

1792/1310  
(040)

July 26, 2001

Dear Reviewer:

The Bureau of Land Management (BLM), Rock Springs Field Office, has prepared an environmental assessment for a proposal by Veritas GDC Land Inc. to conduct geophysical operations on private and public lands in the Haystacks area of Sweetwater County, Wyoming. Part of the proposal entails laying geophones (recording devices) in the Adobe Town Wilderness Study Area. The document is available through the Rock Springs website at:

[http://www.wy.blm.gov/field\\_offices/rsfo/rs\\_home.html](http://www.wy.blm.gov/field_offices/rsfo/rs_home.html)

Click on Haystacks Geophysical Project link in the table (Meetings/Events/Special Notices). You will need Acrobat Reader to view the document which can be downloaded from our website (no cost) by clicking on New Stuff. Copies are also available from our office if you do not have access to the internet.

Comments on the analysis are due by August 20, 2001. Comments may be submitted to the address listed above or by email to: [Teri\\_Deakins@blm.gov](mailto:Teri_Deakins@blm.gov) (please put Haystacks in subject line) No decision has been made with regard to this geophysical proposal. If you have any questions about the proposal, please contact me at 307-352-0321 or Teri Deakins at 307-352-0211.

Sincerely,

/s/ Ted A. Murphy

Assistant Field Manger

**HAYSTACKS 3-D GEOPHYSICAL EXPLORATION PROJECT  
ENVIRONMENTAL ASSESSMENT  
WY-040-01-108**

**Introduction**

Veritas DGC Land Incorporated (Veritas) has approached the Bureau of Land Management (BLM), Rock Springs Field Office (RSFO) to conduct geophysical operations in the Haystacks/Monument Valley area (Map 1) in southeastern Sweetwater County, Wyoming. Operations would occur mainly on “checkerboard” ownership lands (Map 2). The project area covers approximately 133 square miles, with about 82 square miles on public lands managed by BLM. Approximately 6 square miles of the project area fall within the boundaries of BLM’s Rawlins Field Office. Most of the Federal lands involved have valid, existing oil and gas leases. Attachment 1 provides a list of these leases.

The project will be in all or part of the following Federal sections:

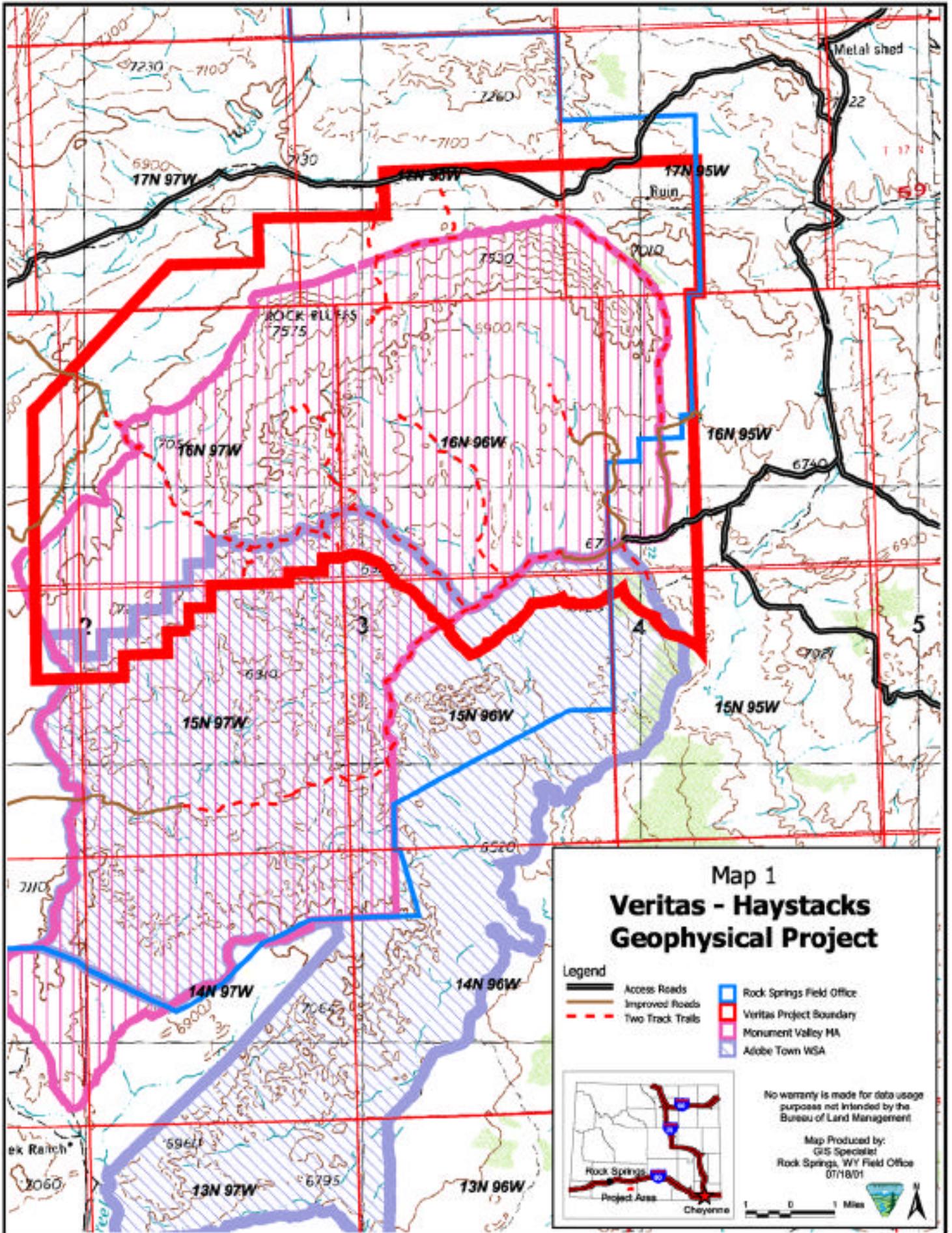
T17N R97W	Sections	32, 34, 36
T17N R96W	Sections	20, 22, 24, 26, 28, 30, 32, 34, 36
T17N R95W	Sections	20, 28, 30, 32
T16N R98W	Sections	12, 14, 24, 26, 36
T16N R97W	Sections	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 22, 24-28, 30, 32-36
T16N R96W	Sections	2, 4, 6, 8, 10, 12, 14, 16, 18, 20, 24-36
T16N R95W	Sections	4, 6, 8, 16-21, 28-33
T15N R98W	Sections	2, 12
T15N R97W	Sections	4-8
T15N R96W	Sections	1-5, 9, 10
T15N R95W	Sections	4-6

