

**ENVIRONMENTAL ASSESSMENT**

EA Number: MT-92234-00-4

**BLM OFFICES:** Great Falls Field Station (GFFS)  
Havre Field Station (HFS)

**PROPOSED ACTION TITLE/TYPE:** Macum/Klabzuba/Ocean Energy Oil & Natural Gas Project  
Applications for Permit to Drill Gas Wells (APDs)\*

Macum Energy, Inc.  
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Klabzuba Oil & Gas, Inc.  
Box 40  
Havre, MT 59501

Ocean Energy Resources, Inc.  
P.O. Box 1644  
Havre, MT 59501

\* A portion of the APD is considered proprietary and confidential and is not available for public viewing unless permission is granted by the Operator. Proprietary information is formation tops and objectives, elevations and contents of formations, subsurface geology and any seismic data. Release of this information may cause the Operator financial harm in competition.

Locations of Proposed Actions:

Macum Wells:

#13-14	Lease MTM 13816	NWSW	Sec 14-T24N-R20E
#22-28	Lease MTM 13818	SENW	Sec 28-T24N-R20E
#42-30	Lease MTM 16102	SENE	Sec 30-T25N-R20E
#23-10*	Lease MTM 89474	NESW	Sec 10-T25N-R20E
#31-3	Lease MTM 16102	NWNE	Sec 03-T25N-R20E
#42-34*	Lease MTM 16103	SENE	Sec 34-T26N-R20E

Klabzuba Wells:

#1-25-19*	Lease MTM 89082	NENW	Sec 01-T25N-R19E
#6-25-20B	Lease MTM 84559	SESW	Sec 06-T25N-R20E

Ocean Energy Well:

#28-1	Lease MTM 1578	NENE	Sec 28-T25N-R19E
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\* These three locations are outside of the Upper Missouri River Breaks National Monument boundary.

Analysis Area:

These locations are near an area known as Bullwhacker Coulee (BWC) and are approximately 54 air miles due south of Chinook or 3-12 air miles due north of the Missouri River. (See Map 1.1 and Map 1.2).

Cumulative Impact Analysis Area:

Map 1.3 shows the cumulative impact area. The area contains the Leroy Gas Field, a small portion of the Sawtooth Mountain and Sherard Gas Fields plus other adjacent leases that are not in a designated field.

A comprehensive analysis of expanded field development within the Upper Missouri Breaks National Monument is not being considered at this time for the following reasons:

1. Prior to 1995, there was very little interest in exploring the analysis area. In 1995, Faith Drilling submitted a Sundry/ROW application to hook up 4 shut in wells. At that time, there wasn't any interest in drilling other leases. Other operators/lessees had shut in wells but did not pursue pipelines or further lease development or exploration. There have been only two wells drilled in the analysis area in approximately 20 years.
2. It is unknown if these wells will be successful for the following reasons:
  - a. Natural gas entrapment in the Leroy Field is a result of "gravity sliding" creating numerous individual fault blocks. The gravity sliding occurred in response to the Bearpaw uplift. This sliding resulted in the creation of numerous fault blocks separated from one another by both reverse and normal faults. Each discreet fault block has its own unique orientation, and as a result its own gas-water contact. Therefore, the limits of the geologic structure are undefined.
  - b. There are a number of dry holes in the analysis area which represent an 80% chance the proposed wells will result in a dry hole. Since 1960, 50 wells have been drilled with only 10 being producers.
  - c. The Operator is attempting to explore new leases in search of the hydrocarbon.
3. National Policy requires preparation of a Monument Management Plan. The field development plan will be included in the Monument Management Plan which is scheduled to start in 2002. No additional Applications for Permit to Drill in the monument area will be approved until the Monument Management Plan is completed.

Decisions to be made as a result of this analysis:

This analysis will decide whether or not to approve each APD listed above.

Decisions not to be made as a result of this analysis:

This analysis does not approve individual pipelines from each proposed well location listed above. Pipelines are included in this analysis to display a cumulative amount of surface disturbance and impacts to other resources. A separate application, in either the form of a Rights-of-Way or a Sundry Notice, will be submitted by the Operators for approval. This EA does analyze the cumulative disturbance associated with the installation of potential pipelines. However, the final location of the pipelines cannot be approved until it has been determined that the well(s) is a producer.

Drilling Proposal by Macum/Klabzuba/Ocean:

The following table is a summary of the drilling proposal by the Operators. The actual drilling proposal and procedure is contained within the Surface Use Plan of Operations (SUPO) which is a part of each APD.

**TABLE 1. Drilling summary**

<b>ITEM</b>	<b>MACUM ENERGY</b>	<b>OCEAN ENERGY</b>	<b>KLABZUBA OIL AND GAS</b>
1. Utilize existing access trails	Yes	Yes	Yes
2. Install temporary gates for cattle control	Yes	If necessary	If necessary
3. Trails bladed in rough areas and tight corners	Yes	Not needed	Yes
4. Water bars and/or erosion control on trails	Yes	Yes	Yes
5. Cattleguards/gates if producer	Yes	If necessary	If necessary
6. Clean equipment for weed control	Yes	Yes	Yes
7. Maximum pad size of 200'x 200'*	Yes	Yes	Yes
8. Mud disposal	In reserve pit	In private stockpond	In private stockpond
9. Days needed to drill each well	seven	three to five	three to five
10. Sleeping quarters for employees	No	No	No
11. Water source	Private stockpond	Private stockpond	Private stockpond
12. Reclamation of pad	w/in 1 yr if producer, immediately if dry hole	Same as Macum	Same as Macum
13. Waste disposal	Human in portable toilet; All else hauled to approved landfill	Same as Macum	Same as Macum

\* Operator will clear a pad of all vegetation with an approximate dimension of 170' x 150'. A 200' x 200' area of work has been preliminarily reviewed. This larger work area is to allow the parking of vehicles and storing of topsoil and brush. The Operators do not see a need to clear the entire 200' square of all vegetation. No activities, such as parking, storage, etc. can occur outside of the 200' x 200' square.

Pipelines/Meters/Intermitters/Remote Monitoring/Produced Water Pits/Flaring/Air Quality:

The following contains general information about gas well operations.

If the wells are producers, water can be produced with the gas. The volume of water produced will typically increase throughout the productive life of the well. This water, if not handled properly, could contaminate surface and groundwater and sterilize soil. Produced water pits, if necessary, are built adjacent to the well head and are sized according to the amount of water produced daily; generally less than 40' x 40' x 4'. These pits are fenced to deter livestock and wildlife and are inspected and built in accordance with Onshore Order #7. The pits are either lined with a synthetic liner or a native liner such as bentonite. The Operator must submit a Sundry Notice and obtain approval prior to building a pit. Since the pit is located on the well pad and the surface disturbance has already been analyzed, a separate National Environmental Policy Act (NEPA) document is not written for pit approvals.

Dependent on depth, the proposed wells normally take three days to drill and three days to complete. During the initial three days of drilling the wells, the drilling contractor will burn a number of gallons of fuel to power the drill rig. This causes nitrogen oxide (NOx) to be released into the air. Current regulations, NTL-4A, permit the operator to flare produced gas for a 30 day period or a volume of 50 MMcf (million cubic feet) of natural gas whichever comes first following completion. After this time, the operator must either connect the well to a gas line or submit a plan to capture the gas.

Pipelines are included in this analysis to display a cumulative amount of surface disturbance and impacts to other resources. Pipeline locations were not proposed by the Operators and BLM regulations do not absolutely require pipeline proposals with drilling proposals. If these wells are successful, pipelines may be installed to hook up the new wells with adjacent shut in wells.

Pipelines are either steel or plastic and are generally 3-6" in diameter. The lines are buried below frost depth to prevent freeze-up in the line (there may be water within the gas stream) and to guard against vandalism. The pipeline easement corridor is generally 30-50' wide, depending upon the terrain and the equipment size.

A gas sales meter is normally installed at the wellhead, to measure gas volumes for royalty purposes. Regulations require that the sales meter be installed on lease or within 200' of the wellhead. However, exceptions can be granted by the BLM authorized officer.

Regardless of whether the sales meter is on/off lease, the government's primary interest is in the gas flowing from the well head to the meter and the volume flowing through the meter. Once the gas flows downstream from the meter, the government retains little to no interest in that gas. Generally off lease/site measurement is usually less than one mile from the wellhead. In the case of one of the proposed wells and three shut in wells, off lease measurement could entail a 12 mile distance from the well to the sales meter. The potential for line loss in this situation would be high. Therefore, in order to minimize this potential, and to minimize fieldhand trips into a remote location, the operator may be required to utilize remote measurement devices or electronic flow meters in these rare cases. Remote measurement would limit personnel visits to the meter to four trips/year without increasing line loss. Remote monitoring requires height and area for facilities including solar panels and towers.

The meter, separator, and intermitter are protected in sheds or houses, approximately 8' x 8'. If a number of meters are placed in one shed for off-lease measurement, the shed can be approximately 12' x 12'. The trade-off in eliminating the sheds at each wellhead, for visual reasons, is that the shed is larger at one central point.

Remote monitoring and/or the use of 30 day gas measurement charts will reduce the daily or weekly trips to the sales meter by the fieldhands. Service trips to the well itself are dependent on the wells' ability to produce without problems. Trips for well service are estimated at 2/yr.

Automatic intermitters are valves that are attached to the pipeline/wellhead that allow the produced water (water produced with the gas) to be blown to atmosphere when a given wellhead pressure is reached. If the hydrostatic water pressure exceeds the formation pressure, gas cannot be produced from the well. The other option to physically produce gas would be manual intermitters where a fieldhand will have to visit the wellhead daily/weekly to open the well to atmosphere and reduce the water pressure. These events need to occur year-round, even in inclement weather to effectively produce the wells. Automatic intermitters do not require frequent visits to the wellhead. During cold weather, glycol may be injected into the gas stream to prevent the water in the gas from freezing.

**CONFORMANCE WITH APPLICABLE LAND USE PLAN:**

This proposed action is subject to the following land use plan and has been found to be in conformance as required by 43 CFR 1610.5.:

Name of Plan: West HiLine Resource Management Plan (RMP) EIS (1988)

Guidance: State Director's Interim Guidance for managing the Upper Missouri River Breaks National Monument (2001)

**NEED FOR THE PROPOSED ACTION:**

Macum, Klabzuba and Ocean Energy own state, fee and federal leases within and adjacent to the Upper Missouri River Breaks National Monument. Macum recently purchased many of the existing, scattered wells in this area. Klabzuba and Ocean Energy own a number of leases within both the analysis area and cumulative impact analysis area and have producing wells in both of the areas.

The Operators of these leases are exploring for minerals and thus have submitted Applications for Permit to Drill. The procedures for submitting APDs are found in Onshore Order #1. For a further discussion of oil and gas leasing and the process and procedure of extracting such minerals, please reference the Oil and Gas Environmental Assessment of BLM Leasing Program - Lewistown District (Sept 1981), or the West Hiline RMP - Appendix 1.3., which are available upon request.

The lease operators are also trying to determine if sufficient gas quantities are available to justify construction of new pipelines to produce existing shut-in gas wells.

The BLM must evaluate and make decisions on Federal oil and gas lease proposals according to existing laws, regulations, and the Upper Missouri River Breaks National Monument proclamation and Monument management guidance .

Background/History:

Existing gas wells are located in both the analysis and cumulative impact analysis areas on private, state and federal mineral estates. (See Maps 1.2 and 1.3). Overall, there were 453 wells drilled in the analysis and cumulative impact analysis areas since the 1930's with only 116 either producing or capable of producing. The other 337 wells are plugged and abandoned (P+A) and the surface is reclaimed.

