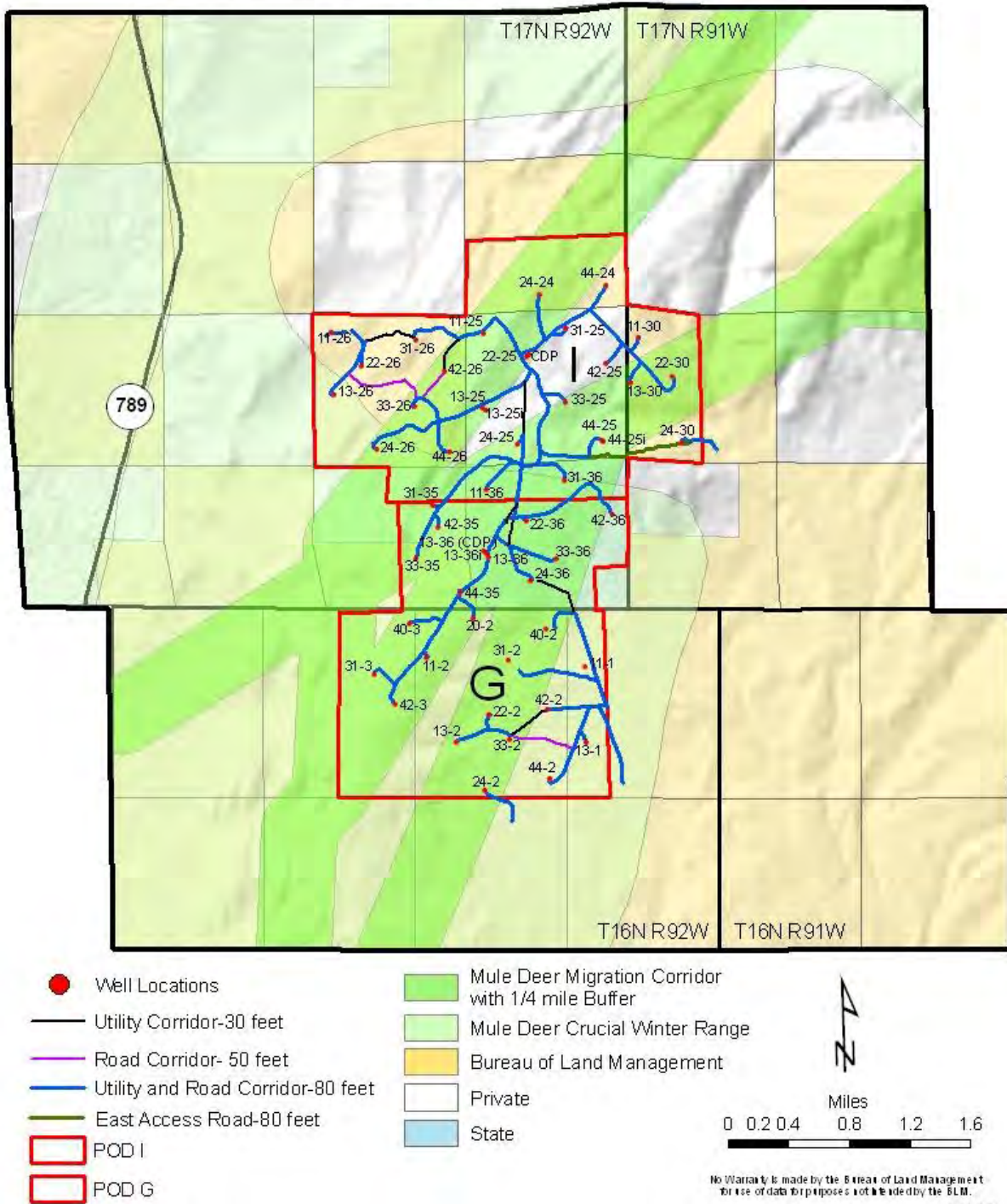
- | | |
|--|---|
| ● Well Locations | Mule Deer Migration Corridor with 1/4 mile Buffer |
| — Utility Corridor-30 feet | Mule Deer Crucial Winter Range |
| — Road Corridor- 50 feet | Bureau of Land Management |
| — Utility and Road Corridor-80 feet | Private |
| — NW Access Outside Unit | State |
| POD I | |
| POD G | |