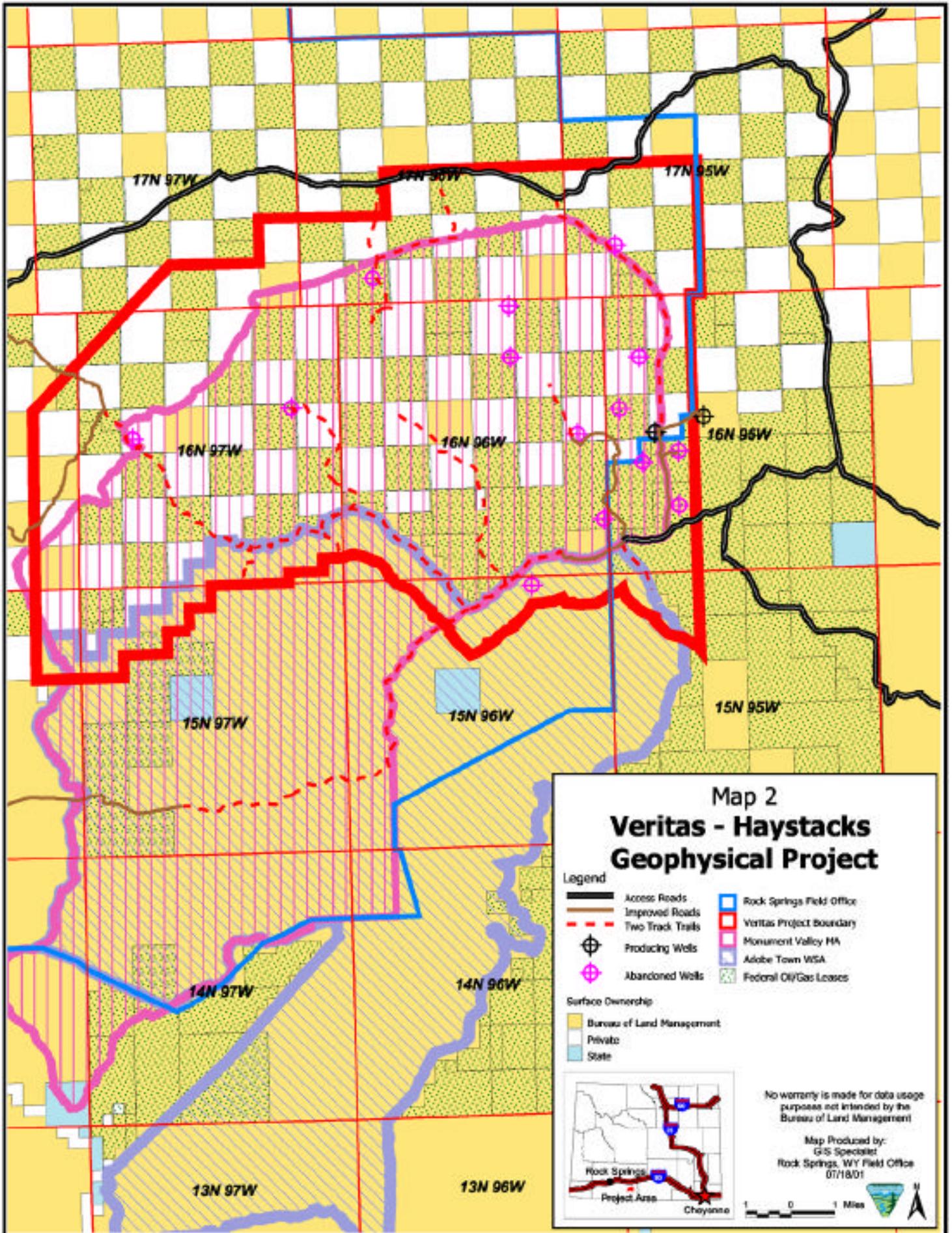
**Purpose and Need for the Proposed Action**

The purpose and need of the Proposed Action is to evaluate, via an efficient and effective means, the area for untapped, producible hydrocarbon sources. The data obtained through this geophysical project would identify areas where drilling wells would have a much higher probability of finding commercial quantities of hydrocarbons than is attainable from previous exploration methods (i.e., 2-D geophysical operations or wildcat (exploratory) drilling). Conducting geophysical operations should result in fewer “dry-holes” and the associated surface disturbance.

**Conformance with Land Use Plans**

The Proposed Action is in conformance with the *Green River Resource Area Resource Management Plan (RMP)*, approved August 1997. A review of the plan has determined that the Proposed Action conforms with the land use plan terms and conditions as required by 43 CFR 1610.5. Management objectives and actions for geophysical exploration can be found on page 15 of the RMP, Geophysical Exploration. In part, the RMP states, “Most of the





## Map 2 Veritas - Haystacks Geophysical Project

- Legend**
- Access Roads
  - Improved Roads
  - Two Track Trails
  - Producing Wells
  - Abandoned Wells
  - Rock Springs Field Office
  - Veritas Project boundary
  - Monument Valley HA
  - Adobe Town WSA
  - Federal Oil/Gas Leases

- Surface Ownership**
- Bureau of Land Management
  - Private
  - State



No warranty is made for data usage purposes not intended by the Bureau of Land Management

Map Produced by:  
GIS Specialist  
Rock Springs, WY Field Office  
07/18/01



planning area is open to consideration of geophysical activities except where off-road vehicle use or explosive charges would cause unacceptable impacts . . . Geophysical activities will generally be required to conform to the off-road vehicle (ORV) designations and ORV management prescriptions . . . However, geophysical exploration has been and will continue to be routinely granted site specific authorization for off-road vehicle use subject to appropriate limitations to protect various resources identified during analysis of Proposed Actions.” Designation of the Monument Valley Management Area (MVMA) as an Area of Critical Environmental Concern (ACEC) was deferred in the RMP until a determination is made that specific resources meet the ACEC relevance and importance criteria. Until an evaluation is made, management objectives for the area is to provide protection of wildlife, geologic, cultural, watershed, and scientific values. The area is open for consideration for mineral leasing, exploration, and development provided mitigation can be applied to retain the resource values (p 37). Federal lands within that portion of the MVMA that overlap the project area contain valid, existing oil and gas leases (Map 2). Off-road vehicle use is limited to designated roads and trails within the MVMA. However, implementation of this designation has not been completed; therefore, vehicle travel is limited to existing roads and trails as described in the Wyoming Off-Road Vehicle Policy. Management actions for geophysical exploration allow for site-specific authorizations for off-road vehicle use subject to appropriate limitations to protect various resources identified during analysis of Proposed Actions (p 15).

The Proposed Action is in conformance with the Great Divide Resource Management Plan approved November 8, 1990. All lands open to oil and gas leasing are open to geophysical operations (p 30). The area involved is open to oil and gas leasing and is currently being analyzed for oil and gas exploration and development as the Desolation Flat Natural Gas Project. A draft environmental impact statement is under preparation and it is expected to be released to the public in the late summer to early fall. A portion of the Desolation Flats project also involves public lands in the Rock Springs Field Office area.

A portion of the project area affects public lands in the Adobe Town Wilderness Study Area (WSA). Management objectives for the wilderness resource are to retain the wilderness quality and manage the WSA in accordance with the *Interim Management Policy and Guidelines for Lands Under Wilderness Review* until Congress acts on designation. All actions within the WSA must comply with the non-impairment standard.

### **Relationship to Statutes, Regulations, or Other Plans**

About 50% of the project area is within the boundaries of the *Continental Divide/Wamsutter II Natural Gas Project Environmental Impact Statement* (April and December 1999). The associated Record of Decision, approved May 2000, recognized geophysical operations as part of oil and gas activities (p F-19). The Decision states, “Geophysical operations . . . may be required . . . as drilling activity increases into areas . . . with marginal or unknown gas reserves . . . These surveys will be subject to separate environmental analyses for compliance with NEPA and are expected to cause minimal surface disturbance. Cultural resource inventories and other surveys for sensitive environmental resources will be conducted prior to implementation as directed by the BLM . . . Backtracking will be kept to a minimum, and all-terrain vehicles (ATVs) and/or helicopters will be used to transport personnel and equipment in difficult terrain or areas designated as sensitive to vehicular traffic. Observation of recent 3-D geophysical operations conducted in similar areas show no long-term damage to vegetation and soils.”

### **Public Notification**

In accordance with Handbook H-8550-1 (*Interim Management Policy and Guidelines for Lands Under Wilderness Review*) requires BLM to notify interested parties of certain actions proposed in WSAs including proposals to conduct geophysical operations (p 20). In compliance with the handbook, BLM sent a letter on June 25, 2001, informing Biodiversity Associates, Wyoming Outdoor Council, and the Sierra Club (per their request as interested parties) of the Proposed Action to conduct geophysical operations in and adjacent to the Adobe Town WSA. Biodiversity Associates, responded to the notification. The following issues were brought forth in their letter:

big game habitat, including crucial winter range, calving areas and migration routes;

undeveloped land and potential wilderness areas;  
sensitive soils;  
existing developments;  
raptor habitat, including nesting and foraging areas;  
midget faded rattlesnake habitat;  
rare or uncommon plants and communities;  
special status species;  
threatened, endangered, candidate or proposed species;  
cultural or historic sites;  
potential national monument or national park sites<sup>1</sup>;  
areas of critical environment concern;  
unstable or potentially mass-wasting slopes;  
existing roads and trails.