The oil and gas leases for these APDs were issued in the late 1960s/early 1970s with the exception of MTM 89474, issued on November 1, 1999; MTM 89082, issued on April 1, 1999; and MTM 84559, issued on October 1, 1995. Acreage amounts contained within the leases vary from 200 to 2,562. All of the leases contain standard lease terms. Standard stipulations which are outlined in the West HiLine RMP, Appendix 1.3 are contained in the newer leases. The leases are on file at the Great Falls Oil and Gas Field Station and are available for viewing upon request.

Standard Operating Procedures which BLM petroleum engineer technicians inspect against are contained in the 43 CFR 3100s, Onshore Orders #1, #2, #3, #5 and #7, the Gold Book, American Petroleum Institute (API) Recommended Practices, American Gas Association (AGA) and officially designated ANSI/API 2530 and AGA Committee Report No. 3, Second Edition 1985. In addition, each APD has "Conditions of Approval", the mitigation in this document and the Surface Use Plan of Operations (SUPO) which all contain measures the Operators must do.

Lease stipulations in the most recent leases that are applicable to the well sites include:

"The lessee/operator is given notice that the lands within this lease may include special areas and that such areas may contain special values, may be needed for special purposes or may require special attention to prevent damage to surface and/or other resources. Possible special areas are identified below. Any surface use or occupancy within such special areas will be strictly controlled, or if absolutely necessary, excluded. Use or occupancy will be restricted only when the BLM...demonstrates the restriction necessary for the protection of such special areas and existing or planned uses..."

Crucial wildlife winter ranges during the period from December 1 to May 15, and in elk calving areas, during the period from May 1 to June 30."

"EROSION CONTROL - Surface disturbing activities may be prohibited during muddy and/or wet soil periods."

"ESTHETICS - ...all surface disturbing activities, semipermanent and permanent facilities may require special design including location, painting and camouflage to blend with the natural surroundings..."

Three proposed wells are located on fee surface/federal mineral estate. In split estate situations, the mineral estate owner has specific rights to develop their mineral estate. The fee surface owner is entitled, by state law, to reasonable compensation from the Operator for the use of the surface estate. (Montana Annotated Code 82-10-504). The rates are based on the amount of land taken out of production for either pasture or grain fields. Compensation does not apply to the federal surface estate.

### **SCOPING:**

Macum submitted Notices of Staking (NOSs) on October 25 and November 5, 1999, to the BLM office in Great Falls. These NOSs were subsequently posted on public bulletin boards in Great Falls and Havre on the same days. Klabzuba submitted APDs on February 1, 2000, with the public notice of posting occurring on the same day in both Great Falls and Havre. Ocean Energy submitted an NOS on April 20, 2001, with posting occurring on the same day in both Great Falls and Havre. The posting of either the NOSs or public notification of the APDs in Havre is required since the proposed action occurs in the jurisdictional area of the Havre Field Station. The posting is the initial public notification of the action and is required to remain posted for 30 days, per 43 CFR 3162.3-1(d). The BLM is required to conduct a field inspection (onsite) of the proposal within 15 days of receipt of either the NOS or APD (Onshore Order #1, Section III.D.). The purpose of these onsite is to discuss the location, impacts to the resources, mitigation needed to reduce or lessen the impacts and to tentatively review the well pad location and access road.

The following people were in attendance at the Macum on-site inspections conducted on November 16 and 17, 1999: Garvey Wood - archaeologist; Joe Kehl and Tom LaFond - surveyors; John Pike - dirt contractor; Ralph Gailey - company representative and BLM employees Andrea Parrott, Lowell Hassler, Jody Peters and Jim Albano. Attendees at the Klabzuba onsite on April 6, 2000 were: Garvey and Vivian Wood - archaeologists; Ron Turner, Butch McClain - surveyors; Cole Chandler, Linda Knickerbocker - company representatives; Hank Coolidge - dirt contractor and BLM employees Andrea Parrott and Jody Peters. Attendees at the Ocean Energy onsite on May 16, 2001 were: Garvey and Vivian Wood - archaeologists; Ron Turner, Butch McClain - surveyors; Gerhard Drake - company representative; Andrea Parrott, Jody Peters, Brandi Hecker - BLM employees; Durwood Antley, Kathy Brodeur - Havre Pipeline Company; Randy Allard - dirt contractor.

During the 30 day NOS posting period, no written public comments were received regarding the proposal at either the Havre or Great Falls BLM offices.

Under the provisions of Onshore Order #1, Section III.D., the BLM has 30 days to process the APD, unless the BLM deems it necessary to exceed the timeframe. The process may be exceeded where it is necessary to prepare an EA.

The BLM consulted with several tribes during preparation of the West Hiline RMP regarding potential concerns for areas of cultural or religious importance to Native Americans. The Chippewa-Cree expressed an interest in the Cow Creek area, where tribal members practice traditional cultural activities. In numerous subsequent discussions of BLM proposals, none of the tribes have noted concerns for oil and gas activities in the analysis area.

In compliance with Section 106 of the National Historic Preservation Act, the BLM consulted with the State Historic Preservation Officer regarding the proposed action, as specified in the Montana Protocol.

Extensive press coverage of this area has occurred since late 1999 since the analysis area was part of an area being considered by the Interior Secretary as a "special designation area". On January 17, 2001, the President, under advisement by the Secretary, declared part of the analysis area within the Upper Missouri River Breaks National Monument.

Issues:

Issues used to formulate alternatives and mitigation include the following:

1. Trail improvement: Will improving the trail for well access degrade other resource values? What level of improvement will be needed to provide access to the wells and yet not compromise other resource values? What can be done during periods of inclement weather to allow access? Can access be denied during bad weather or spring thaw? What level of maintenance will BLM allow to access the wells? Who will be responsible for maintenance on trails?
2. Vegetation losses: Will the loss of shrub/tree components affect the migration patterns of big game? Because revegetation windows are narrow in this country, are there any provisions which can be imposed on the Operators to replace these components in a more timely manner?
3. Noxious weeds: What provisions can be imposed to reduce or minimize the introduction and/or spread of weeds in the area? How will the weeds be reduced in the previously non-disturbed areas such as pads and pipeline corridors? How will the weed problem be monitored? How many outyears is the Operator responsible for weed control after the well is plugged and the pad is reclaimed?
4. Wildlife disturbance: What effects does the drilling have on wildlife patterns including migration, mating, rearing and winter survival? Can these effects be mitigated? What effects will occur to wildlife from fieldhand visits to the area? What longterm effects are perceived if the well is productive for greater than 30+ years? Does the area contain any wildlife or plant species of special concern?
5. Visuals: What effect will drilling, completion and production have on the public who desire a "wild" view? Can these effects be mitigated? Will these effects be noticeable in the outyears?
6. Wilderness: What effect will drilling, completion and production have on the Ervin Ridge WSA? Or the remoteness of the BWC? Can these effects be mitigated? What are the long term effects of an active gas field on the remote qualities of the WSA and BWC?
7. Soil erosion: How will soil erosion be minimized in the outyears in erosive soil types?

8. Water Quality: Will the implementation of this activity affect either surface or subsurface water quality?
9. Upper Missouri River Breaks National Monument: Will the proposed wells and pipelines create any new impacts that will interfere with the proper care and management of the objects protected by the proclamation for the Monument?

### **ALTERNATIVES:**

Neither alternative considers or proposes installing a new compressor station. The closest stations are located at Leroy on private land (SESE 35-25N-18E) which is operated by Klabzuba Oil and Gas, Inc, or near TU Reservoir on private land (NENE 17-27N-19E) which is operated by Ocean Energy Inc. These compressor stations have been in use since the late 1950s.

#### **Alternative 1 - Proposed Action:**

The proposed action will approve the APDs. This alternative will also analyze the action of installing a pipeline from each well. In this alternative, the direction and lengths of the lines are a best estimate based on existing lines and topographic conditions. Please reference Table 1 for a complete display of the actions needed to drill a gas well.

Mitigation in this document will be attached to the APD as “Conditions of Approval (COAs)”. Within the SUPO the Operators have agreed to perform certain measures to protect the environment, for instance washing vehicles for weed control. Mitigation measures or Standard Operating Procedures originally proposed in the project design will not be repeated in the COAs but have been analyzed in this document.

#### **Alternative 2 - No Action:**

NEPA requires that a Reasonable Range of Alternatives be considered in all environmental documents. For this project, the no action alternative will be to deny approving the APDs or pipelines from these APDs. The denial of the right to explore for natural gas could void the lessees’ contractual rights.

An oil and gas lease grants the lessee the “right and privilege to drill for, mine, extract, remove and dispose of all oil and gas deposits” in the leased lands, subject to the terms and conditions incorporated in the lease. Because the Secretary of the Interior has the authority and responsibility to protect the environment within federal oil and gas leases, restrictions are imposed on the lease terms. On land leased without a No Surface Occupancy stipulation, the BLM cannot deny the permit to drill but can impose mitigation measures upon a lessee who pursues surface disturbing exploration and/or drilling activities only if unnecessary or undue environmental degradation will occur. In the absence of a No Surface Occupancy stipulation covering the entire lease, restrictions based on oil and gas lease operations must be “reasonable”. They cannot directly or indirectly altogether prohibit the development of the lease. Although a given APD can be denied, the right to drill and develop somewhere on the leasehold cannot be denied by the BLM. To deny all activity would constitute a breach of contract of an operator’s rights to conduct development activities on the leased lands. Authority for complete denial can be granted only by Congress which can order the leases forfeited subject to compensation.

However there is no stipulation such as a No Surface Occupancy stipulation on any of these leases that would allow the BLM to preclude drilling operations everywhere on a lease at all times of the year. A decision, therefore, of No Action as authorized by the lease, will be considered given one of the following conditions:

- If there were no acceptable means of mitigating significant adverse impacts to the surface resource values, then this will trigger denial of the APD and require consideration and analysis of another alternative. This will result in a postponement of the approvals until an EIS could be prepared.
- If the USFWS concluded that the proposed action and alternatives will be likely to jeopardize the continued existence of any endangered or threatened plant or animal species, then the APD and lease development may be denied in whole or in part. An EIS will be prepared to determine the need for further mitigation of the impacts before approval could be granted.

Current management strategies outlined in the West Hiline RMP will continue. Other resource programs such as grazing, timber harvesting, recreation, etc. are unaffected by selection of this alternative. Existing wells will continue to produce hydrocarbons. Shut in wells will not be produced or plugged and selection of this alternative will allow pipelines to be installed from existing shut in wells if the Operator submits a Sundry Notice (SN) and the SN is approved. A separate NEPA document will be written for these lines.

### **Alternatives Considered But Not Analyzed In Detail**

Originally, the possible pipeline route for Well #22-28 was to connect to Well #13-14. This route, by Macum Energy, would have crossed Bullwacker Coulee. This was dropped due to steep slopes, erosive soils, and aesthetic conflicts. Additionally, Klabzuba's Well #6-25-20B, was originally proposed in ponderosa pine habitat type, which is essential elk winter range. At the onsite inspection, the location was moved 330 feet northwest to a location out of the forested area. The original site was dropped from further consideration.

Neither alternative considers or proposes installing a new compressor station because existing compressors are capable of handling potential production increases that could be expected as a result of the proposed action. The closest stations are located at Leroy on private land (SESE 35-25N-18E) which is operated by Klabzuba Oil and Gas, Inc, or near TU Reservoir on private land (NENE 17-27N-19E) which is operated by Ocean Energy Inc. These compressor stations have been in use since the late 1950s.