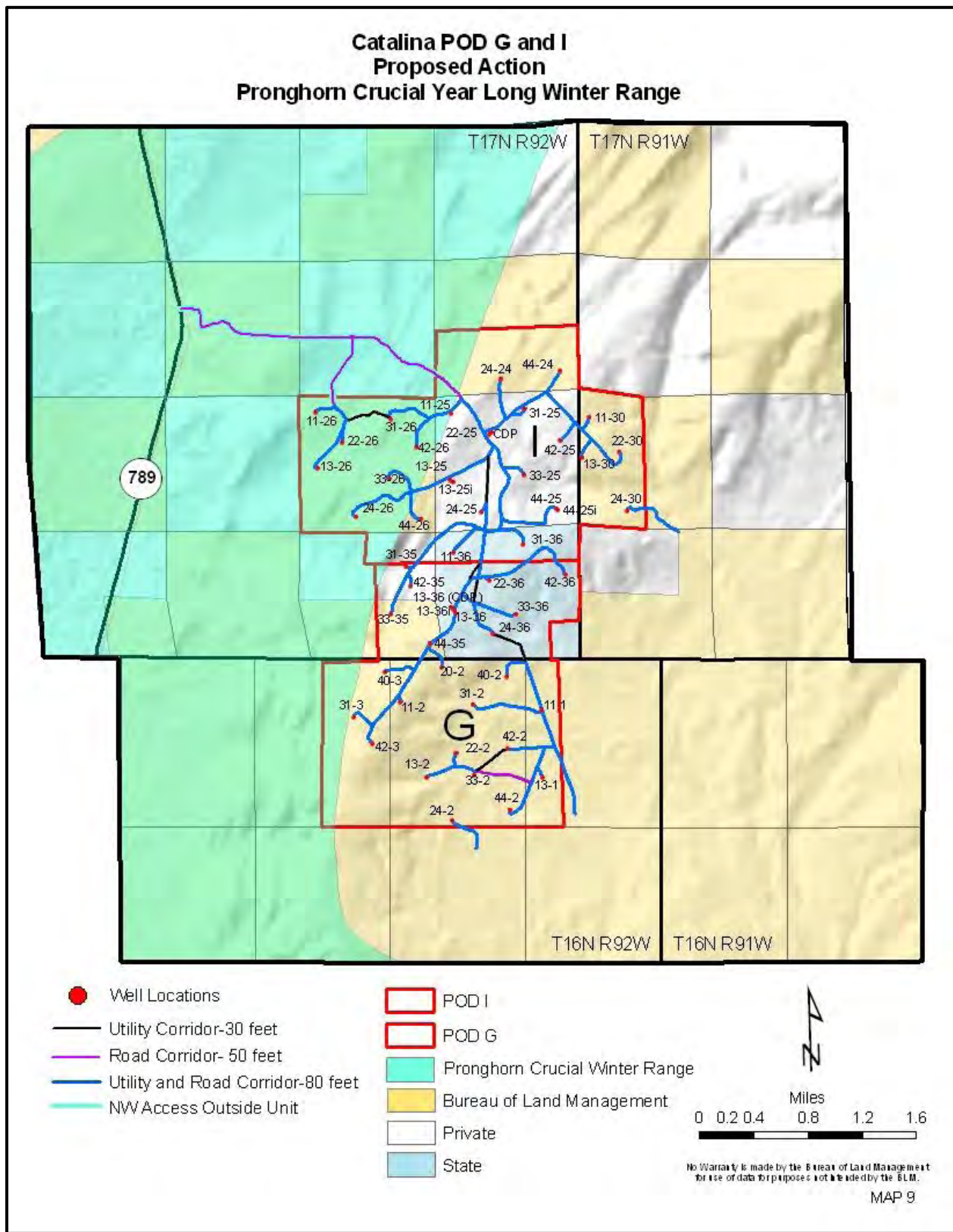


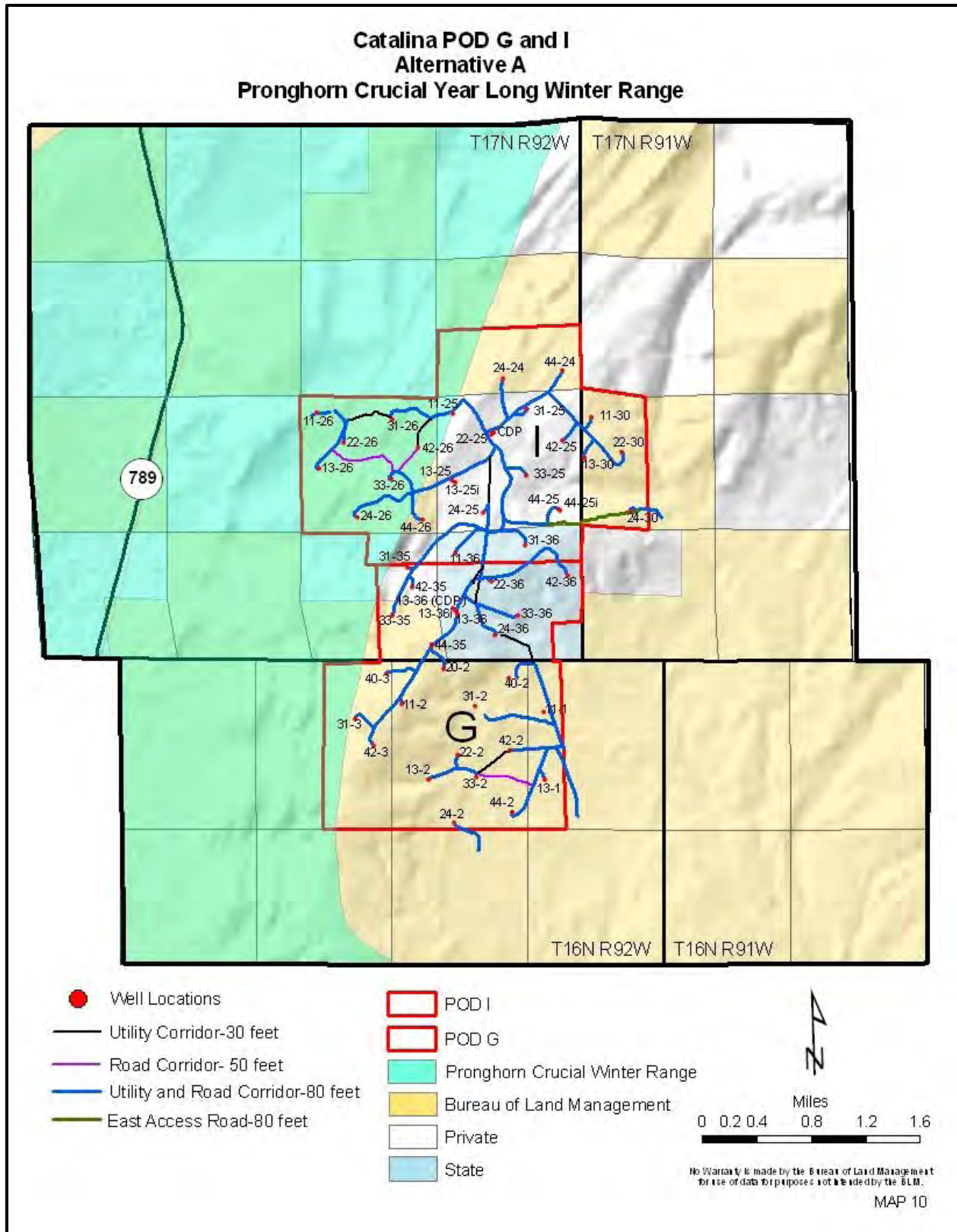
No Warranty is made by the Bureau of Land Management for use of data for purposes not intended by the BLM.

MAP 7

**Catalina POD G and I
Alternative A
Mule Deer Migration Corridors and Crucial Winter Range**







Pronghorn

Several general pronghorn migration routes transverse the ARPA, and may cross through POD G&I, however, it is unknown how critical these routes are. These routes have not been specifically identified and mapped through collaring studies. The development phase of Catalina POD G&I could alter or block pronghorn movements along these routes. Adverse effects of blocking migration routes would be the same as described for mule deer. For further discussion of impacts to big game see the AREIS Chapter 4, p. 4-73 and 4-82.