## **DESCRIPTION OF THE Proposed Action AND ALTERNATIVES**

### **Proposed Action**

Three-dimensional (3-D) seismograph is an intensive data collection system and computer-based synthesis system used to analyze and 3-dimensionally depict subsurface geologic structures and stratigraphy. This system is capable of locating and displaying subsurface pockets that potentially contain untapped hydrocarbon pools or pockets. This proposed 3-D geophysical operation is proposed to be conducted during the late summer and fall of 2000, using what is known as the “shothole” method.

The shothole method utilizes holes drilled in a variable spacing pattern by a truck or ATV (large-wheeled buggies) mounted drill rigs. Truck-mounted drill rigs would be limited to those areas where terrain is easily accessible. Buggy-mounted drills would be used in sand dunes and rougher terrain. In those areas inaccessible by vehicles or buggies due to steep slopes or highly erosive soils, portable drills would be used and transported by a helicopter.

Shotholes would be placed 311.11 feet apart (unless offset due to cultural, paleontological or terrain concerns), and drilled 60 feet deep with a diameter of 3.5 to 4.5 inches. The hole is then loaded with 15 pounds of explosive material and then backfilled with the drill cuttings in accordance with the Wyoming Oil and Gas Commission guidelines and any BLM requirements (avoid sites with resource concerns on public land). Any holes drilled through water bearing zones would be filled to a point above the water zone with bentonite. Any cuttings not used in back filling would be scattered about the immediate area.

The source (shothole) lines would lay NE-SW direction between the receiver (survey) lines which would lay N-S direction continuously across the prospect area. Geophone cables would be hand-laid along the receiver lines with support from a helicopter and crews on foot. These geophones are used to record the sound waves produced by detonating the explosive charges.

In order to obtain optimal data from the periphery of the survey area, geophones would be hand walked and placed approximately 1 mile into the Adobe Town WSA along the northern boundary (Maps 1 and 2). Helicopters would be used to transport equipment and personnel into the WSA. No vehicles would be used.

Truck or buggy-mounted drills associated with the operations would be conducted using an offset or staggered vehicle pattern to reduce the crushing effects to vegetation, to minimize soil compaction, and to prevent creating new two-track trails. Observations of past projects where the offset vehicle pattern was used (e.g., Delany Rim) show that some of the shrub plants in the vehicle paths are killed but the underlying grasses and forbs survive.

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<sup>1</sup>The RSFO is not aware of any Congressional proposal for national monument or national park status.

The following measures including those identified in the Terms and Conditions for Notice of Intent to Conduct Geophysical Exploration (BLM Form 3150-4a) and the Special Terms and Conditions are hereby made part of the Proposed Action. Other measures are also made part of the Proposed Action:

1. Geophysical activity is prohibited on crucial big game winter range from November 15 to April 30. Exceptions to this stipulation must be requested in writing. Granting an exception must be approved in writing by the Authorized Officer and will be subject to consultation with the Wyoming Game and Fish Department.
2. To protect greater sage grouse and mountain plover, Seasonal restrictions within a 1/4 mile radius from the strutting ground would apply between February 1 to May 15th. A controlled surface use (CSU) restriction would apply from February 1 through May 15 from 6:00 p.m. to 9:00 a.m. daily on the lek. Seasonal restrictions may be applied through July 31 within an additional 1.75 mile radius from leks to protect greater sage grouse nesting habitat. Areas within that radius, not used for nesting, can be excepted, provided actual nesting areas are not affected. Clearances would be required for mountain plover if activities occur between April 10 and July 10.
3. Geophysical operations would not be allowed within the area of affect, as determined by BLM Wildlife Biologists based on Fish and Wildlife Service guidelines, of occupied raptor nests until the hatchlings have fledged.
4. The geophysical operator shall maintain a safe operating buffer between the geophysical operations and the existing facilities. The width of the buffer would be determined by the facility owner/operator.
5. Any facilities damaged, destroyed or removed under this geophysical exploration operation shall be immediately repaired or restored to the original condition or it shall be replaced with similar facility.
6. The geophysical operator shall make every effort to avoid disturbing or altering fences. Gates shall be used when possible. If a fence must be crossed, it would be cut, with H-braces built to support the existing fence. Upon termination of activities the temporary opening would be permanently wired shut and the wires stretched to their original tension.
7. The geophysical operator shall conduct all operations in conformance with the *Programmatic Agreement For Onshore Oil And Gas Geophysical Exploration By and Among The Bureau of Land Management, the Advisory Council on Historic Preservation, and Wyoming State Historical Preservation Officer*, approved on January 3, 1991. An exception to these requirements may be granted by a programmatic agreement that meets NHPA requirements.
8. The geophysical operator shall offset all off-road vehicle traffic over a 50-foot wide swath on either side of the staked seismic line, so that one vehicle does *not* drive the same path as another vehicle.
9. The geophysical operator shall cleanup all diesel or hydraulic fluid spills, including the contaminated soils. All spill-related material shall be hauled to a Wyoming Department of Environmental Quality (DEQ) approved disposal site. Spills resulting from ruptured pipelines or well casings shall be cleaned-up as directed by DEQ and the facility owner/operator.
10. As directed by the Authorized Office, the geophysical operator shall rip or disc, and reseed all reclaimed well-pads, roads, and/or pipeline rights-of-way that are disturbed by the geophysical operations. All trash, flagging, lath, etc. would be removed and disposed of in an authorized location.

11. The geophysical operator shall conduct no vehicle operations during periods of saturated ground conditions when surface rutting would occur. Surface ruts deeper than 3 inches would be cause for the operations to cease.
12. The geophysical operator shall conduct no explosive detonation within 500 feet of springs, flowing wells, or Federally owned stockwater wells.
13. Geophysical operations on BLM-administered lands would not be allowed on or within 100 feet of riparian areas, unless they are frozen to a depth that is capable of supporting the geophysical exploration vehicles.
14. The Geophysical Operator shall conduct all drilling and hole plugging operations in strict conformance with all Wyoming Oil and Gas Conservation Commission requirements.
15. A 200-foot buffer for the vehicles would be maintained at all riparian/wetland areas when working in the summer season. The receiver lines can be laid through these areas in the customary manner.
16. A Class I cultural resource inventory will be conducted by a qualified cultural resource consultant for the entire project area. Upon receipt of the Class I inventory, the BLM, in consultation with SHPO, will determine the area of potential effect and would prescribe additional inventory and/or avoidance strategies.
17. A Class III cultural resource inventory would be conducted for public lands where vehicle operations will occur. Such inventory would not be required for areas covered by existing inventory providing that such inventories meet current standards. Class III inventories will be designed to locate and prescribe avoidance routes or other mitigation for all eligible cultural resource sites encountered. Any cultural or historic sites would be avoided by at least 100 feet. Avoidance would be accomplished by having a BLM permitted Archaeologist flag or otherwise make drive around and places where vehicles may not be driven.

Other measures committed to by the operator:

18. The operator commits to use of helicopters in areas where there are steep slopes and erosive soils in and around the Haystacks.
19. In accordance with the RMP, the operator has contracted with a permitted paleontological consultant to survey public lands within the MVMA and map all the documented fossil sites. All documented sites would be avoided.
20. The Overland Trail would be avoided regardless of land ownership. No shotholes would be allowed within 300 feet of the Trail. In no case would there be any visual disturbance to the trail corridor (1/4 mile either side of the Trail). Should the Overland Trail be crossed by vehicles, it would be only be done in those areas of previous disturbance such as a road or pipeline.
21. Based on consultation with representatives of Tribal governments and based on their recommendation, shotholes or geophones could be moved if necessary.

## **No Action Alternative**

Under this alternative, the project would not be authorized on public lands administered by the BLM. Geophysical operations would not likely be conducted on the adjacent private lands at this time since conducting such operations on larger areas is the most cost efficient. This does not mean, however, that geophysical work would be prevented or precluded on private lands.