For these reasons, these alternatives were dropped from further consideration and are not analyzed further in this document.

## AFFECTED ENVIRONMENT:

The following critical elements were found to be unaffected by this proposal:

Areas of Critical Environmental Concern (ACECs), cultural resources, farmlands - prime/unique, floodplains, Native American religious concerns, T&E species, wastes - hazardous/solid and wetlands/riparian zones.

### Upper Missouri River Breaks National Monument:

On January 17, 2001, President Bill Clinton created the Upper Missouri River Breaks National Monument (UMRBNM) under the Antiquities Act of June 8, 1906. (See Map 1.2 for a display of amount of acreage in the analysis area that is within the Monument). Portions of the proclamation state:

***“...the purpose of protecting the objects...all lands and interest in land owned or controlled by the United States within the boundaries of the area...The Federal land and interest in land reserved consist of approximately 377,346 acres,...The establishment of this monument is subject to valid existing rights... The Secretary of the Interior shall manage development on existing oil and gas leases within the monument, subject to valid existing rights, so as not to create any new impacts that would interfere with the proper care and management of the objects protected by this proclamation.”***

### State Director’s Interim Guidance:

In June 2001 the State Director issued interim guidance for managing the UMRBNM while a Monument Plan was being written. This guidance follows both the Proclamation, BLM’s Interim Policy for Newly Created Monuments and the consensus recommendations of the Central Montana Resource Advisory Council.

Air Quality: The current air quality is good to excellent with the occasional dust from local traffic on the roads/trails.

Terrain: The overall area is broken terrain punctuated with deep coulees that drain to the Missouri River and narrow topped ridges which have been described as terminal ridges.

Trails: Few trails penetrate this area; those trails that do are native surface and generally follow the ridge lines and terminate at the end of the ridge. During the wet weather season, travel on these trails is impossible. All locations, except #42-34 and #22-28, intersect existing trails, thus no new trails will be built. Well #42-34 is within a cultivated grain field and requires 0.4 miles of new trail. Access to the well will be via a straight line through the field from an existing trail. Well #22-28 requires 0.2 miles of new trail. Since the access trails are all used by other public land users (hunters, recreationists, ranchers, etc), none of the trails will be rehabilitated and replanted under this proposal. Road/trail designations will be addressed in future land use plans.

Traffic: For these proposed wells the average time it takes to build a location, drill the well, complete/test the well and install the pipeline is approximately 14 days. During drilling, completion, testing and pipeline installation crews will likely use a crew vehicle or car pool. Approximately three to five round trips/day/well will be required. This will equate to 18 weeks of increased oil/gas traffic in the area. Since these wells will more than likely not be drilled simultaneously (drill rig availability in northcentral Montana limits the number of operating rigs at one time), it will be reasonable to assume that all the location building will occur at once, then the drill rig will rotate through the locations. The same can be assumed for completion/testing and installing pipelines. There may be days where no drilling activity is occurring. Nevertheless, once the drilling, completion and testing phase is completed, oil/gas traffic will drop substantially.

Macum, Ocean Energy and Klabzuba currently employ one fieldhand each to maintain their individual wells in the analysis area. These three people travel to the area on the average of two trips per month, each. These trips can be for general maintenance, changing meter charts, well servicing or general well inspection. During poor weather conditions, no employees travel to the area at all.

Other traffic in the area includes local ranchers traveling during cattle gathering season and grain harvest season, tourists and hunters. Although these visits are difficult to predict, experience of the locals indicates that one to two people are in the analysis area once a week which equates to one person every three days. These visits only apply during good weather months which are generally May through October. Outside of these months, there can be weeks between seeing other people in the analysis area. Hunter visits are kept artificially low since the area is a special permit draw for sheep and elk which limits the harvest quota and thus the number of hunters. Other factors which limit the traffic include trails which are impossible to travel in bad weather. There is a risk that if a tourist or hunter drives on an un-graveled road in the analysis area and it rains, the tourist is stuck in the mud for an average of one to two *days*.

Soils: The soils in the area are either clay shales, sandy with excessive erosion potential, or in marginal cultivation. The soils on the top of the ridges/bluffs are deep enough to allow fair to good revegetation success. Soils on the slopes and bottoms of the coulees are marginally successful in revegetation.

Surface water: Surface water is lacking due to high runoff potential. Most springs are dammed to create watering ponds for livestock and wildlife.

Visual Resource: The project area is classified as Visual Resource Management (VRM) Class II and Class IV. Visual management classes were developed based on visual characteristics of the area compared to the physiographic province in which it is located. Management activities designated for VRM Class II areas should be designed to blend into the natural environment, thereby retaining the intrinsic character of the landscape. Activities may be seen, but should not attract the attention of the casual observer. Management activities designated for VRM Class IV areas could result in major modifications to the existing character of the landscape. Contrasts may be designed to attract attention and serve as a dominant feature of the landscape in terms of scale; however, the change should repeat the basic elements of form, line, color, and texture inherent in the characteristic landscape. In the viewshed, human activity is evident for the viewer will see other metersheds, grain bins, homesteads, water trappers, livestock troughs and single pole powerlines. The BWC and Breaks environment is visually unique and the viewer notices the natural environment first. The human caused modifications are minor in the viewshed.

Wilderness: The proposed locations are near or adjacent to the Ervin Ridge Wilderness Study Area (WSA). The BLM policy is to manage WSAs in such a way so that no activities can take place within the study area which will cause the study area to no longer be eligible for Congressional designation as wilderness under the Wilderness Act. Access to the WSA is either through difficult cross country travel from the river bottom or along the North trail boundary, the Ervin Ridge trail. The Ervin Ridge trail is not a public trail and is controlled by a single landowner who is selective about allowing access.

Vegetation: The vegetation types include mature big sagebrush, creeping juniper, ponderosa pines and native range grasses. One location is in a wheat field and other private land within the analysis area is in the Conservation Reserve Program (CRP). Most of the vegetation in the coulees is sparse and slow growing having adapted to little moisture, limited soil growing medium, heavy winds, and both sub-zero and hot temperatures.

Private land: Private land provides a combination of wheat farming and cattle ranching and is interspersed with the public domain. Private landowners control a portion of the access to the public domain.

Wildlife: Wildlife species within this area include typical species associated with Breaks habitat. Big horn sheep, elk, mule deer, raptors and sage grouse are considered important management species and all have important habitat within the analysis area.

No documented raptor nests are known within the project area, although several species utilize the different habitats for foraging.

All of the project area has been reviewed for potential habitat for BLM Special Status Species (SSS), including Threatened or Endangered animal and plant species (T&E), using the Special Status Species Affects Determinations Summary Tables. A copy of this table is included for the project area. The project area is not within the range of most of these species or habitat was not present. For any SSS that included "potential" habitat within the known range, habitat was further inspected for suitability.

Field inspections by BLM biologist were performed within the appropriate season to determine presence or absence of these species. None of these species was observed, but these inspections are not absolute determinations of presence or absence, and any suitable habitat was assumed to be occupied at least incidentally if that species is known to occur within the area.

Bald eagles (Threatened) are known to pass through the Missouri River breaks during fall migration and occasionally birds wintering on the Missouri River will make incidental use of the breaks habitat for foraging. There are no known roosting or nesting sites within the project area, and this habitat is not considered critical to this species. Activities within the project area are occasional or incidental foraging.

Peregrine falcons (BLM designated sensitive species) are known to pass through the Missouri River breaks during spring and fall migration and will make incidental use of the breaks habitat for foraging. There are no known roosting or nesting sites within the project area, and this habitat is not considered critical to this species. Activities within the project area are occasional or incidental foraging.

Sage grouse (BLM designated sensitive species) droppings were located within the area, indicating some use of the sagebrush community. There is one known lek within the project area within one mile of a proposed well. The project area does not fall within known crucial winter range. The project area includes seasonal use habitat within the sagebrush community.

Hairy woodpeckers (BLM designated sensitive species) do occur within the area and suitable habitat does exist, but none have been observed within the project area. These birds would be associated with the ponderosa pine areas.

**TABLE 2. Location and important management species**

<b>Proposed Well Location</b>	<b>Mule Deer</b>	<b>Elk**</b>	<b>Bighorn sheep</b>	<b>Sage grouse</b>
#13-14	Yes	Yes	Yes*	No
#22-28	Yes	Yes	Yes*	Habitat present
#42-30	Yes	Yes	No	Habitat present
#23-10	Yes	Yes	No	Habitat present
#31-3	Yes	No	No	No
#42-34	Yes	No	No	Yes***
#1-25-19	Yes****	Yes	No	Habitat present
#6-25-20B	Yes	Yes	No	No
#28-1	Yes	Yes	No	Habitat present

\* Year round sheep range and important lambing/rearing habitat.

\*\* A small herd of 25-50 head has started utilizing the BWC area and are thought to be from the Bear Paw herd to the north. They concentrate in the timbered draws and coulees for thermal and security cover.

\*\*\* A large historical lek is located 1 mile from this location

\*\*\*\* MT Fish Wildlife and Parks notes that this area has traditionally been used for their winter deer counts. The area concentrates large herds "too numerous to count".

Cultural resources: Over 4200 acres (8%) of the analysis area have been inventoried for cultural resources. Most of this inventory (4000 acres) was completed as part of a stratified random sampling survey in the 1970s. Subsequently, 42 inventories for small projects have confirmed the results of the sampling survey, which predicts low frequencies of cultural resources, particularly in the creek/coulee bottoms, badlands and pine breaks. A prehistoric camp recorded in the south portion of the analysis area was the only cultural resource site found in the sampling survey. Four other sites in the northeast corner of the analysis area are reported to include tipi rings, lithic scatters and a bison kill. None of the known cultural resource sites is located in the same cadastral section as the proposed wells analyzed in this EA.

Ten acres surrounding each of the proposed wells were intensively inventoried for cultural resources as were 50 feet on both sides of the centerline of proposed access trails. No cultural resource sites were found in these areas.

The east edge of the analysis area lies one to six miles west of the Cow Creek ACEC and two to eight miles west of the Nez Perce National Historic Trail. Some Native Americans use the ACEC for traditional cultural practices. The proposed wells are at least three miles from the ACEC boundary and none of them are within the viewshed of the Nez Perce Trail. The county road which runs east-west along the north end of the analysis area is called the Cow Island Trail because it began as a freight trail from Cow Island to Fort Benton during the steamboat era on the Missouri River. No original segments of this trail have been documented in the analysis area.

Minerals: Minerals with known occurrence potential in the area include coal, bentonite, and kimberlite-like deposits. There is no current production activity associated with any of these mineral deposits. Natural gas is the only mineral resource that is an existing land use in the area. The analysis area is mainly contained within the Leroy Gas Field which is seven townships in size or approximately 161,000+ acres. The Leroy Gas Field produced 146 MMCF of natural gas in 1998.

Water Quality: As proposed, the nine wells are to be drilled with a conventional water/bentonite mud system to total depths. The drilling fluids are contained either in pits or trucked off site thereby not compromising the existing surface and subsurface water quality in the local environment. Freshwater for cementing will be obtained from private sources of water located in the area.

Pipelines: All pipeline right-of-way widths are 30', the general size for ditch-width and associated vehicle tracks. All pipelines are on level ground except Ervin Ridge. All lines will either be buried in the access trail or adjacent to them. There are existing pipelines within and adjacent to the analysis area that will be used to tie-in the proposed wells. These lines are currently conveying state, fee and federal minerals to market. Table 3 displays the current pipeline status. Table 4 estimates the location of the pipeline tie-in. These tables will be used to evaluate impacts and is not designed to portray the definite tie-ins or lengths.