Overlapping Mule Deer and Pronghorn Crucial Winter Range

Areas of overlapping big game crucial winter range are of greater importance because they provide crucial habitat for more than one species of big game. POD G&I do contain overlapping pronghorn and mule deer winter range. Indirectly, this may increase inter- and intra-species competition for forage and thermal cover; in areas already at carrying capacity, some individuals would be further displaced. This may force animals to use lower-quality habitats, which may lead to a reduction in reproductive rates, an increase in predation and may lead to population declines. For further discussion of impacts to overlapping big game CWR see the AREIS, Chapter 4.7.3.1, p. 4-75.

Upland Game Birds Greater Sage-grouse

Catalina Pod G&I are located outside of Greater Sage-grouse core habitat. It is the BLM RFO policy to analyze potential impacts to grouse habitat both within and outside of core habitat. See the Conformance Section of this EA above for a discussion of the analysis required by WY – IM-2010-012. The Catalina POD G&I project would have a direct impact on Greater Sage-grouse by removing sage-grouse nesting, brood-rearing and wintering habitat. Habitat loss would result in the reduction of available nesting and foraging areas for greater sage-grouse and increase fragmentation of habitat. Habitat fragmentation would affect the movement of broods and the functionality of these fragmented pockets of habitat. Pipeline disturbance associated with the development of Catalina POD G&I, when the pipeline route is not associated with or parallel to an access road, would not fragment habitat. The average width of a pipeline ROWs does not preclude movement of grouse and depending on reclamation success, can lead to beneficial edge habitat where grouse can congregate to feed on insects, green shoots and forbs.

Potential direct impacts to Greater Sage-grouse from activities associated with Catalina POD G&I would include excessive noise levels proximal to occupied leks, disruptive human activities during sensitive time periods and habitat loss from construction of project facilities (outside of the 0.25 mile lek no surface occupancy restriction). Noise levels interfere with bird communication during mating periods which results in lower bird attendance at leks. Disruptive human activities alter normal bird behavior, increase nest abandonment and may displace birds into less-desirable habitats. Construction of facilities and roads creates a long-term loss of Greater Sage-grouse habitat and increases fragmentation of remaining habitat. Project facilities such as well houses, compressor stations and above ground power lines serve as perches for raptors and corvids and would result in a long-term increase in predation. Roads may also serve as travel corridors for some predators, such as foxes and coyotes thereby contributing to an increase in potential Greater Sage-grouse mortality. All combined losses in habitat and loss of Greater Sage-grouse may lead to lower productivity and long-term declines in the population. Long-term loss of shrubs combined with the indirect impacts on the habitat, such as dust, noise and continued human presence during the drilling and production phase of Catalina POD G & I, would result in habitat loss and disturbance levels which contribute to the exceedance of the

significance criteria in the AREIS, Chapter 4, p.4-83). For further discussion of impacts to Greater Sage-grouse see the AREIS, Chapter 4, pps. 4-75 to 4-76).

Special Status Plant, Wildlife and Fish Species BLM Sensitive Fish Species

Although BLM sensitive fish habitat does not occur within the project area, potential downstream impacts could occur from Catalina POD G&I project development and are considered in this analysis. Well specific BMPs identified in Appendix 2 and 4 would decrease erosion from the project and reduce, but not eliminate, impacts to the BLM sensitive fish and their habitat. The primary impacts to BLM sensitive fish species (roundtail chub, bluehead sucker and flannel mouth sucker) include sedimentation of aquatic habitats and alteration of hydrologic conditions. As outlined in the AREIS (AREIS; Chapter 4, Section 4.8.3.2 Sensitive Fish Species, pg. 4-90 to 4-94), this project would contribute to the significant impact on the BLM sensitive fish habitat.

The spatial heterogeneity and connectivity of the stream systems can necessitate the movement of fishes among different habitat types in order to complete their life cycles (Schlosser 1995). Both rock substrates and deep pools have been identified as preferred habitat of sub-adult and adult roundtail chubs, bluehead suckers and flannelmouth suckers (Bower, 2005). Impacts from the proposed action include: (1) sedimentation from new construction and project-related land disturbance (e.g., roads and well pads) resulting in decreased availability of rock substrates and (2) alteration of local hydrologic conditions by new road construction that could lead to sedimentation and channel adjustments which result in a loss of deep pool habitats and has the potential to lead to population declines.