**Alternatives Considered but Dropped From Further Analysis**

In accordance with 40 CFR 1502.14(a), BLM is required to rigorously explore and evaluate alternatives and to briefly document why such alternatives were dropped from analysis if upon such evaluation, the alternative is dropped from detailed study. One alternative considered but dropped from detailed analysis involved eliminating any geophysical operations within the Adobe Town WSA. This alternative was dropped from detailed analysis due to the fact that there are existing Federal oil and gas leases within and adjacent to the WSA boundary (see Map 2 ). In order to get accurate data on the subsurface geologic structure/stratigraphy on those adjacent leases, it is necessary to lay geophones along the receiver lines within the WSA (otherwise the data would be incomplete for those leased and private lands adjacent to the WSA). Equipment and personnel would be transported via a helicopter. Walking and the use of helicopters meets the non-impairment criteria as set forth under the *Interim Management Policy and Guidelines for Lands Under Wilderness Review*. An Interior Board of Land Appeals Decision (114 IBLA 333) affirmed such actions within WSAs by stating “. . . while Congress has prohibited the Secretary from issuing oil and gas leases within a BLM WSA, 30 U.S.C. 226-3(a) (Supp. V 1987), Congress also provided that . . . nothing in this section shall affect any authority of the Secretary of the Interior . . . to issue permits for exploration for oil and gas . . . by means not requiring construction of road or improvement of existing roads if such activity is conducted in a manner compatible with the preservation of the wilderness environment.” This decision affirmed the use of helicopters to transport equipment and personnel into WSAs and no construction of or improvements to existing roads are proposed. Thus, detailed analysis of this alternative is not necessary.

**AFFECTED ENVIRONMENT**

The following critical elements, and other resource elements, of the human environment have been considered. Those items indicated with a no are not potentially affected or impacted by the Proposed Action or alternatives and will not be addressed further in this document.

**Critical Elements:**

Critical Element	Yes	No	Critical Element	Yes	No	Critical Element	Yes	No
ACEC	X	X	Wastes, Hazardous, Solid		X	Native American Religious Concerns	X	
Air Quality		X	T/E Species			Floodplains		X
Cultural/Historic	X		Water Quality		X	Environmental Justice		X
Farmland, Prime/Unique		X	Wetlands/Riparian Areas		X	Wild & Scenic Rivers		X
Wilderness	X		Invasive Species	X				

**Other Resource Elements:**

Resource Element	Yes	No	Resource Element	Yes	No	Resource Element	Yes	No
Forested Area/Products		X	Fluid Minerals	X		Special Status Plant Species	X	
Geology		X	Land Resources		X	Wildlife	X	
Livestock Grazing		X	Vegetation	X		Special Status Animal Species	X	
Palenotology	X		Soils	X		Socio/Economics		X
Wild Horses	X		Off-road Vehicles	X				
Recreation	X		Visual Resource Management	X				

## General Setting

The project area encompasses a variety of landscapes with scarce roads and trails scarce and in generally poor condition. The northern and western edges are rolling, dissected upland fans and terraces, drained by shallow but steep sided ephemeral streams. This area is dominated by sagebrush, grasses, and salt tolerant shrubs. Vegetated sand dunes are scattered throughout this area.

The mid-section running NE to SW is bisected by very steep badlands and ridges dominated by shale and sandstone rock outcrops. The badlands are often devoid of vegetation, however, juniper, sagebrush, and grasses are common in stable areas. Small areas of rolling, remnant erosional uplands are on top of the Haystacks. These flatter areas are broken by sandstone outcrop and are dominated by sagebrush and grasses.

East and south of the Haystacks and Adobe Town Rim are relatively flat alluvial fans dissected by shallow but steep sided ephemeral streams including West Haystack Wash and East Haystack Wash. This landscape is broken by scattered badlands and vegetated sand dunes. Vegetation is generally salt tolerant shrubs and grasses with sagebrush along the drainages.

The southeastern part of the project area is dominated by stabilized, vegetated sand dunes often 20 feet high. The dunes are dominated by sagebrush and spiny hopsage with a variety of grasses due to the relatively fertile environment. Interdunal areas support sagebrush and salt tolerant shrubs and grasses.

The project area also falls within the Salt Wells Wild Horse Herd Management Area. Horses are very tolerant of human activity and would not be affected nor impacted by this action. Therefore, wild horses will not be discussed further.

## Affected Resources

### Cultural/Historic Resources

A number of small (e.g., 10 to 40-acre) tracks, and linear (access road) corridors have been inventoried at the Class III level in support of oil and gas development over the last 25 years. In addition, a number of larger (160-640 acres) tracks and a series of linear corridors have been inventoried at the Class II level as part of BLM sampling surveys done in the late 1970s and early 1980s.

The area is known to contain cultural resources (also see MVMA discussion below). Class III cultural resource inventories (on-the-ground surveys) are required for any actions on public lands within the project area including MVMA. Private lands would have a Class I inventory (literature search). To prevent illegal collecting, known cultural site locations are not disclosed.

The Overland Trail runs through the northern portion of the project area in an east-west direction. In some places, the Trail is near or under existing BLM or county roads. Elsewhere, the trail diverges from upgraded road corridors. Remains of the Overland Trail traverse both private and public lands administered by the BLM.

### **Native American Religious Concerns**

Four locations have been identified that may be of concern to Native American as Traditional Cultural Properties. Arrangements have been made to for representatives of tribal governments to visit the area.

### **Adobe Town Wilderness Study Area**

The Adobe Town WSA is located approximately 25 miles south of Wamsutter and contains 82,350 acres of public land managed by BLM, 3,360 acres of split estate land (BLM surface), and 1,280 acres of State of Wyoming land. The WSA is bounded on the north by checkerboard lands and Manual Gap Road, on the west by the Adobe Town Rim road, the south by the Shell Creek road, and on the east by the Willow Creek road. Due to the remote location, visitor use is likely to be fairly low. One well is located in Section 2, T. 15 N., R. 96 W., and has been shut-in (not producing).

### **Fluid Minerals**

The majority of public minerals within the project area are leased for oil and gas (see Map 2 and Attachment 1 ). The Final Environmental Impact Statement for the RMP indicates the MVMA as high potential for oil and gas occurrence (Table 3-9, p 367, FEIS (RMP)). However, records show that to date 14 “dry holes” or wells not having commercial quantities of hydrocarbons have been drilled in and adjacent to the project area and two wells are producing (Map 2).

### **Monument Valley Management Area**

Designation of the MVMA as an Area of Critical Environmental Concern (ACEC) was deferred until a determination can be made whether specific resources meet ACEC relevance and importance criteria. The MVMA has unique scenic features and a high potential for cultural and paleontological resources but there has been little systematic inventory of these features and resources. The RMP identifies the area as a priority area for future cultural and paleontological inventory although both cultural and paleontological surveys have been conducted for the project area due to the Proposed Action. Federal lands within the MVMA are open for consideration for oil and gas leasing, exploration, and development. Much of the project area within the MVMA, particularly the northern portion where checkerboard land ownership occurs, has been leased (Map 2). The management objective for the MVMA is to provide protection of wildlife, geologic, cultural, watershed, scenic, paleontological and cultural values while allowing other uses including exploration for and production of hydrocarbons.

### **Off Road Vehicles**

The RMP identifies ORV use on public lands within the MVMA as limited to designated roads and trails (p 37). Where roads and trails have not been formally designated vehicle use is limited to existing roads and trails. No roads or trails have been designated in the area. RMP decisions (p 15), however, recognize the use of vehicles for geophysical operations may be given site-specific authorization for off-road use in areas with ORV designations subject to appropriate limitations. The Adobe Town WSA is closed to construction of new roads. The area outside of the WSA and MVMA is open to ORV use.

### **Recreation**

The area provides for primitive recreational opportunities including camping, hunting, sightseeing, photography, and limited ORV use. Visitor days are unknown but it is anticipated that most are associated with hunting during the fall. One outfitter uses the area for “spiritual” services.

### **Paleontology**

Three rock units occur within the project area, two of which have the potential for vertebrate fossils. The youngest rock unit includes Quaternary wind blown sand, alluvium, and colluvium. There is very low potential for these sediments to contain significant vertebrate fossils. The next oldest rock unit is the Washakie Formation (Tertiary) which is widely exposed in the project area. The formation accumulated in floodplain environments during and following the final contraction and desiccation of ancient Lake Gosiute. Documented vertebrate fossil localities occur within this formation and within the project area. Underlying the Washakie Formation (Tertiary) is the Laney Member of the Green River Formation (Tertiary). The upper Laney member crops out in the project area and likely contains the Hart Cabin Bed and the underlying Sand Butte Bed. The Sand Butte Bed accumulated in lacustrine environments associated with ancient Lake Gosiute. The overlying Hart Cabin Bed accumulated during the final drying up stages of ancient Lake Gosiute. Documented vertebrate fossil localities occur within both rock units.