**TABLE 3. Existing pipeline summary**

<b>Owner/ operator</b>	<b>Beginning</b>	<b>Ending*</b>	<b>Size/ type</b>	<b>Online wells</b>	<b>Locations</b>
Macum	Sec 12-24N-20E	Sec 9-26N-20E	4" poly	1-7	Sec 7-25N-21E
				34-1	Sec 34-26N-20e
				Kincaid 1	Sec 3-25N-20E
				15-1	Sec 15-25N-20E
				16-25-20	Sec 16-25N-20E
				1-12	Sec 12-24N-20E
Klabzuba	Sec 36-26N-19E	Sec 31-26N-19E**	3" poly	36-26-19	Sec 36-26N-19E
Hamilton/ Klabzuba	Sec 31-25N-20E	Sec 10-25N-19E**	2" poly	31-25-20	Sec 31-25N-20E
Havre Pipeline Co	Sec 27-25N-19E	Trunk line***			
Ocean Energy	Sec 27-25N-19E	Sec 21-25N-19E	6" steel	#4-27, #6-28	Sec 27-25N-19E

\* These lines do not "end" but instead tie-in to successively larger lines that either go north to Havre, south to Winifred or west to Big Sandy.

\*\* The line terminates at a tie-in to the larger trunk line owned by Havre Pipeline Company.

\*\*\* This trunk line ties-in a number of wells in the Leroy Gas Field.

**TABLE 4. Pipeline Tie-in summary**

<b>Well #</b>	<b>Status</b>	<b>Existing tie-in name</b>	<b>Approximate location of tie-in</b>	<b>Length to tie-in to existing line</b>
42-34	APD	Macum	Sec 34-26N-20E	< 0.25 miles
31-3	APD	Macum	Sec 3-25N-20E	< 0.25 miles
23-10	APD	Macum	Sec 10-25N-20E	< 0.5 miles
13-14	APD	Macum	Sec 12-24N-20E	2 miles
42-30	APD	Hamilton/ Klabzuba	Sec 19-25N-20E	1.25 miles
1-25-19	APD	Klabzuba	Sec 36-26N-19E	0.5 miles
6-25-20B	APD	Klabzuba	Sec 36-26N-19E	1.25 miles
30-1* (Sec 30-24N-21E)	GSI	Havre Pipeline Co.	Sec 27-25N-19E	12 miles
1* (Sec 36-24N-20E)	GSI (state minerals)		Sec 25-24N-20E	0.25 miles
22-28*	APD		Sec 28-24N-20E	< 0.25 miles
29-15* (Sec 29-24N-20E)	GSI		Sec 29-24N-20E	< 0.25 miles
28-1	APD	Ocean Energy	Sec 27-25N-19E	<0.25 miles

\* These four wells do not have a pipeline to them. The easternmost well, #30-1, will need 12 miles of pipeline to reach an existing line. The other wells will then tie-in to this “Ervin Ridge line”. The calculations in the “length” column above are based on tie-ing into this conceptual line.

**TABLE 5. Well summary**

Well #	Wells w/in 1 mi	Well status	cut/fill	surface/mineral
13-14	2	Both P+A***	less than 3'	federal/federal
22-28	2	1 P+A, 1 GSI*	3-6'	fee/federal
42-30	4	All P+A	less than 3'	federal/federal
23-10	5	3 P+A 2 PGW**	less than 3'	fee/federal
31-3	4	2 P+A 2 PGW	2-5'	federal/federal
42-34	3	2 P+A 1 PGW	less than 3'	fee/federal
1-25-19	10	8 P+A 2 PGW	less than 1'	federal/federal
6-25-20B	3	1 PGW 2 P+A	3-8'	federal/federal
28-1	7	4 P+A 1 ABD**** 2 PGW	less than 2'	federal/federal

\* GSI is gas shut in; \*\* PGW is producing gas well; \*\*\*P+A is plugged and abandoned, \*\*\*\*ABD is abandoned, reclamation in progress.

### **ENVIRONMENTAL IMPACTS:**

#### **Air Quality:**

Alternative 1: Air quality will be temporarily affected by increased dust levels, exhaust gas from rig and vehicle engines, short term venting/flaring of gas and other activities related to the surface disturbance prior to drilling and the possible completion of the wells. The impacts will be minor and short term.

The impacts on air quality due to production operations or well testing are mitigated by requiring that all produced gas be either captured or flared. If the well is to be connected to a gas line, the air quality impacts will be limited to the period during which gas is flared pending connection, generally one to two days or less. If appropriate, temporary flaring approval will include requirements as to how the gas will be flared. The recommended stack height will provide for efficient combustion of gas and dispersion of the resultant gases. These impacts are minor and short term.

Residual impacts: Once the wells are drilled and online, the residual impacts to air quality are reduced to minimal or zero.

Alternative 2: There will be no impacts to air quality with selection of this alternative.

**Vegetation:**

Alternative 1: Nine well locations will be cleared of vegetation, including shrub and tree components. Each pad will be 200' x 200' which is equivalent to .92 acres disturbed (for ease of analysis, the entire 200' square will be considered cleared, even though neither Operator proposes to clear the entire square). A total of nine acres will be disturbed in pad building for all nine locations. The analysis area is 64,000 acres whereby a nine acre impact is .014%. Pipeline installation is 19 miles and will result in the removal of 69 acres of vegetation, or .107%. The temporary loss in vegetation is insignificant over the entire analysis area. The impact is even less and short term once the pipeline corridors are revegetated.

Residual impacts: Following cessation of drilling and if each well is a producer, the unused portions of the pad will be replanted with native grasses and in some cases, shrubs and small trees. The pad and work space (pits, metershed and vehicle space) is then reduced to an average of 75' x 75'. This smaller space is not revegetated until the well is plugged and abandoned. This smaller unvegetated space will be equivalent to 1.2 acres for all nine wells.

Existing trail densities will remain unchanged since the access trails are not being closed following cessation of drilling.

The pipeline impacts will be reduced to zero once the pipeline corridors are revegetated with grasses, shrubs and small trees. It is difficult to determine exactly how many miles of shrub/trees will be removed since the pipeline can be installed between the isolated components, but approximately five miles of shrub/tree components may be removed for pipeline installation. The length of time it will take to revegetate the corridors will have an impact on other resources, namely wildlife security, off road travel and cattle movement. An aggressive replanting program will mitigate some of these concerns. Only time can mitigate the revegetating of the land. It is estimated that it will take one to two years for grass to revegetate and five to eight years for the shrub/tree component to take root, if these are good wet years. It will take longer for the shrub/tree components to reach functionality, such as holding soil with an extensive root system or producing mast/forage. The native *Juniperus* and *P. ponderosa* species may need a watering system to become established. It will be better if the large mats of junipers and mature trees are protected where possible and kept in place to utilize their soil holding capabilities.

**TABLE 6. Soil and Vegetation Table**

<b>ACTION</b>	<b>ACRES DISTURBED</b>
Pads and Trails	9 (the trail disturbance is less than 1 acre)
Pipelines	69
<b>TOTAL</b>	78

Alternative 2: There will be no change to the resource with the selection of this alternative.

**Weeds:**

Alternative 1: The potential introduction and spread of weeds is possible on the 78 acres of disturbed lands. In addition, weeds can be introduced on the trails and take root along all the trail corridors. In order to reduce the potential for introduction and spread of weeds on previously undisturbed areas (pads and pipelines) an aggressive replanting program will be required of the Operators. Operators will also be required to clean the undercarriage of all rigs that enter onto the locations and are responsible for noxious weed control on pipelines and pads throughout the life of the well plus five years post abandonment. These mitigation measures should reduce the likelihood of weed introduction.

Residual impacts: Since the access trails will remain open to all users, the potential for weed introduction and spread is a continuing probability.

Alternative 2: Selection of this alternative will not change the potential for weed introduction and spread. If the soil is not disturbed, the potential for weed introduction and spread is greatly reduced but not eliminated. Weed introduction and spread is present in undisturbed environments throughout the State.

**Soils:**

Alternative 1: Approximately 78 acres of soils will be disturbed by building pads and pipeline installation. Temporary soil compaction will be on all pad locations and pipelines. Following well completion and pipeline installation, the locations and corridors will be ripped and replanted within six months of drilling, thus reducing compaction. Soil compaction on the access trails is already occurring and will continue since none of the trails will be closed. Erosion measures, such as mats, may be required during the re-vegetation phase. These measures will be implemented on a case by case basis.

Soil management during drilling/completion is the key to returning the location to previous productive conditions. The operator will stockpile the topsoil on the side of the location and re-spread the topsoil and reseed the unused portions of the well pad upon cessation of drilling. Any topsoil that is not re-spread within 30 days of stockpiling will be seeded with a quick cover plant or porous mat to “hold” the topsoil in the immediate area. In no instances will subsoil be placed over topsoil. In addition, if topsoil mycorrhizae are compromised due to either compaction or anaerobic conditions, operators may be required to supplant the soil with mycorrhizae to speed the recovery of the vegetation and return the soil to productivity. This measure will be implemented on a case by case basis.

The total acreage in the analysis area is 64,000 and contains approximately 78 miles of low standard trails. These 78 miles equate to 189 acres which are currently disturbed. The additional 78 acres to be disturbed of which 69 will be revegetated leaves nine acres that will remain in a long term disturbed status. Nine acres out of 64,000 is insignificant.

Residual impacts: Compaction on existing access trails will continue. The nine acres in locations will remain unvegetated until the wells are plugged and abandoned (approx 30 years). The nine acres of impacts are insignificant over both the short and long term. All impacts are reduced to zero once the locations are revegetated.

Alternative 2: Selection of this alternative will not allow 78 acres of land to be disturbed. Compaction will remain unchanged on the trails.

### **Wildlife:**

Alternative 1: There will be temporary displacement of wildlife due to drilling and completion. Long term displacement of wildlife has not been evident for existing production sites and facilities within the area. Since there are limited visits by oil/gas personnel, the impacts to deer and elk populations are minimal. There are indications that an elk herd is colonizing from the Bear Paws into South Blaine County, in the presence of the gas wells and gathering facilities. The mule deer populations have not declined due to the presence of the gas field, since the placement in the 1950s. Removal of vegetation important to wildlife on all sites and trails not reclaimed will impact wildlife. These impacts are minimal as most of the roads already exist and vegetation disturbance will be minimized and reclaimed. The long term impacts are negligible once the vegetation has recovered to previous composition and structure and woody vegetation is again producing mast and cover.

Although Bald eagles (Threatened) are known to make incidental use of the breaks habitat for foraging, there are no known roosting or nesting sites within the project area and this habitat is not considered critical to this species. No individuals will be affected by construction or production phase of this action. No power lines will be constructed removing potential risk of raptor, including bald eagles, being electrocuted by roosting on power poles.

Final Determination of No Effect to T&E or Proposed Species: There will be no effect to bald eagles, their primary prey base or important habitat by the proposed action. Most T&E or Proposed species have no suitable habitat within the project area. There will be no effect on those species (See Tables 7 and 8).

Peregrine falcons are known to make incidental use of the breaks habitat for foraging, there are no known roosting or nesting sites within the project area and this habitat is not considered critical to this species. No power lines will be constructed removing potential risk of raptors being electrocuted by roosting on power poles. There will be no effect to this species, individuals, its primary prey base or important habitat.