Though the biological effects of sedimentation include a variety of ecological interactions (Waters 1995), sedimentation can act to shift habitat structure such as channel depth, pool-to-riffle ratio, percent fines in substrates and cover availability (Angermeyer et al. 2004). This sediment can extend miles downstream of the construction site and persist in stream channels for years (Angermeyer et al. 2004).

The Catalina POD G&I related development of new roads and other facilities would contribute to the significant impacts to habitat features found to be important to roundtail chubs, bluehead sucker and flannelmouth sucker within the upper Muddy Creek watershed as outlined in the AREIS (AREIS; Chapter 4, Section 4.8.3.2 Sensitive Fish Species, pg. 4-94). In addition, project development may preclude improvement of species populations and their status as prescribed in the Range-wide Conservation Agreement for Bluehead Suckers, Flannelmouth Suckers and Roundtail Chubs (criterion 4) (UDNR 2006).
Proposed Action (access by the northwest route)

General Wildlife Shrub nesting Bird Habitats

There are no additional impacts to shrub nesting bird habitats beyond those described in the Impacts Common to All Alternatives – General Wildlife, Shrub Nesting Bird Habitat section, above.

Big Game Mule Deer

In addition to the impacts described above in the Impacts Common to All Alternatives section, the proposed action's north-west access route would add further disturbance and disruption of

normal, mule deer winter maintenance activities. The north-west access route would serve to encourage additional traffic to not only reach both Catalina POD G & I, but also to access Catalina POD C to the east and other ARP POD adjacent to the proposed project. Generally traffic associated with access roads decreases once well sites are in production. However, the proximity of the north-west access route to State Highway 789 and the development of additional PODs in the ARP area would lead to continued heavy traffic along this route. Continuous traffic on the north-west access route would contribute to the exceedance of the significance criteria (criterion Number 3) in the AREIS, Chapter 4.7.2, p. 4-69 and 4-83.

Mule deer are already restricted in their CWR use to a somewhat narrow band west of POD G&I and east of State Highway 789. Disturbance from traffic associated with the north-west route would push animals up against the highway fence. Close proximity to the highway and the high-speed vehicle traffic and noise would result in excessive stress, reduced body condition and poorer health going into the late winter/early spring season. In addition, the north-west route would increase traffic and associated disturbances within migration corridors both within and adjacent to POD G&I. Increased traffic volumes that are in excess of historic use levels within the migration corridors in the project area would result in further alteration of migration routes. The north-west access route also would increase potential for vehicle collisions during migration periods, increase animal stress and lead to decreased animal fitness and increased mortality and eventual decline in mule deer numbers.

Pronghorn

Fences along State Highway 789 create a migration barrier that precludes pronghorn movement from east to west across the highway. Pronghorn found east of this highway are restricted to CWR found along Muddy Creek and against State Highway 789 which creates a trap to animal movement (AREIS Chapter 4 pg 4-74). High levels of traffic associated with the north-west route would compound this existing situation and increase stress, reduce body condition and result in lower overall animal health going into the late winter/early spring season. This would result in similar impacts as those described above for mule deer and contribute to exceedance of the significance criteria (Criterion Number 3) (see AREIS, Chapter 4.7.3.5, pps. 4-82 and 4-83).

Overlapping Mule Deer and Pronghorn Crucial Winter Range

There are no additional impacts to overlapping mule deer and pronghorn CWR beyond those described in the “*Impacts Common to All Alternatives, Overlapping Mule Deer and Pronghorn Crucial Winter Range*” section, above.

Upland Game Birds Greater Sage-grouse

Under this alternative, the construction of the north-west access route from State Highway 789 would increase traffic through the area. In addition to traffic associated with the project, there would likely be an increase in recreational traffic as well as other industrial traffic, due to the convenience of a new, shorter access point to portions of the Atlantic Rim Project. The north-west access would result in increased direct habitat loss, as well as an increase in the indirect impacts to Greater Sage-grouse and their habitat. The upgrade of the existing two-track access to the higher collector road standard with the associated increase in traffic volume and vehicle speeds would increase the displacement distance of Greater Sage-grouse from the north-west route. The direct loss of habitat and the indirect impacts which result from construction of the

north-west access route would contribute to the significant impacts to Greater Sage-grouse described in the Impacts Common to All Alternatives section, above and the AREIS.