### **Vegetation and Special Status Plant Species**

The area is composed of sagebrush/grass flats with intermixed sandy areas. Ridges have low-growing cushion plant communities. The vegetation in the area is composed of a sagebrush steppe component in the lower flats. The predominant shrub species being Wyoming big sagebrush (*Artemisia tridentata ssp. wyomingensis*), Douglas’ rabbitbrush (*Chrysothamnus viscidiflorus*), Spiny hopsage (*Grayia spinosa*), and Winterfat (*Krascheninnikovia lanata*). Grasses are dominated by Needle-and-thread (*Stipa comata*), Indian ricegrass (*Oryzopsis hymenoides*), Downy wheatgrass (*Elymus lanceolatus*), and Sandberg’s bluegrass (*Poa sandbergii*). In the higher elevations on the ridges and slopes there is a mixture of Gardner’s saltbush (*Atriplex gardneri*), Birdfoot sage (*Artemisia peditifida*), Sandberg’s bluegrass (*Poa sandbergii*), and numerous forbs.

BLM Manual 6840 “provides policy and guidance, consistent with appropriate laws, for the conservation of special status species of plants and animals, and the ecosystems upon which they depend.” In accordance with this manual the following Special Status Plant Species categories were considered:

- A. Federally listed threatened and endangered species and designated critical habitats. No listed species or habitats occur within the planning area.
- B. Federally proposed species and proposed critical habitats. No proposed species or habitats occur within the planning area.
- C. Candidate species. No candidate species or habitats occur within the planning area.
- D. State listed species. The State of Wyoming has no listed plants. Their category of Native Species Status (NSS) at this time only includes animal species.
- E. Sensitive species. The BLM Wyoming State Director has a designated Sensitive Species list. The Wyoming Natural Diversity Database (WYNDD) was consulted in the preparation of this list and their state (S) and global (G) rankings were considered in the final composition of species listings. WYNDD records for species on this list were checked and only one of the species occurs in the immediate vicinity of the project area. This species is listed below.

No special status plant species are known to exist in the project area although one species on the BLM-WY Sensitive Species list has been found throughout the surrounding area. Nelson’s milkvetch (*Astragalus nelsonianus*) is an endemic plant found on alkaline clay flats, shale bluffs and gullies, and pebbly slopes in sparsely

vegetated sagebrush, juniper, and cushion plant communities. This species may occur in the project area but there have been no comprehensive surveys to determine its presence or absence. The ridges and upper slopes in the area are composed of cushion plant communities which are uncommon habitats and contain many endemic plant species. Cushion plant communities are associated with ridges and slopes. These areas are recommended by the Wyoming Natural Diversity Database for protection as rare plant habitats but have not been formally designated at this time.

### **Invasive Species**

Invasive noxious and exotic weed species are becoming more prevalent in the Rock Springs Field Office, including areas of disturbance such as roads, staging areas, and riparian areas. Henbane (*Hyoscyamus niger*), Cheatgrass (*Bromus tectorum*), Perennial pepperweed (*Lepidium latifolium*), Whitetop (*Cardaria spp.*), Thistles (*Cirsium spp.*), and Flixweed (*Descurainia sophia*) all currently exist in the project area.

### **Visual Resource Management**

That portion of the project area within the Monument Valley Management Area is within a VRM Class II landscape. Management objectives for Class II VRM areas is that any action should be designed and located to blend into the natural landscape and to not be visually apparent to the casual viewer (p 37, RMP). According to the RMP, lands within the Adobe Town WSA were classified as Class II (Class I within the RFO), Washington Office Instruction Memorandum (WO-IM-2000-096) directed states to manage viewsheds within WSAs as Class I. VRM management objective for Class I areas, with the exception of grandfathered rights, is to preserve the existing character of the landscape. This class provides for the natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

### **Soils/Watershed**

Soils within this project area are frequently highly erosive regardless of slope. The alluvial fans on the southside of the Haystacks are especially dynamic as a result of runoff with heavy sediment load originating from the badlands. The few existing roads have frequently had an impact on adjacent drainages as a result of runoff in the road ruts causing headcutting and channel capture from adjacent drainages. Drainages are ephemeral and commonly steep sided, often with scarce vegetation in the bottoms as a result of the heavy sediment load. The main stream in the area is Sand Creek to the south of the project area.

### **Wildlife**

#### **Wildlife Habitat**

The proposed geophysical project encompasses three notably different habitats:

**Haystack Flats** is characterized by tall sagebrush and basin wildrye along ephemeral stream channels. Cut banks along these stream channels and occasional standing water provides cover and a significantly more diverse wildlife resource than either of the other two types of habitat. This area is windblown with deep soils in eddies behind topographic relief. Snow accumulations gathered here result in small islands of tall sagebrush, which also provide passerine bird-nesting habitat and escape cover for small mammals and big game.

**The Haystacks** are incised escarpments of heavily eroded clay and rotten sandstone. Harder sandstone outcrops near the rim and on top of the Haystacks are important habitat features which protect the structure from collapse. A cushion plant community covers the surface across the top with Utah juniper found along the southern slopes where rocky outcrops exist. Wherever springs emerge from the sandstone and clay contact layer, ancient limber pine emerge. In late July, these trees provide forage for Clark's nutcrackers and other nut foraging birds. The numerous springs and seeps provide water for a variety of small mammals, birds and game animals. Since rock outcrops may

stand 10-16 feet in height, the habitat also provides wildlife and wild horses with shelter from summer heat and icy winter winds. Small aspen stands on the east flank of the mountain increase the habitat diversity and provides shade, escape cover, and nesting habitat.

**Adobe Town** proper is a landscape of tall sand hummucks, wide sandy draws and isolated bad land escarpments. Expanses of saltbush flats provide suitable habitat for mountain plover, horned larks and other passerines. Pockets of gravel overlies barren clay which provides little habitat for nesting or other wildlife activities. Sink holes along the badlands provide little more than a cool summer retreat for coyote and cougar. Spiny hopsage, shadscale and spiny horsebrush fill in the dunal areas along sand creek and provide some forage for pronghorn antelope and wild horses. Water is scarce after early July and some species rely on pockets of wet sands along Sand Creek and rainwater catchments in order to survive.

**Big Game Species** - Only a portion of the project area is within big game crucial ranges. Mule deer are year-long residents from the Wild Rose Spring south and around the Haystacks. Crucial winter range for mule deer occurs across the Haystacks (Map 3). The entire project is within spring, summer, and fall ranges for antelope. From 1981 until 1996, antelope hunt area 57 was managed as a trophy antelope area. A crucial antelope winter range is identified for this species only in the southeastern portion of the project area (Map 3). Use restrictions apply between November 15 to April 30 on crucial winter ranges.

**Trophy Game** - Mountain lions (cougar) are common in the Manuel Gap and Haystacks areas. They occur wherever mule deer and feral horses exist and in the irregular badland terrain which is found throughout the area. Between one and three cougars are harvested from this hunt unit each year.

**Raptor Nesting** - A variety of birds of prey species occupy the project area. Golden Eagle, American Rough-legged Hawk, and Northern Harriers hunt this area in the winter. By late winter (February) golden eagles begin nuptial flights and select nesting sites. Buteo species include red-tailed hawks and ferruginous hawks which are found nesting throughout this area in suitable habitats. Other raptors include prairie falcons, kestrels, great-horned owls, short-eared owls, and burrowing owls.