The loss of sage grouse habitat is minimal with minimal removal of sagebrush. With adequate reclamation, the impacts will be negligible both in the short and long term. No power lines will be placed to any of these wells, eliminating the risk of increased raptor predation, due to increased roosting platforms of power poles. Impacts will be avoided by following guidelines from the West Hiline RMP/EIS.

Hairy woodpeckers would be associated with the ponderosa pine areas. As part of the stipulations, very few mature trees or snags will be removed. Any live trees or shrubs removed will be replaced by live plantings. While it may take many years before these transplants reach maturity or produce standing snags, the number removed will be so minor as to result in no effect on this species or its use of the habitat.

Special Status Species Determination of Impacts: Most BLM Designated Sensitive Species have no suitable habitat within the project area. There will be no effect on those species (See Attachment). For those species listed above, selection of this alternative will not remove any important or substantial habitat or individuals within the populations, which might lead to the need to list any BLM Designated Sensitive Species under the endangered Species Act.

**TABLE 7**  
**SPECIAL STATUS SPECIES AFFECTS DETERMINATIONS**  
**SUMMARY TABLES**

**Federally Listed Threatened and Endangered Species and Species Proposed for Listing**

Species	Status	In Range (yes/no)	Habitat Present (yes/no)	Affects Determination (brief rationale)
Bald Eagle	T	Y	Y	Habitat present is primarily foraging during fall migration and winter. The quantity and quality of this habitat will not be reduced appreciably and this action should have no affect on this species.
Least tern	E	Y	N	
Mountain Plover	P	Y	N	
Piping Plover	T	Y	N	
Whooping Crane	E	N	N	
Black-footed ferret	E	Y	N	
Canada Lynx	T	N	N	
Gray wolf	E	N	N	
Grizzly Bear	T	N	N	
Bull Trout	T	N	N	
Pallid Sturgeon	E	Y	N	
Spalding's Catchfly	P	N	N	
Ute Ladies'-tresses	T	N	N	
Water Howellia	T	N	N	
Western Prairie Fringed Orchid	T	N	N	

**TABLE 8**  
**SPECIAL STATUS SPECIES AFFECTS DETERMINATIONS**  
**SUMMARY TABLES**

**BLM (Montana and Dakotas) Designated Sensitive Species**

<b>BIRDS</b>			
Species	In Range (yes/no) <sup>1</sup>	Habitat present (yes/no) <sup>2</sup>	Effects Determination (brief rationale) <sup>3</sup>
Bairds sparrow	Y	N	
Black-backed woodpecker	N	N	
Black Tern	Y	N	
Boreal owl	N	N	
Burrowing owl	Y	N	
Canvasback duck	N	N	
Columbian sharp-tailed grouse	N	N	
Common loon	N	N	
Dickcissel	N	N	
Ferruginous hawk	N	N	
Flammulated owl	N	N	
Great gray owl	N	N	
Hairy woodpecker	Y	Y	Few trees will be damaged and mitigation will replace all removed trees. Small scale of habitat disturbance will not affect this species.
Harlequin duck	N	N	
LeConte's sparrow	N	N	
Loggerhead shrike	Y	N	
Long billed curlew	Y	N	
Northern goshawk	Y	N	
Peregrine falcon	Y	Y	Habitat present is primarily foraging during migration with no nesting habitat. The quantity and quality of this habitat will not be reduced appreciably and this action should have no affect on this species.
Pileated woodpecker	N	N	

Sage grouse	Y	Y	Habitat present is summer and fall foraging. The quantity and quality of this habitat will not be reduced appreciably and this action should have minimal impacts on this species. See EA for impacts and mitigation.
Sage sparrow	N	N	
Swainson's hawk	Y	N	
Three-toed woodpecker	N	N	
Trumpeter swan	Y	N	
White-faced ibis	Y	N	
<b>MAMMALS</b>			
Species	In Range (yes/no) <sup>1</sup>	Habitat present (yes/no) <sup>2</sup>	Effects Determination (brief rationale) <sup>3</sup>
Black-tailed prairie dog	Y	N	
Fisher	N	N	
Meadow jumping mouse	N	N	
Merriam's shrew	Y	N	
North American wolverine	N	N	
Northern Bog Lemming	N	N	
Preble's Shrew	N	N	
Pygmy rabbit	N	N	
Spotted bat	N	N	
Spotted skunk (western)	N	N	
Swift fox	N	N	
Townsend's big-eared bat	N	N	
White-tailed prairie dog	N	N	
Woodland caribou	N	N	
<b>REPTILES and AMPHIBIANS</b>			
Species	In Range (yes/no) <sup>1</sup>	Habitat present (yes/no) <sup>2</sup>	Effects Determination (brief rationale) <sup>3</sup>
Snapping turtle	Y	N	
Spiny softshell turtle	Y	N	

Canadian toad	N	N	
Coeur d'Alene salamander	N	N	
Spotted frog	N	N	
Tailed frog	N	N	
Wood frog	N	N	
<b>FISH</b>			
Species	In Range (yes/no) <sup>1</sup>	Habitat present (yes/no) <sup>2</sup>	Effects Determination (brief rationale) <sup>3</sup>
Arctic grayling	N	N	
Blue sucker	Y	N	
Bull trout	N	N	
Northern redbelly X Finescale dace	Y	N	
Paddlefish	Y	N	
Pearl dace	Y	N	
Shortnose gar	N	N	
Sicklefin chub	Y	N	
Sturgeon chub	Y	N	
Westslope cutthroat trout	N	N	
Yellowstone cutthroat trout	N	N	

- 1) If project is not within the range of the species no determination of habitat presence is needed.
- 2) If habitat is not present no effects determination is needed.
- 3) Detailed Effects Determination is provided in the narrative of Environmental Assessment

The following mitigation measures obtained from the West HiLine RMP will be implemented as defined in Table 2. :

*Mule Deer Winter Range and Elk:*

No drilling will be allowed from December 1 - June 30.

*Bighorn Sheep Lambing Areas:*

No drilling will be allowed from April 15-June 15.

*Sage Grouse:*

If a new lek is discovered within 0.5 miles of any location, no drilling will be allowed between March 1-June 30. The lek that is one mile from #42-34 is already protected due to distance and topography.

Residual impacts: Until the vegetation matures, thermal/security cover and forage will be minimally reduced in the short term (1-10 years).

Alternative 2: There will be no change in populations due to selection of this alternative. Displacement of individuals will not occur.

**Trail Improvement:**

Alternative 1: Macum has requested within its APDs to improve the trails by graveling, crowning and ditching. The trails in their present condition are passable to large equipment 80% of an average year except in small isolated corners or narrow dips. The trails are impassable during spring thaw, summer storms and winter chinooks. Blading is unnecessary for 96% of the proposed access routes. Furthermore, removal of the narrow vegetated middle strip and thin protective soil cover by blading compounds the "gumbo" problem of clays and shales that are in the trail prism. Although gravel sources (crushed clinker or igneous rock) are near the Missouri River, improving the trails will have long term impacts to wildlife and weed introduction and spread. In addition, the nature of the soils in the trail prism preclude that the gravel will stay on top of the trail. It will take large quantities of gravel to build a bed because the gravel will tend to disappear in the gumbo. The trail conditions will remain relatively unchanged except in locations, such as tight corners or narrow dips, where the Operator will need to smooth out to allow safe travel of drilling rigs and heavy equipment. This is estimated as 200-300' for the entire proposed action. The impacts are minimal with selection of this alternative.

Neither Klabzuba or Ocean Energy have requested to improve trails accessing their locations.

The trails accessing the wells are low maintenance. Any maintenance of these trails is controlled by the Havre Field Station staff. Maintenance of access trails to wells on private surface are the responsibility of the Operator after consulting with the private landowner about the level of maintenance needed.

Residual impacts: None.

Alternative 2: Selection of this alternative will result in no change to the amount of trail improvement currently done by the Havre Field Station.

**Traffic:**

Alternative 1: Selection of this alternative will not result in additional personnel or trips for oil/gas operations. During the drilling operations, there will be 18 weeks of activity, assuming that activity will be occurring at all times during the 18 weeks. Once the drilling, completion, testing and installation of pipelines are completed, traffic densities will drop substantially. Thus the impacts of increased traffic during the drilling operations are considered short-term and minimal in duration. The oil/gas traffic density will then return to normal and remain unchanged.

Residual impacts: None.

Alternative 2: Selection of this alternative will result in no change to the current amount of oil/gas traffic.

### **Cultural Resources:**

Alternative 1: No cultural resources will be affected by project construction and use at the proposed well locations or on new access trails. Additional cultural resource inventory will be conducted on pipeline routes and where existing trails may be improved before BLM approves these activities. Impacts to significant cultural resources will be avoided by project relocation or mitigated by data recovery or other measures. The probability for the discovery of unidentified cultural resources during project implementation under this alternative is low.

Residual impacts: There will be no residual impacts to cultural resources under this alternative.

Alternative 2: There will be no impacts to cultural resources with selection of this alternative.

### **Visual Resources:**

Alternative 1: During the drilling operations, drilling will be obvious to the casual observer due to the height of the drill rig and the increased activity on the pad and trail. The drilling operations will last on average one week/well for a total of nine weeks. This impact is minor and short term. Overall, the visitor is drawn to the spectacular BWC area, vastness and rough topography and is less interested in the temporary visual impairment of the drill rig and activity. Visual impacts for one location adjacent to the WSA are outlined in the wilderness section. Pipeline impacts are minimal since the locations of the pipeline are across flat, grassy plains that will not be obtrusive. Pipelines will be planted with native grasses and, if necessary, shrub/tree components. Pipelines that are already in place within the analysis area are difficult to locate three to five years after placement due to good growth.

Five of the proposed locations are in VRM Class II. This class implies that activities should be blended into the environment, thereby retaining the intrinsic character of the landscape. Within the cumulative impact analysis area, private and state metersheds, rows of grain bins and homesteads are visible. In order to meet the VRM class objectives, operators will be required to use topography, vegetative screening or camouflage painting of permanent structures to blend the oil and gas operations into the environment.

Four locations are located in VRM Class IV which allows major modifications to the existing character of the landscape. Nevertheless, mitigation measures of topographic/vegetation screening and camouflage painting will still be implemented.

The BWC is not visible from six of the locations (#42-34, #31-3, #23-10, #42-30, #28-1 and #1-25-19). These locations are on the ridge tops and vegetation/topography screens the view to the BWC. At the other three locations, the BWC can easily be seen. Nevertheless, mitigation measures will be implemented to blend all locations into the environment.

Overall impacts are expected to be minimal since current producing wells are not highly visible to the average viewer. Some of the shut in wells are just well heads and are difficult to locate.

Unless the viewer knows there is a well on some of the trails, most people are unaware that there is any well activity in the area. In addition, the spacing of wells in the Leroy Field are generally one well for every 320 acres thus it can be difficult to see the other well in the same section.

**Residual impacts:** Following drilling cessation, and if the well is a producer, the well and metershed will be visible to the person driving down the adjacent trail. Once the well is completed, the visitor will see metersheds. Mitigation can include camouflage painting of the sheds to blend into the surrounding terrain, vegetation screening or off lease measurement. Such measures will reduce the chances of visitors seeing the well. Currently wells within the analysis area that do not have sheds are difficult to find since vegetation and topography have effectively screened them. These impacts are minor but long term (approx 30 years). Once the well is plugged and abandoned and re-vegetated, the visual impact is reduced to zero. Topography currently effectively screens four of the locations from the main access trail. Since oil and gas development has been a part of the viewshed for over 40 years, the impact of continued development is unchanged to the visual resource. There are no residual visual impacts related to pipeline installation.