Special Status Plant, Wildlife and Fish species
BLM Sensitive Fish Species

There are no additional impacts to the BLM Sensitive Fish Species beyond those described in the Impacts Common to All Alternatives – Special Status plant, wildlife and fish species, BLM Sensitive Fish Species section, above.

Alternative A (access by the “East Route”)

General Wildlife
Shrub nesting Bird Habitats

There are no additional impacts to shrub nesting bird habitats beyond those described in the “*Impacts Common to All Alternatives – General Wildlife, Shrub Nesting Bird Habitat*” section, above.

Big Game
Mule Deer

At this time, the access route (from Dad to POD C) is approved for company traffic to access Pod A-F. The development of POD G&I would increase traffic along the Dad to POD C route. This access route is south of the mule deer CWR and only crosses one migration corridor near its terminus. The majority of the Dad to POD C route avoids mule deer CWR and migration corridors and maintains the current functionality of the migration patterns and CWR use. As identified from the collaring study, the 0.4 miles of newly constructed road that would provide access to POD G&I would avoid the majority of the identified mule deer migration corridors and CWR. The east access route would provide adequate access into POD G&I and avoid the center of the mule deer migration corridors and CWR. Use of the east access route would contribute to the exceedance of the significance criteria (criterion Number 3) in the AREIS, Chapter 4.7.2, p. 4-83.

Pronghorn

Impacts to pronghorn would be similar to those described under the “*Impacts Common to All Alternatives, Big Game, Pronghorn*” section, above. There would be an increase in traffic on the existing Dad to POD C access route as a result of the addition of the Catalina POD G&I development and operational activity. Use of the east access route would contribute to the exceedance of the significance criteria (Criterion Number 3)(see AREIS, Chapter 4.7.3.5, pps. 4-82 and 4-83)

Overlapping Mule Deer and Pronghorn Crucial Winter Range

There are no additional impacts to overlapping mule deer and pronghorn CWR beyond those described in the Impacts Common to All Alternatives, Overlapping Mule Deer and Pronghorn Crucial Winter Range section, above.

Upland Game Birds
Greater Sage-grouse

There are no additional impacts to Greater Sage-grouse beyond those described in the “*Impacts Common to All Alternatives, Upland Game Birds, Greater Sage-grouse*” section, above.

Special Status Plant, Wildlife and Fish Species
BLM Sensitive Fish Species

There are no additional impacts to BLM Sensitive Fish Species beyond those described in “*Impacts Common to All Alternatives – Special Status plant, wildlife and fish species, BLM Sensitive Fish Species*” section, above.

Additional Mitigation Measures

The following additional mitigation measures are presented as opportunities to reduce or avoid adverse impacts and have not been incorporated into the proposed action or alternatives:

Additional Mitigation Measure #1: Construction, drilling, reclamation and other activities potentially disruptive to big game are prohibited within identified migration/transition habitat during the period of March 1 to May 15 (spring) and Oct 15 to Dec 15 (fall) for the protection of big game migration/transition habitat and big game species during this time period. (Atlantic Rim Mule Deer Migration time periods are generally Spring-April 15 through May 15 Fall October 15 through November 15; however, the WGFD have observed mule deer in migration corridors as early as mid-March.)

Background

The Rawlins RMP migration/transitional range management decision is as follows: surface-disturbing and disruptive activities will be managed, on a case-by-case basis, in identified big game migration and transitional ranges to maintain their integrity and function.

In addition, the ROD contains Performance Goals that the BLM will attempt to achieve in collaboration with state and federal agencies. One goal is to “*maintain functional migration routes through or around development areas*”. Operators are responsible for demonstrating successful achievement of Performance Goals. The formulation and application of mitigation measures and BMPs, such as timing stipulations for big game during migration time periods, will be based on the site-specific conditions found at the areas for which disturbance is proposed at the time the proposal is submitted or authorization requested and the rationale for their application will also be disclosed. (AREIS-ROD, pages 19-21).

Mule deer herds in the Atlantic Rim region are among the largest in the Intermountain West and are known to migrate up to 60 miles between seasonal ranges (Porter 1999). Maintenance of healthy mule deer populations and functional migration routes is a top priority for agencies and the public. In response to the proposed Atlantic Rim Natural Gas Development Project, the BLM, the WGFD, Anadarko Petroleum Company (APC) and Warren E&P, Inc. implemented a cooperative study intended to provide the necessary information to mitigate potential impacts and ensure development plans are environmentally sensitive to mule deer (Sawyer, 2007).