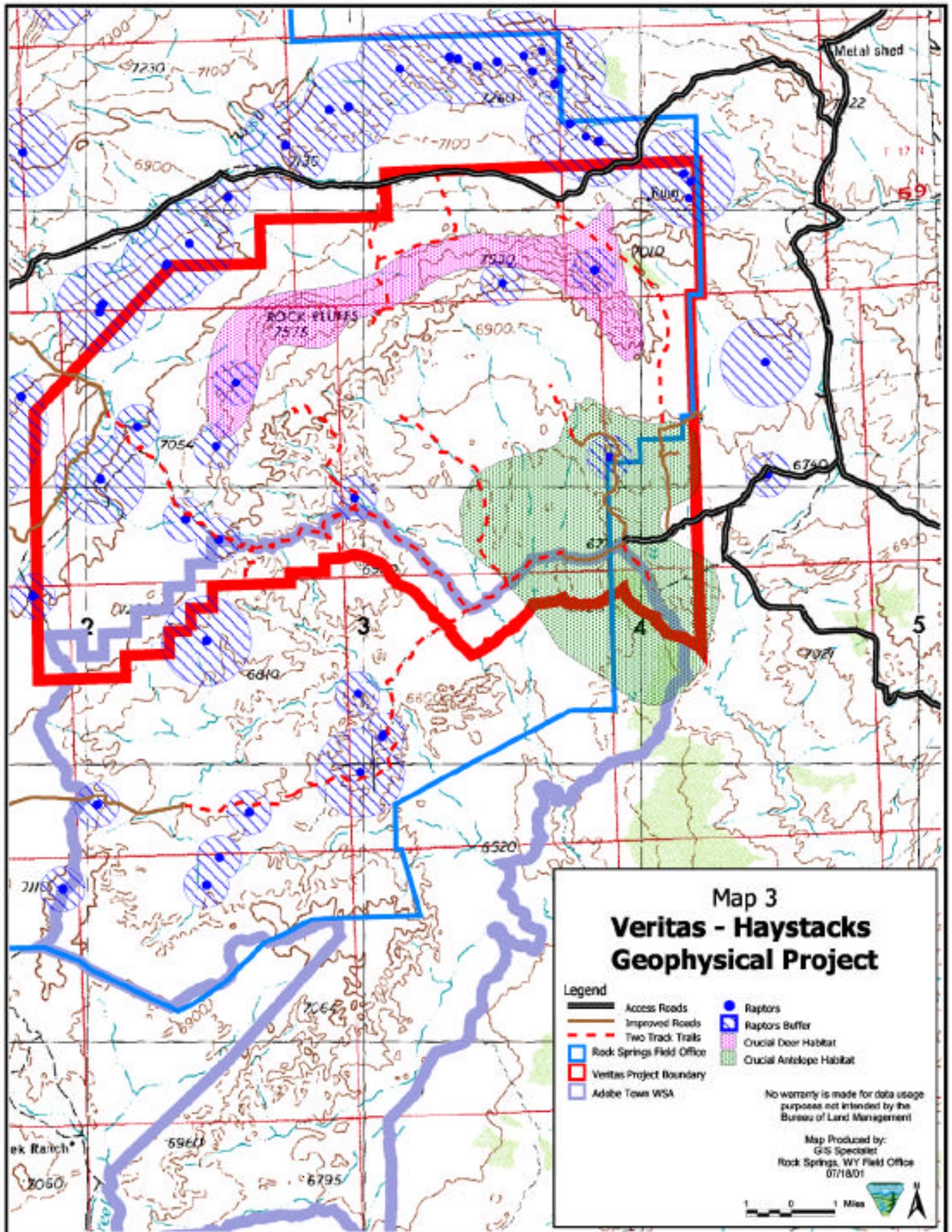
### **Special Status Animal Species**

As stated above under *Vegetation and Special Status Plant Species*, BLM Manual 6840 outlines the policy for addressing such species. No systematic inventory of the special status animal species has been done. Attachment 2 provides a list of all special status species potentially found in the RSFO. A brief description of those species which may be present in the project area follows the table. This information is incorporated and made part of this analysis.

### **Threatened and Endangered Species**

Bald eagles have been documented hunting parts of the project area during winter and spring. No suitable nesting or summer or fall habitat exists in the area.

A sighting of a black-footed ferret in the general area occurred in 1992 and was found in a prairie dog town located in Section 16, T15N R96W which is located several miles outside the project area. Seven prairie dog colonies are known to occur in or adjacent to the project area with burrow densities averaging less than 7 holes per acre. U.S.



Fish and Wildlife Service guidelines for black-footed ferrets indicate that towns or colonies with hole densities less than 8 per acre do not meet the criteria for black-footed ferret habitat.

## **ENVIRONMENTAL CONSEQUENCES/IMPACTS**

The following discussion includes a description of the impacts to the private and state lands as well as those anticipated for the public lands. Because the BLM has no jurisdiction over geophysical operations on state or private lands, any mitigation developed through the analysis would likely only apply to the public lands administered by BLM.

### **Proposed Action**

#### **Cultural/Historic Resources**

**Direct, Indirect, Cumulative Impacts:** A class III inventory is required on source lines routes and any cultural or historic sites would be avoided by at least 100 feet. Avoidance would be accomplished by having a BLM permitted Archaeologist flag or otherwise mark drive around or places where vehicles may not be driven. Thus, with implementation of the committed measures for cultural resources, no direct or indirect impacts to known cultural resources are anticipated since known sites would be avoided. However, there could be a small potential for unknown cultural or historic sites to be disturbed by vehicular traffic. Should unknown sites be discovered, it could add to the base knowledge for cultural or historic resources found in the area. Known cultural or historic sites would be avoided on private lands. No cumulative impacts to cultural or historic sites are expected.

The Overland Trail would be avoided regardless of land ownership with the exception of allowing vehicles to cross the Trail in previously disturbed areas (i.e., roads, pipeline crossings). No shotholes would occur within 300 feet of the Trail. With application of these avoidance measures, no direct, indirect, or cumulative impacts to the Overland Trail would be expected.

**Mitigation:** Any cultural and/or paleontological resource (historic or prehistoric site or object) discovered by the operator, or any person working on his behalf, on public or Federal land shall be immediately reported to the authorized officer. The operator shall suspend all operations in the immediate area of such discovery until written authorization to proceed is issued by the authorized officer. An evaluation of the discovery would be made by the authorized officer to determine appropriate actions to prevent the loss of significant cultural or scientific values. The operator would be responsible for the cost of evaluation and any decision as to proper mitigation measures would be made by the authorized officer after consulting with the holder.

#### **Native American Religious Concerns**

**Direct, Indirect, Cumulative Impacts:** With implementation of committed measures to move shotholes or geophones based on recommendations made by tribal representatives, no direct, indirect, or cumulative impacts to Traditional Cultural Properties are anticipated.

#### **Adobe Town Wilderness Study Area**

**Direct, Indirect, Cumulative Impacts:** Use of helicopters to transport equipment and personnel would temporarily inconvenience any visitors to the WSA in the immediate area due to noise and the sight of the helicopter. However, any impacts to visitors would be momentary. Walking and temporarily laying geophones along receiver lines would not detract from the naturalness of the WSA nor impact the wilderness characteristics found there. Once the lines are removed, any minor disturbance to the surface caused from geophones or footprints would disappear with the next weather event. No cumulative impacts to wilderness values are expected.

**Mitigation Measures:** No additional mitigation measures have been identified.

## **Fluid Minerals**

**Direct, Indirect, and Cumulative Impacts:** Exploratory drilling for fluid minerals is not dependent upon geophysical operations. However, such operations can indicate areas where to concentrate future exploratory drilling as well as where not to, and would likely eliminate surface disturbance for non-productive wildcat wells. Public lands found in the project area are leased for oil and gas and it is expected that some exploratory drilling would occur on all lands. Should exploratory drilling result in commercial quantities of hydrocarbons being found, development wells could occur. The extent of future development is unknown at this point. Any future proposals for individual exploratory wells and/or development wells would be analyzed at the time.

**Mitigation Measures:** No additional mitigation measures have been identified.

## **Monument Valley Management Area**

**Direct, Indirect, Cumulative Impacts:** With implementation of the committed measures (e.g., conducting paleontological and cultural surveys and avoidance of such sites, use of big-tire buggies and staggered vehicle use pattern when off existing roads to limit impacts to vegetation, use of helicopters on steep slopes and ridges, reclamation of any disturbed reclaimed areas, etc.) and recognizing that much of the MVMA within the project area is privately owned, no long-term impacts are expected from geophysical operations. Crushing of vegetation, and temporary impacts from use of equipment is expected and considered a necessary and due impact when conducting geophysical operations.