**Alternative 2:** There will be no impacts to the resource with selection of this alternative.

### **Wilderness Study Areas (WSA):**

**Alternative 1:** Well #22-28 is situated approximately 0.5 miles from the WSA boundary. During the drilling and/or completion phase, wilderness values of solitude and remoteness will be impacted for at least one to two weeks due to noise, heavy equipment travel and increased dust on the roadway. The impact will be short-term. If the well is a producer, the effects on solitude and remoteness will remain minimal since operator committed mitigation includes only one visit per month to change gas meter charts. This measure will reduce the number of field hand trips to the wells. The number of trips/month, which is two, will remain unchanged with the addition of this one well (and the three shut ins), therefore the effect on solitude and remoteness is unchanged.

The WSA is classified as VRM Class I which has the greatest restrictions on visual impacts. Since none of the wells are located in the WSA, the visual resources will remain unchanged in the WSA.

**Residual impacts:** If the well is a producer, the observer may notice the presence of a metershed on the boundary. This may impact the remoteness and solitude of the wilderness user for approximately 30 years. Since oil and gas development has occurred both within the analysis area and adjacent and within the WSA for over 40 years, it will be reasonable to assume that the qualitative aspects of remoteness and solitude will remain unchanged.

**Alternative 2:** There will be no impacts to the resource with selection of this alternative.

### **Surface and Subsurface Water Quality:**

**Alternative 1:** The contamination of freshwater or other usable water resources by drilling or formation fluids is prevented through the use of casing and cementing operations. Drilling fluids contain a number of additives that are natural materials. These can be bentonite, caustic soda, cottonseed hulls, gilsonite, celloflakes, chlorine, lime, paper and soda ash, for instance. After drilling the surface hole, casing (steel pipe) is placed in the hole and cement is circulated behind

the pipe (between the pipe and rock) to the surface. The casing and cement will protect the fresh and usable water zones while completing the drilling operations with fresh water and fresh water based mud or air drilling operations. Companies are required to test Blowout Prevention Control Equipment to the satisfaction of Onshore Oil and Gas Order No. 2 and a BLM petroleum engineering technician prior to drilling below the surface casing shoe. This ensures that the safety equipment is installed and functioning properly.

Commercial preparations, which may contain hazardous materials may be used in completion and production operations and will be transported within the project area. These materials will be handled in an appropriate manner to minimize potential for leaks and spills to the environment. No hazardous wastes will be generated in the well drilling operation. This is a required Standard Operating Procedure (SOP). No trivalent or hexvalent chromate additives shall be used in mud systems. Due to potential for contamination of usable quality water aquifers, chromates are banned from federal leases. This is a required SOP.

The production casing and cement also provide protection during production operations and well control operations. Following the drilling of the well to total depth (TD), casing (steel pipe) is also placed in the hole to TD and cement is circulated behind the pipe (between the pipe and rock) to the surface. The casing and cement will protect the fresh and usable water zones while performing completion operations including well stimulation operations. Any substances added to the mud system during drilling operations are contained in the well or on location in a mud circulation system including earth pits. A COA requires that the reserve pit or sump pit be lined if found to be necessary during construction operations to prevent leakage of the pit contents into the surrounding soils or groundwater. Upon completion of the drilling program, the fluid is removed from the reserve pit or sump pit and disposed of in a state approved disposal well or used at another drilling well. Any remaining materials are contained within the reserve pit.

Impacts to subsurface and surface water quality are minimal and short term.

Residual impacts: None. Surface and subsurface water quality is sufficiently protected through the casing and cementing program.

Alternative 2: There will be no impacts to the resource with selection of this alternative.

### **Pipelines:**

Alternative 1: The 12 mile line that will connect the #29-15, #1, #30-1 and #22-28 will be primarily placed in the Ervin Ridge trail and will terminate at an existing line in Section 27, T 25 N, R 19 E. Since a portion of the line will be in the Ervin Ridge trail, and since this trail will not be reclaimed in this proposal, the total amount of acreage disturbed will be less than calculated in Table 6.

Pipeline impacts are reduced to zero once the lines are properly revegetated. The time it takes to install lines is generally one week and most line installations are via a trencher/ditch-witch. This technique creates minimal surface disturbance. Within three to five years after installation, it is difficult to see the disturbance caused by installation of the line. Buried lines do not contribute to wildlife fragmentation, since the lines revegetate. Wildlife freely move across the landscape, even with the presence of underground pipelines.

Residual impacts: None.

Alternative 2: There will be no impacts with selection of this alternative.

### **UPPER MISSOURI RIVER BREAKS NATIONAL MONUMENT:**

Within the proclamation declaration, Objects of Historic and Scientific Interest are discussed below as they relate to the proposed/connected actions. In addition, the impacts of the proposed/connected actions on the objects will be disclosed in this section.

1. ***“The monument spans 149 miles of the Upper Missouri River, the adjacent Breaks country and portions of Arrow Creek, Antelope Creek and the Judith River. The area has remained largely unchanged in...nearly 200 years...also encompasses segments of the Lewis and Clark National Historic Trail, the Nez Perce National Historic Trail and the Cow Creek Island Area of Critical Environmental Concern.”***

The locations of the proposed/connected actions are all outside of the Wild and Scenic River Corridor and are approximately 30 miles east of Arrow Creek, approximately 19 miles west of Antelope Creek and approximately 22 miles east of the Judith River. We foresee no impacts on these objects. The Missouri River is the Lewis and Clark Historic Trail and thus are not impacted by the proposed/connected actions. The Nez Perce Trail is encompassed in the Cow Creek ACEC. The proposed/connected actions are approximately five miles west of the boundary of the ACEC and are separated by topographical breaks and deep coulees. The locations are entirely outside of the ACEC viewshed. We foresee no impacts to either the trail or the ACEC.

Although a large part of the Breaks country adjacent to the Missouri River has remained unchanged, the Breaks country does contain objects of human involvement and modifications, including cultivated fields, houses, buildings, roads, powerlines, fencing, culverts and gas well development. For the most part these activities, including gas development, occur on the plains and benches above the Breaks and on ridge lines between the intermittent streams that have helped form the erosional characteristics of the Breaks. Nevertheless, the impacts of the proposed/connected actions are expected to be minimal because the proposed/connected actions will be located in areas that already contain trails, gas well development and other improvements related to farming and ranching. The short period needed to construct drilling locations, pipelines and for conducting drilling and completion operations, combined with the size of the area needed for drill sites and the low level of activity during production also minimize the impacts of the proposed/connected actions. See the discussion in the Affected Environment and Environmental Consequences sections for a complete analysis of the impacts.

2. ***“...described the abundant wildlife...recorded the first bighorn sheep observation by non-Indians...description of the magnificent White Cliffs area on the western side of the monument..”***

Nearly 200 years later the area of the monument contains abundant wildlife, even in the midst of the Leroy gas field with 19 producing wells in the Monument. The bighorn sheep,

although native to the area, were extirpated by human involvement through a combination of hunting, extensive cattle/sheep competition for limited habitat and the presence of predators. The sheep were re-introduced in the early 1970s and are currently thriving due to management of the domestic livestock and the lack of large predators such as the wolf. The herd has been used as seed stock to re-populate other areas in Montana. Two of the proposed locations are in sheep winter range. These locations have mitigation which will limit the impact to the herd, specifically lambing, thus the impact is minimal. Please see the wildlife section of the EA for a complete discussion.

We foresee no impacts to the White Cliffs from the proposed/connected actions because the White Cliffs are approximately 36 miles west of the proposed locations.

3. ***“The area remains remote and nearly as undeveloped as it was in 1805...biological objects described in ...journals continue to make the monument their home...most viable elk herd in Montana...premier big horn sheep herds...essential winter range for sage grouse...habitat for prairie dogs....The lower reach of the Judith River, just above its confluence with the Missouri, contains one of the few remaining fully functioning cottonwood gallery forest ecosystems...Arrow Creek...contains ...concentration of antelope and mule deer...spawning habitat for endangered pallid sturgeon...Arrow Creek is a critical seed source for cottonwood trees...”***

Nearly 200 years later, the area of the monument contains abundant wildlife and is remote, even in the midst of the Leroy gas field with 19 producing wells in the Monument. Please see the wildlife sections in the EA for a discussion of impacts to elk, mule deer, sage grouse, and bighorn sheep. We foresee no impacts to prairie dog towns since none of the locations are near any prairie dog towns. The proposed locations are approximately 22 miles east from the Judith River confluence and 30 miles east from Arrow Creek on the opposite side of the Missouri River. The proposed/connected actions will not impact the cottonwood gallery forest ecosystem or fish and wildlife populations and habitat in Arrow Creek or its watershed.

4. ***“The cliff faces...provide perching and nesting habitat for many raptors...shoreline areas provide habitat for heron...The River and its tributaries...host 48 fish species...has one of the six remaining paddlefish populations...endangered pallid sturgeon.”***

None of the locations contain cliff faces and all have been surveyed for the presence of raptor nests. None were found, nevertheless, lease terms and stipulations provide mitigation to protect raptor nests in the event a raptor locates in the area of a proposed location. Therefore, we foresee no impacts to raptors. None of the locations are adjacent to either the Missouri River or any of the perennial tributaries, thus we foresee no impacts to fish.

5. ***“The Bullwacker area...contains some of the wildest country...important wildlife habitat...mule deer, elk, antelope, sage grouse...heads of the coulees contain archeological and historical sites...teepee rings...remnants of historic trails...abandoned homesteads...lookout sites used by Meriwether Lewis.”***

Please see the wildlife, wilderness study area, and visual resource sections of this EA for a discussion of potential impacts to the “wildest country” and wildlife. All impacts are mitigated and thus minimal. The cultural resources section of the EA discusses the impacts to cultural sites, trails and homesteads. None of the locations or proposed/connected actions are located in areas of historic or cultural importance and thus impacts are minimal. The known lookout sites are within the Wild and Scenic River Boundary and the proposed/connected actions are approximately five to seven miles north of this boundary, thus we foresee no impacts. An old homestead is located on private land near three of the proposed locations. The owners of the homestead and private land are third generation Montanans who still utilize the homestead and adjacent land for livestock grazing, grain growing and have their own gas well and mineral rights. In the unique case of private surface/federal minerals, the Antiquities Act does not apply to this homestead since the Act states, “*objects...that are situated upon the lands owned or controlled by the Government of the United States...*” Two other homesteads that are nearby are protected due to topography and distance because they are approximately three miles away from any features of the proposed/connected actions.

6. ***“...the area was inhabited by numerous native tribes...confluence of the Judith and Missouri Rivers was the setting for important peace councils...Nez Perce...entered the Breaks country in their attempt to escape to Canada...Cow Island Skirmish...established Forts Piegan, McKenzie and Benton...”***

Please reference the cultural resources section of the EA for a discussion of impacts to affected tribes. None of the locations are on the Missouri River or the Cow Creek ACEC so we foresee no impacts. Forts Piegan, Benton and McKenzie are approximately 54 miles west of the proposed locations and thus we foresee no impacts.

7. ***“...wilderness characteristics...wilderness study areas...”***

Please see wilderness study area sections in the EA for a discussion of impacts to the closest WSA - Ervin Ridge.

Excerpts from the Legal Effects of the Proclamation that are applicable to the proposed/connected actions are:

***“...the proclamation is subject to valid existing rights...the proclamation would respect their rights. The exercise of such rights could, however, be regulated in order to protect the purposes of the monument.”***

The oil and gas Operators are subject to regulation that ensure the protection of the natural environment to the extent practicable. It should be noted that the federal oil and gas leases occupy 15% of the entire monument, and thus many of the objects and purposes of the monument are protected either through distance or topography. This is especially true for “remoteness and wild character.”