Residual Impact Assessment #1:

The protection of migration corridors to the north-east of the Catalina POD G&I (see Map 7) would help to maintain the condition of big game animals prior to entering the CWR in the vicinity of the project area. A migration/transition range timing restriction would reduce stress, maintain body condition and result in better overall animal health going into both the fall breeding season and critical winter season. The timing restriction would also reduce disturbance to big game animals as they move back to parturition and summer ranges in the spring. Any reduction in disruptive activities during the spring migration would help maintain body condition that is paramount to maintenance of fetal condition, live birth rates, recruitment and maintenance or expansion of population levels. The timing restriction would apply to construction and drilling activity similar to the existing big game CWR construction timing restriction. While this timing restriction would not reduce the disruption that occurs during the operational activities associated with long-term oil and gas development (see Additional Mitigation Measure #2, below), the restriction would preclude the increased vehicle traffic and noise associated with construction and drilling activities. A construction and drilling timing restriction would help to maintain the overall function and integrity of identified big game migration corridors.

Additional Mitigation Measure #2:

To accommodate big game movements within identified big game migration/transition corridors, oil and gas operational activities related to monitoring and maintenance will avoid migration corridors during the migration/transition corridor timing restriction period, where applicable. The use of remote sensing, where technically feasible, would be required.

Residual Impact Assessment #2:

The use of remote sensing removes or reduces human occupancy and disruptive activities within big game CWR and migration/transitional ranges. Any reduction in the level of operational activity would further reduce displacement and associated stress to big game during the migration and winter time periods. Any reduction in disturbance to big game animals while on migration/transition ranges or CWR would help maintain the effectiveness of these critical ranges and ultimately translate into long-term maintenance of big game populations.

Additional Mitigation Measure #3:

Close and reclaim roads or two-track trails within the Catalina POD G & I project area that are unnecessary for implementation of project activities.

Residual Impact Assessment #3:

The closure of unnecessary roads would prevent or eliminate additional surface disturbance, habitat disturbance and associated human activities disruptive to big game animals where not absolutely necessary for the implementation of the ARP. The primary candidates for closure would be roads that create loop routes, that are redundant, or that have effectively fragmented habitat. It is possible that some existing two-tracks in the project area have been historically used for livestock grazing operations or public recreation purposes. The closure of any existing road or two-track route would require the consideration of road closures within a transportation planning process with full public involvement.

Monitoring

Monitoring within the project area includes shrub dependent song birds, reclamation, Muddy Creek and its sensitive fish, Greater Sage-grouse and mule deer. Monitoring activities are prioritized and implemented as the need and funding allow. Monitoring results are evaluated and used by BLM and its cooperators to determine if adaptive management activities are necessary to reduce or mitigate adverse effects. This process is envisioned to continue for the life of the project including final reclamation.

Pronghorn antelope:

To date, big game monitoring activities have centered on mule deer, their habitat usage and migration routes within Atlantic Rim. The AREIS, at page 4-73 states in part:

“Several general pronghorn migration routes transverse the ARPA; it is unknown how critical these routes are. This project could alter or block pronghorn movements along existing migration routes.”

As found in this affected environment portion of this document affects to pronghorn and their migration corridors could occur. With the advent of a natural gas development proposal that includes entry into crucial winter year long (CYL) range, the need to determine migration routes and habitat usage for affected pronghorn herds has increased. The BLM had planned to implement pronghorn migration and habitat usage studies in conjunction with the adjoining Continental Divide Creston EIS project, however the initiation of development activities within the CYL shows the need for such a study at this time. BLM funding is not currently available for such a study, but has been applied for through the BLM internal funding process.

Mule Deer:

The construction of POD G&I natural gas facilities within the Atlantic Rim area is located partially within identified mule deer migration corridors and crucial year long winter range. Studies conducted to date have shown the presence and location of mule deer migration corridors within the Atlantic Rim area. There is a concern that development activities will cause mule deer migration routes to move west out of the development area and closer to State Highway 789. Continued monitoring of mule deer response to development activities is important to determine the impacts of development on mule deer migration routes and the need for additional adaptive management and / or mitigation within the area. It would also allow the BLM to determine if additional development proposals within mule deer CYL can be approved and adequately mitigated.

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