**Mitigation Measures:** No additional mitigation is required.

## **Off-Road Vehicle Use**

**Direct, Indirect, Cumulative Impacts:** The majority of the project area is in checkerboard land ownership, including those lands within the MVMA (Map 2). BLM has no authority to limit ORV use on privately held lands. Additionally, the RMP recognizes ORV use to conduct geophysical operations in areas where there are off-road vehicle use designations. Off-road vehicle use designations would be exceeded on public lands within the MVMA. However, Veritas commits to using big-tire buggies (use of helicopters on steep slopes and ridges) to conduct core drilling and a staggered vehicle use pattern would be used while conducting operations, the direct impacts would be limited to the extent possible and is considered necessary and due. There is potential for use of buggy paths by hunters and other recreationists using ORVs, particularly in the first year. As grasses recover, the paths should become less visible.

**Mitigation Measures:** No additional mitigation measures have been identified.

## **Recreation**

**Direct, Indirect, Cumulative Impacts:** Geophysical operations could occur during hunting periods. Those hunters in the immediate area where operations are occurring would be inconvenienced but this is considered a temporary impact. Other visitors in the immediate area where operations are occurring would also be temporarily inconvenienced. No indirect or cumulative impacts to recreation are anticipated.

**Mitigation Measures:** No additional mitigation measures have been identified.

## **Paleontology**

**Direct, Indirect, Cumulative Impacts:** With implementation of committed measures to protect known paleontological sites, the anticipated direct, indirect or cumulative impacts to fossil resources are expected to be minimal since no surface disturbance is proposed other than for the core holes and any fossils lying on the surface would be avoided. However, documented sites within the project area have been studied and collected from and continue to be collected from by museums and universities. Core-drilling or laying geophones along receiver lines near documented sites could temporarily disrupt ongoing paleontological research should it be occurring at the time of operations.

**Mitigation:** No additional mitigation has been identified.

### **Vegetation and Special Status Plant Species**

**Direct, Indirect, Cumulative Impacts:** Because all vehicle use would use offset or staggered pattern for cross-country travel, crushing of vegetation is an expected impact but would be minimized to the extent possible. Observation of previous geophysical projects where an offset vehicle pattern was used show that shrub plants in the vehicle paths can be crushed or killed but underlying grasses and forbs survive. Cushion plant communities present on slopes and in other areas that are susceptible to erosion could take over 20 years to recover if disturbed by heavy equipment. Use of helicopters or a single pass by big-tire buggies should limit impacts to cushion plant communities to the extent possible. Any reclaimed areas that become rutted due to truck traffic would be reseeded.

Nelson's milkvetch is a perennial forb that flowers in the beginning of May and sets seed by August. Once the seed sets, aboveground stems die back. Since geophysical operations would occur after seed-set, when the fruiting pods are in the stage of dehiscence and the seeds in the process of dissemination, no impacts to this species are anticipated.

**Mitigation:** No additional mitigation has been identified.

### **Invasive Species**

**Direct, Indirect, Cumulative Impacts:** Vehicle disturbance could increase weed infestations if vehicles pass over weedy areas during weed seed-set period and move into to weed-free areas. This could produce new weed infestations.

**Mitigation:** Any existing weed populations and areas of new infestations found during geophysical operations should be treated with herbicides as soon as found in order contain them or prevent their spread.

### **Visual Resource Management**

**Direct, Indirect, Cumulative Impacts:** Once geophysical operations are completed, there would be no further impact to the casual observer due to actual operations. Vegetation crushed by use of vehicles would temporarily be visible (if an individual is standing at a certain angle) until the next growing season and is considered a temporary impact, especially since the growth cycle for most native species is complete at this time of year. Use of helicopters on steep slopes or highly erosive soils should preclude any impacts to the casual observer. No lasting scars are anticipated.

**Mitigation:** No additional mitigation has been identified.

### **Soils/Watershed**

**Direct, Indirect, Cumulative Impacts:** Existing roads will experience truck traffic which could cause some rutting and soil compaction, possibly leading to future erosion problems on the roads and adjacent drainages. Roads and trails which had revegetated as a result of lack of use or past reclamation would have the vegetation crushed and possibly experience compaction and loss of vegetation. Areas where off-road vehicle traffic is unable to disperse (i.e., forced to follow the same tracks due to terrain) could experience soil compaction and loss of vegetation. Areas where existing roads have been washed out necessitating detours may develop new trails circumventing the washout.

**Mitigation:** Driving on sand dunes should be avoided by vehicles and shotholes should be offset to the interdunal swales where possible. Should any steep-sided drainages be encountered, they should not be crossed by any vehicles to protect banks. Low bank areas could be used for drainage crossings. Any surface damage should be repaired to the satisfaction of the BLM inspector as soon as possible after the completion of operations but no later than March 2002.

## **Wildlife**

### **Big Game**

**Direct, Indirect, Cumulative Impacts:** The primary impact to wildlife resources would be a reduction in browse due to the crushing of shrubs, typically sagebrush, by tires. These losses are expected to be short-term as younger, more vigorous shrubs reoccupy the travel paths within a few years. Grasses should not be impacted by tires.

There should be no impact to big game winter ranges since geophysical operations are proposed to be completed before November 15<sup>th</sup>. However, if operations were delayed until after that date on crucial habitat when it is heavily occupied by wintering wildlife, some winter range abandonment could be expected. The distance and duration of the move would depend on the animal's sensitivity to human activity. This is an unlikely impact since seasonal restrictions would apply. No cumulative impacts to wildlife are expected from geophysical operations.

**Mitigation:** No additional mitigation is needed.

### **Trophy Game**

**Direct, Indirect, Cumulative Impacts:** Other than temporary displacement of trophy game animals in the area where geophysical activity is occurring, no other direct, or indirect or cumulative impacts are expected.

**Mitigation Measures:** No additional measures are needed.

### **Raptor Nesting**

**Direct, Indirect, Cumulative Impacts:** Since geophysical operations are proposed outside of the nesting season for raptors, no direct, indirect, or cumulative impacts to nesting raptors are anticipated. However, should operations be delayed, seasonal restrictions would apply as proposed. Resident raptors foraging in the area of geophysical operations would likely be temporarily displaced in the immediate area while activity is occurring. No cumulative impacts to raptors is anticipated.

**Mitigation Measures:** No additional mitigation is required.

## **Special Status Animal Species**

Due to the timing of proposed geophysical operations, no impact to nesting greater sage grouse, mountain plover, or other special status animal species (Attachment 2) is anticipated because important life cycle events (i.e., mating and rearing of young) have past. Any special status animal species found within the immediate area of operations would likely be temporarily displaced during operations. If operations were delayed until critical time periods for mating and nesting activities, measures as proposed would apply to greater sage grouse and mountain plovers. No indirect or cumulative impacts to special status animal species are anticipated.

**Mitigation Measures:** No additional mitigation is required.

### **Threatened and Endangered Species**

**Direct, Indirect, Cumulative Impacts:** Since geophysical operations are proposed during the summer and fall, no adverse effects to bald eagles are expected since no summer or fall foraging habitat occurs. BLM determines that no adverse effects to black-footed ferrets would occur since prairie dog hole densities do not meet U.S. Fish and Wildlife criteria for black-footed ferret habitat.

**Residual Impacts:** Vehicle tracks may be visible where the tires have crushed vegetation until new growth occurs but should leave no permanent scars.

### **NO ACTION ALTERNATIVE**

#### **Cultural/Historic Resources**

**Direct, Indirect, Cumulative Impacts:** No direct or indirect impacts to cultural resources on public lands would be expected should the No Action Alternative be selected. There could be potential for impacts to cultural sites on private lands due to wildcat drilling. Any permits for wildcat wells or access roads on public lands would be subject to the appropriate cultural surveys.