It should also be noted that the natural gas field and the nature of the subsurface geology, is and of itself, a unique scientific and educational resource. For a discussion of the subsurface geology, see the RFD.

***“Use of existing rights-of-way...will generally be subject to the same standards as described for grazing. Some existing rights-of-way may include valid existing rights. The exercise of such rights may be regulated in order to protect the purposes of the monument, but any regulation must respect such rights.”***

All of the current pipeline infrastructure is permitted through ROW or mineral lease Sundry Notices and thus these rights will continue. Future pipelines that will be needed to either connect existing shut in wells or future wells on valid leases will be analyzed in a separate document and approved through either/both a ROW and Sundry Notice.

***“...the proclamation prohibits motorized and mechanized vehicle travel off road, except for authorized administrative or emergency purposes.”***

Off road travel may be necessary to service a pipeline or survey for new well locations on valid existing leases. Such off road travel is limited to one to two people over one to five days of travel. Such travel is permitted through the mineral lease rights. These impacts are minimal. Any future road building that may be needed to access valid leases and future drilling locations will be analyzed in a separate document. These document(s) will utilize both the proclamation, the interim management plan and any other policy that is subsequent to this EA.

The only new road construction within the monument boundary will be those portions of the road needed to allow drill rig and large truck traffic to safely travel. In the instant case of these proposed/connected actions, it is estimated that less than 200-300 feet is necessary to smooth out tight corners, narrow dips and deep ruts to access the proposed locations. In the EA, this is analyzed in the section trail improvement.

***“The area within the boundaries of the monument contains approximately 37,435 acres of state land and 81,059 acres of private land. The monument designation does not apply to those lands...the laws applicable to the use of state or private lands prior to establishment of the monument will continue to apply.”***

Three of the proposed locations are on private surface/federal minerals. Although the designation does not apply to private surface, the federal action of drilling a well into the federal mineral estate does require that the government address the resources of the surface which may be affected by the action.

Also, a number of state wells are located in the proximity of the actions and one state well located in the Ervin Ridge WSA, is capable of producing but is not because a pipeline connection has not been built for this well.

***“Where possible, the monument boundaries have been drawn to exclude existing mineral leases, but slightly more than 15% of the area...or slightly more than 60,000 acres is covered by existing federal oil and gas leases. These leases include a small portion of the Leroy gas field that has been developed in the last few decades. About 155 wells have been drilled since 1960, and the monument area contains 19 producing wells.”***

*Valid existing rights as defined by the terms and conditions of these leases and applicable laws and regulations would not be affected by the monument designation. The proclamation...manage the existing development, subject to these valid existing rights, so as not to create any new impacts that would interfere with the proper care and management of the objects protected by the proclamation. The proclamation withdraws the monument from further mineral leasing.”*

Most of the 15% is scattered on the northern portion of the monument with a majority of the wells in 320 acre spacing. Most of the wells are located along existing roads and either/both topography or highly erosive soils seriously limits locating wells in the steeper, more remote areas of the monument.

### **STATE DIRECTOR’S INTERIM GUIDANCE:**

Interim guidance for the UMRBNM will be pursuant to the President’s Proclamation and BLM’s Interim Management Policy for Newly Created Monuments. This interim guidance also incorporates those consensus recommendations from the Central Montana Resource Advisory Council that are within BLM’s scope of authority. The BLM will also review relevant land use plans that apply to monument lands to ensure consistency with the Proclamation. The proposed action is in compliance with the following relevant sections of the Guidance:

#### Off Highway Vehicle Use:

“Established roads will remain open to use as presently authorized....area closed to cross-country, off-road travel by motorized/mechanized vehicles except for emergency or *authorized administrative purposes*....Motorized, wheeled cross-country travel for lessees and permittees will be limited to the administration of a federal lease or permit....this will not preclude modifying permits or leases to...meet resource management objectives for which the monument was designated.”

#### Roads:

“...road improvements should be minimal and designed to correct those conditions that are unsafe or hazardous... Activities that maintain and improve safety on...existing roads will be permissible.”

#### Right of Way Grants:

“New applications for ROW or ancillary facilities will be processed pursuant to existing policies and practices, valid existing rights and as necessary for access to private or state in-holdings (e.g. access to explore, develop and produce private and state minerals).”

#### Oil and Gas Exploration and Development:

“...monument lands will remain open to continued oil and gas development under existing leases, current lease restrictions and BLM regulations...the intent of interim management...honor existing leaseholders rights, avoid any significant commitment of resources...acquire additional geologic data for preparation of the field development plan...Existing well operations and maintenance will continue...The BLM will use a NEPA analysis to determine the potential impacts of oil and gas

operations and mitigation measures to avoid interference with the proper care and management of the objects protected by the monument...minimal impacts to surface resources will be striven for throughout the monument...Existing ROWs and roads will be used for new operations as much as possible...using existing disturbed areas for well locations will be emphasized...Gas pipelines will follow existing road corridors if available..."

### **ENVIRONMENTAL JUSTICE:**

Community composition was examined to identify disproportionate affects to low income or minority populations according to the requirements of E.O. 12898. The examination found no minority or low income communities to be disproportionately affected under any of the alternatives.

### **CUMULATIVE EFFECTS:**

Three concerns are considered cumulative impact issues in this EA. These three concerns are included as a result of the analysis of the impacts related to the issues listed in the scoping section of this EA and review of local and regional cumulative impact issues that could be affected by the Proposed Action. These issues are: 1) effects to wildlife habitat and use; 2) effects to the visual character of the area, including the objects identified in the Upper Missouri River Breaks National Monument; and 3) the introduction and spread of noxious weeds.

New impacts introduced by the implementation of the Proposed Action and project alternatives are discussed for each affected resource in this chapter. The Proposed Action would incorporate measures intended to avoid or reduce incremental impacts. These measures include: cleaning and washing equipment; reclamation; treatment of noxious weeds; avoidance of surface disturbing activities during key wildlife use periods; limitations on trail improvements for drilling and long term production activity and human presence during the operation of wells; and relocation of project sites. Depending upon the specific resource, the analysis found that incremental impacts (i.e., new impacts created by implementation of the Proposed Action) would be minor or negligible.

The analysis of cumulative impacts considers oil and gas drilling and production activities, including well pad construction, road, and pipeline construction, that has already occurred within the cumulative impact analysis area (see map 1.3) the proposed action, connected actions, and cumulative actions, including reasonably foreseeable development. In terms of the technology used and the potential environmental impacts, the proposed activity and reasonably foreseeable activity would be similar to other conventional oil and gas activities that have occurred and are ongoing in the vicinity of the development area.

Other past and present activities that are considered in determining cumulative impacts are those related to agriculture and recreational use. Agriculture activity within the cumulative impact analysis area is dominated by livestock grazing. Limited dryland farming occurs within the analysis area, therefore this type of agricultural activity is not considered in the cumulative impact analyses. Grazing related activities that have contributed to and could add to cumulative impacts

include development of range improvements and changes in stocking rates or season of use. Recreational use activities that contribute to cumulative impacts are primarily related to hunting activities, or increased visitation because of National Monument status.

No other proposals for oil and gas drilling within the analysis area are pending. BLM has received and approved 5 proposals for exploration within the cumulative impact analysis area since 1998. Ongoing infill drilling and production operations would continue in the Leroy oil and gas field and other areas outside of the Leroy field that have experienced oil and gas activity within the 900 square mile cumulative impact area surrounding the analysis area. Our projection of reasonably foreseeable oil and gas activity within this area is included to help show the level of activity anticipated in the future. Our records indicate there are no other known large activities planned on public, state or private land in the analysis area. Current uses in the area remain unchanged.

The West HiLine RMP (1988) contains a Reasonably Foreseeable Development (RFD) scenario. The RFD prepared for this RMP estimates that 300-525 federal wells will be drilled throughout the life of the plan (page A-38). This number is based on a presumption that drilling activity within the planning area would be similar to the oil and gas activity that occurred between 1978 and 1987, a ten year period before the RMP was completed. It also assumes that about 10 per cent of the total wells drilled would be Federal wells since this was the case between 1978 and 1987. Within this 10 year period used for projecting future activity, approximately 72 wells were drilled in the cumulative impact analysis area and approximately 60 per cent (43) of these wells were Federal wells.

Between 1988 and 1999, the year most of the wells evaluated in this EA were proposed, 120 federal wells were drilled in the RMP area and 23 Federal wells were drilled in the cumulative impact analysis area. The nine wells analyzed in this document are part of the future 300 - 525 wells analyzed for the entire RMP area, or more specifically the 40 to 45 Federal wells expected within the cumulative impact analysis area when examining the forecast, and the basis of the forecast used in the RFD for the West HiLine RMP.

**Table 9. Future rate of drilling**

	<b># of wells in next 10 years</b>	<b># of successes/%**</b>	<b>Estimate of add'l pipeline miles and new trail*</b>
Cumulative impact area	30 wells	15/50%	30 mi pipe/1.5 mi trail
Analysis area***	15 wells	8/50%	16 mi pipe/.8 mi trail

\*Figures computed from 9 proposed wells in proposed action. \*\*Based on past success rates given in RFD. \*\*\*The analysis area wells, pipeline and trail projections are part of the cumulative impact area projection totals.

The future rate of drilling should be very similar to the rate of drilling since the West HiLine RMP has been completed. We anticipate that future drill sites will most likely be in proximity to established production, or will offset dry holes that enable improved interpretation of the structural geology.

For the **analysis area** nine federal notices of staking have been filed. Two of these proposed wells are direct offsets to producing wells, and all nine wells are located within a mile of past drilling. The nine proposed wells are counted as part of the 15 predicted. Since most of the future wells will be placed in proximity to existing trails and pipelines, it is assumed that only .8 miles of new road and sixteen miles of pipeline will be needed to maintain production of successful wells within the analysis area:

Gas exploration would involve drilling 9 wells. Even if all the proposed wells were producers, they would represent a small increase (less than 8 percent) over the estimated number (116) of existing oil and gas production wells found in the 900 square mile area (see Map 1.3) Within the cumulative impact analysis area, if all 30 wells are producers, the increase would be 26% over the estimated number of existing oil and gas wells in the 900 square mile area.

Given the age of this field (it was first drilled in 1975) an increase in plugged and abandoned wells--and subsequent reclamation of sites--is reasonably foreseeable. The ratio of future well abandonments to future infill drilling cannot be predicted at this time.

Future exploration does not necessarily mean an increase in the number of producing wells. Only a small percentage of wells are completed as producers. This has been the case in the Leroy Field which best illustrates what has happened in the cumulative impact analysis area. In 1978 the Leroy Field contained 22 producing wells and 8 shut in wells. These numbers grew to 28 producing wells and 11 shut in wells by 1987, and then the numbers decreased in 1999 to 23 producing wells and 15 shut in wells.

The proposed activity would take place in an area that has seen oil and gas activity in the past. Forty (40) of the 50 wells found within the analysis area have been plugged and abandoned. There is an existing road network within, and in the vicinity of, the analysis area which was in existence prior to the identification of nearby WSAs. The main access road into the analysis area utilizes a road corridor which has been in existence for decades and which was used to access past well drilling in the area and on adjacent lands. To the extent possible, the proposed permanent gas sales pipelines would parallel existing road corridors. Construction would be scheduled to avoid the crucial winter range period. For these reasons, and others discussed in this document, the Proposed Action Alternative and the No Action Alternative are not expected to have a discernable effect on the level of cumulative impact. More specifically, cumulative impacts would be negligible under the Proposed Action Alternative because:

1. Wildlife species which may be utilizing areas in or near the proposed actions include bald eagles, peregrine falcons, sage grouse and hairy woodpeckers. The analysis indicates that these species will be either minimally affected or not affected by implementation of the proposed action. Individual habitat factors such as large trees may be removed during construction of the locations, but the number of tree removals will be minimal compared to the overall amounts of forested area within the analysis area. New wildlife data since the release of the West HiLine RMP reveals expanded elk and big horn sheep ranges. In order to ensure the maximum protection to the wildlife crucial winter range, mitigation measures are being applied conservatively (i.e. throughout the analysis area).

2. Although drilling operations will be obvious to the visitor, the drilling will be short in duration. Pipelines will be negligible once the corridors are reseeded and returned to productivity. Mitigation measures designed to reduce the visual impacts include using topography, vegetative screening and camouflage painting of permanent structures to blend operations into the environment. Many of the Objects in the Monument are not impacted by the proposed action since they are a sizable distance from the gas field and are separated by topographical features such as high ridges. The Bullwhacker Coulee is visible from three of the locations, but mitigation measures will be implemented to lessen impacts. Oil and gas development has been a part of the viewshed for over 40 years, therefore the visual impact of continued development is unchanged from existing conditions.
3. Although weeds are possible on 78 acres of lands disturbed by the proposed action, mitigation measures include an aggressive re-seeding program and cleaning the undercarriage of all rigs associated with drilling prior to entering onto the location. These measures will lessen the introduction and spread of noxious weeds.

Past, Present and Reasonably Foreseeable Future Projects that are considered in the cumulative impact analysis for the proposed action and under the no action alternative:

1. Stafford Ferry Upgrade - The project involves installing a vault toilet, making improvements to the ferry crossing and constructing permanent residence structures for ferry operators.
2. Homestead Repair and Stabilization - Five historic homesteads are scheduled to be stabilized, repaired and preserved. The closest homestead to the analysis area is approximately three miles east of the analysis area and five miles from any proposed well.
3. Trimming and felling hazardous trees - This project will occur along the Missouri River at dispersed and developed recreation sites.
4. Noxious weed treatment - This project would treat infestations along the Missouri River corridor using chemical, biological and mechanical methods. This project is ongoing and long term.
5. Implementing grazing standards and guidelines - This project would update resource information and use authorizations along the Missouri River corridor.
6. Repair and rebuild a livestock/wildlife reservoir - This project is located within the analysis area and approximately two miles from the closest proposed well.
7. Miscellaneous fence projects - These projects are located throughout the field station and are designed to control livestock in order to protect riparian areas, enhance rest rotation management and use forage more efficiently.
8. Inventory of special interest species - This project is field station wide and includes inventorying of sage grouse, prairie dogs, plovers, burrowing owls, ferrets, etc in short and mixed grass habitats.

9. Future reconstruction of the Cow Island Trail Back country byway - This project is a multi-year project to reconstruct portions of the Cow Island Trail to improve administrative, emergency and public access.
10. Water well control - seven water wells are flowing uncontrolled on public lands since the 1970's. This project will install controls to shut off the water when not being used by livestock.
11. Hazard fuel reduction through prescribed burning - This project will use burning to reduce ponderosa pine densities in the Breaks ecosystem.
12. Identification of Lewis and Clark campsites - This project will identify campsites used by Lewis and Clark using brass caps. The work will be along the Missouri River.

### **MITIGATION MEASURES:**

1. Areas with high erosion potential and/or rugged topography (i.e., steep slopes, floodplains, unstable soils) would be avoided, where possible, and if these areas are impacted, further site-specific reclamation procedures would be applied as directed by the BLM.
2. Surface disturbance and/or occupancy would not occur on slopes in excess of 25%, nor would construction occur with frozen or saturated soil material or when watershed damage is likely, unless an adequate plan is submitted to the BLM that demonstrates potential impacts would be mitigated.
3. All abandoned wells would be plugged according to 43 CFR 3160 Onshore Order No. 2 to protect and isolate all down-hole mineral and water-bearing zones.
4. Removed vegetation would be replaced with plants using procedures including the following:
  - a. Compacted soil would be ripped from 12 to 18 inches deep prior to reseeding.
  - b. Reseeding could employ broadcast or drill seeding procedures.
  - c. Native cool season grass, forb, and shrub seeds would be utilized in a mixture approved by the landowner/BLM on the disturbed areas.
  - d. The specific seed/forb/shrub mixture will be incorporated into each well's Condition of Approval.
  - e. All seed mixes would be free of noxious weeds.
  - f. Water bars would be installed on disturbed slopes as necessary to reduce erosion.
  - g. Some reclamation sites would be fenced as determined on a case-by-case basis by the BLM.
  - h. Where appropriate, BLM-approved weed control techniques (e.g., soil sterilants, biological controls) would be applied.
  - i. Removal of large trees and juniper mats will be discouraged and if possible, the Operator(s) will work around those that can safely remain in place and not interfere with drilling operations.

5. Reclamation success would be monitored by Macum/Klabzuba/Ocean as directed by the BLM, and if determined unsuccessful, further reclamation measures (e.g., reseeding, mulching, etc.) would be applied.
6. Paleontological and archaeological field checks by BLM personnel or other authorized personnel would occur prior to disturbance as deemed appropriate by the BLM. Monitoring during surface-disturbing activities would be conducted by a BLM-approved archaeologist or paleontologist, as deemed appropriate by the BLM. Paleontological or cultural resource sites would be avoided or mitigated as necessary prior to disturbance. Any cultural or paleontological resource discovered by an operator or any person working on his/her behalf would be reported immediately to the BLM, and all operations that may further disturb such resources would be suspended until written authorization to proceed is issued by the BLM AO. An evaluation of the discovery would be made by the BLM to determine appropriate actions to prevent the loss of significant resources. Macum/Klabzuba/Ocean would be responsible for the cost of any mitigation required by the BLM, and the BLM would provide technical and procedural guidelines to conduct the mitigation.
7. Macum/Klabzuba/Ocean would inform all persons associated with this project that they would be subject to prosecution for damaging, altering, excavating, or removing any archaeological, historical, or vertebrate fossil objects or sites(s).
8. Construction and facilities would be in conformance with Visual Resource Management (VRM) objectives for the VRM classes in the project area. Surface facilities would be located to minimize disturbance of the visual horizon and painted to blend in with the surrounding landscape. All attempts would be made to locate surface facilities such that they are not visible from WSA's.
9. If the well is a non-producer, pads will be fenced off from livestock by the Operators. The fence will be maintained by the Operators until the area is adequately revegetated as determined by the BLM Authorized Officer.
10. All large equipment will be initially cleaned, washed and inspected by BLM personnel prior to use to control noxious weed spread. If the large equipment is removed to another job outside of the BWC area, the equipment must be rewashed before returning to the BWC area.
11. The pipeline corridors will not be used as trails (unless the pipeline is placed in an existing trail, for instance Ervin Ridge trail). Operators will install barriers to travel on these pipeline corridors to discourage travel.
12. The Operators will be required to waterbar steep pipeline sections, use fertilizer supplements on seeded locations and install netting to keep soil and seed mix in place. Temporary erosion control measures such as mulch, waterbars, or other appropriate methods would be used on unstable soils and steep slopes, to prevent erosion and sedimentation until vegetation becomes established. All of the measures will be designed

to speed up revegetation and return the soil to productivity sooner. These measures will be determined on an individual basis by the BLM Authorized Officer.

13. The Operators will be responsible for eliminating any noxious weeds on the well pad and primary pipeline corridor throughout the life of the well + 5 years post abandonment.
14. All topsoil will be stockpiled and upon cessation of drilling, will be respread over the location and corridors. Any topsoil that is not respread within 30 days of stockpiling will be planted with a quick cover seed to "hold" the topsoil in the immediate area. In no instances will subsoil be allowed to be placed over topsoil. In addition, if topsoil mycorrhizae are compromised (due to compaction or anaerobic conditions), Operators may be required to supplant the soil with mycorrhizae to speed the recovery of the revegetation and return the soil to productivity.
15. The Operators will be required to adjust their well maintenance needs to be outside of the closed or ill-advised travel period windows of spring thaw, summer storms or winter chinooks. Since these periods cannot be conclusively determined, Operators will use discretion in visiting the well sites.
16. The Operators will not be allowed to improve the trails, unless authorized by the BLM Authorized Officer. In the event of an emergency, Operators must contact either the Havre or Great Falls BLM Offices, 12 hours prior to accessing the wells. Further, the Operators will not be maintaining or blading any of the access trails unless flagged or authorized by the BLM.
17. All permanent structures will be painted the neutral color of either Carlsbad Canyon (2.5Y 6/2) or Desert Brown (10YR 6/3) as displayed in the Standard Environmental Color chart (available at the GFFS BLM office).
18. Wildlife mitigation measures shall be applied to those wells affected (see Table 2 in EA):
  - Mule Deer Winter Range and Elk:*  
No drilling will be allowed from December 1 - June 30.
  - Bighorn Sheep Lambing Areas:*  
No drilling will be allowed from April 15-June 15.
  - Sage Grouse:*  
If a new lek is discovered within ½ mile of any location, no drilling will be allowed between March 1-June 30. The lek that is 1 mile from #42-34 is already protected due to distance and topography.
19. Thirty (30) day gas charts shall be required on all well meters.
20. Remote monitoring will be required in cases where it is both economically feasible and not intrusive to the viewshed.

21. If threatened, endangered, and candidate species or special status species are discovered, or if evidence of habitat (e.g., prairie dog town) is found during permitting, development, or production activities, the BLM, USFWS, and FWP would be consulted and appropriate mitigation measures would be implemented to ensure that no adverse impacts occur to these species.
22. BLM, Macum/Klabzuba/Ocean, and livestock permittees would monitor livestock movements, especially regarding any impacts from roads or disturbance from construction and drilling activities. Appropriate measures would be taken to correct any adverse impacts should they occur. No additional mitigation is recommended.
23. Before allowing trail improvements, BLM would ensure an intensive cultural resource inventory is completed on trails which have not been previously surveyed. Potential effects to significant cultural resources would be avoided by project relocation, data recovery or other appropriate mitigation measures.
24. Consideration has been given to prevent any one well location or combination of locations from dominating a particular view. Production equipment would be painted such that they blend with the surrounding landscape. Well locations, pipelines, and other linear intrusions would be located and designed to blend with topographic features, thereby reducing the visual contrast between these structures and the natural elements of the surrounding landscape. Every opportunity would be taken to reclaim existing roads/trails not used when new roads are designed over them. Additionally, portions of well locations not used during production and other disturbed sites would be reclaimed and revegetated as soon as possible and within two years.
25. Before any construction begins, the BLM, the Operator, and their contractors will conduct a field pre-work conference to ensure all mitigating measures are understood.

**REFERENCES:**

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- Bureau of Land Management, 2001b. Final Off-Highway Vehicle Environmental Impact Statement and Proposed Plan Amendment. Department of the Interior, Billings, Montana.
- Foresman, K. R. 2001. *The Wild Mammals of Montana*. Special Publication No. 12. American Society of Mammalogists. Lawrence, Kansas.
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- Stebbins, R. C. 1966. *Field Guide to Western Reptiles and Amphibeans*. Houghton Mifflin Company, Boston, Massachusetts.

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