#### **Native American Religious Concerns**

**Direct, Indirect, Cumulative Impacts:** Under the No Action Alternative, no direct impacts to Traditional Cultural Properties would be expected. Should wildcat drilling be proposed on public lands or private lands where Federal permits are necessary, appropriate consideration for Native American Religious Concerns would be done. Consideration of Native American Religious Concerns is not required on private lands if Federal permits are not required.

#### **Adobe Town Wilderness Study Area**

**Direct, Indirect, Cumulative Impacts:** No direct, indirect, or cumulative impacts to the WSA would be expected under the No Action Alternative.

#### **Fluid Minerals**

**Direct, Indirect, Cumulative Impacts:** Under the No Action Alternative, it is likely that a number of wildcat wells would be drilled resulting in associated surface disturbing activities. Future oil and gas activity based on actual discoveries would not likely be changed. Implementation of the No Action Alternative would forgo the opportunity to use 3-D seismograph to gather comprehensive subsurface data on *all lands* within the project area and subsequently pinpoint structures that may contain hydrocarbon pools. Without the comprehensive 3-D data, companies are likely to continue to drilling "dry-holes." Dry-holes not only waste industry dollars, but they unnecessarily disturb soil and native vegetation. To date there have been 14 "dry holes" or commercially unviable wells. Each subsequent dry-hole is expected to add 3 to 4 acres of disturbance until vegetation is established.

## **Monument Valley Management Area**

**Direct, Indirect, Cumulative Impacts:** Wildcat and developmental drilling would likely occur under the No Action Alternative in the MVMA that overlaps the project area since most of the lands are in a checkerboard land ownership and Federal lands have been leased for oil and gas. Any surface disturbing activities proposed on public lands would have to meet the requirements (e.g., paleontological surveys) set forth in the RMP for the MVMA.

### **Off-Road Vehicles**

**Direct, Indirect, Cumulative Impacts:** Use of ORVs off designated roads (existing until designated) to conduct geophysical operations as proposed would not occur on public lands within the MVMA. However, ORV use could occur on private lands, including those privately held lands on and around the Haystacks, should the landowner decide to conduct wildcat drilling operations.

### **Recreation**

**Direct, Indirect, Cumulative Impacts:** Under the No Action Alternative, hunters and other recreationists would not be inconvenienced by the proposed action but could be further impacted by drilling of wildcat wells on private and public lands. Long-term impacts to recreationists would be the same since the level of development wells would occur regardless of whether hydrocarbons are located via geophysical operations or exploratory drilling.

### **Paleontology**

**Direct, Indirect, Cumulative Impacts:** No direct, indirect or cumulative impacts to paleontological resources would be anticipated on public lands under the No Action Alternative. However, paleontological resources could be disturbed should the landowner decide to drill wildcat wells on private lands within the area. Any proposals to drill wildcat wells on public lands in the MVMA or on public lands outside the MVMA known to contain paleontological resources would require surveys and appropriate mitigation.

### **Vegetation and Special Status Plant Species**

**Direct, Indirect, Cumulative Impacts:** Vegetation, including cushion plant communities, located on public lands would not be directly impacted under the No Action Alternative. However, vegetation including those species associated with cushion plant communities on private lands could be impacted should the private landowner decide to drill wildcat wells. Vegetation located on public lands would likely be disturbed in order to accommodate wildcat drilling although any disturbance would be subject to reclamation requirements.

### **Invasive Species**

**Direct, Indirect, Cumulative Impacts:** Under the No Action Alternative, problems with invasive species would likely continue but infestation of weeds into new areas would be reduced in the short-term. However, drilling of wildcat wells would be likely on both private and public lands within the area. Therefore, there could be a subsequent increase in the potential to spread invasive species. Any infestations would have to be handled on a case-by-case basis.

### **Visual Resource Management**

**Direct, Indirect, Cumulative Impacts:** Under the No Action Alternative, visual impacts caused by crushed vegetation would be eliminated on public lands. However, additional roads would likely be needed to gain access

onto privately held lands and Federal oil and gas leases to drill wildcat wells. This could result in increased overall visual impacts to the northern portion of the MVMA since roads would be needed for exploratory drilling. Should a ‘dry-hole’ be encountered, the reclaimed road and pad would be visible until vegetation has been sufficiently reestablished.

### **Soils/Watershed**

**Direct, Indirect, Cumulative Impacts:** Impacts to soils and watershed under the No Action Alternative would likely be increased due to the need to construct roads for wildcat drilling on both private and public lands. The extent of new construction associated with wildcat drilling is unknown. Any actions proposed that disturbed public lands would be subject to appropriate mitigation to reduce unnecessary and undue impacts to soils and watershed resources.

### **Wildlife**

**Direct, Indirect, Cumulative Impacts:** Under the No Action Alternative, wildcat drilling on private lands would not be subject to seasonal restrictions for crucial big game ranges or nesting raptors. Wildcat drilling on public lands would be subject to appropriate mitigation to protect big game habitat and nesting raptors.

### **Special Status Animal Species**

**Direct, Indirect, Cumulative Impacts:** Under the No Action Alternative no surveys or restrictions would apply to activities on private lands unless mandated by the private landowner. Any proposals on public lands would be subject to appropriate surveys and mitigation to protect special status animal species.

### **Threatened, Endangered, Candidate, Proposed Species**

**Direct, Indirect, Cumulative Impacts:** Any listed species under the Endangered Species Act is subject to protective measures regardless of landownership (different processes apply depending on ownership). Thus, under the No Action Alternative no adverse effects to listed species would be expected. Candidate and proposed species would be protected on public lands.

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**ATTACHMENT 1  
FEDERAL LEASES WITHIN HAYSTACK GEOPHYSICAL PROJECT**

<b>TOWNSHIP</b>	<b>RANGE</b>	<b>SECTION</b>	<b>FEDERAL LEASE #</b>
15	95	5	WYW117794
16	95	6	WYW150431
		8	WYW121738
		17	WYW1211738
		18	WYW1121738
		19	WYW73624
		20	WYW69400
		29	WYW69401
		30	WYW73624
		31	WYW9400 WYW69401
		17	95
28	WYW131823		
30	WYW150811		
32	WYW150812		
15	96	3	WYW147880
		4	WYW147881
16	96	2	WYW150822
		4	WYW137711 WYW147882
		6	WYW13771
		8	WYW13771
		10	WYW147883
		12	WYW150822
		14	WYW150822
		18	WYW137711
		20	WYW147883
		22	WYW147883
		24	WYW147885
		25	WYW147885
		26	WYW147885
		27	WYW147885

TOWNSHIP	RANGE	SECTION	FEDERAL LEASE #
		28	WYW147885
		29	WYW147886
		32	WYW150823
		33	WYW150823
		3 4	WYW147885
		35	WYW147884
17	96	22	WYW137713 WYW31897
		24	WYW31897
		26	WYW137713
		28	WYW13773 WYW147887
		30	WYW137713
		32	WYW147887
		34	WYW147887
15	97	6	WYW128158 WYW139189
16	97	2	WYW150837
		4	WYW147890 WYW139190
		6	WYW131841
		8	WYW139190
		10	WYW147890
		12	WYW150838
		14	WYW147890
		18	WYW150839 WYW139190 WYW134378
		20	WYW147890
		22	WYW147891
		24	WYW147891
		25	WYW147891
		26	WYW147891
		27	WYW139191
		28	WYW139190

<b>TOWNSHIP</b>	<b>RANGE</b>	<b>SECTION</b>	<b>FEDERAL LEASE #</b>
		30	WYW128158
		32	WYW139190
		35	WYW72234
17	97	34	WYW145756
15	98	12	WYW133005
16	89	12	WYW131858 WYW131841
		24	WYW147901

**ATTACHMENT 2**  
**BLM WYOMING STATE DIRECTOR'S SENSITIVE SPECIES**  
**ANIMALS AND PLANTS IN THE ROCK SPRINGS FIELD OFFICE CLEARANCE LIST**

April, 2001

Species Common Name	Scientific Name	Habitat	Designation and Ranking of others: WY Natural Heritage Program, Forest Service (FS) Regions 2 and 4; Wyoming Game and Fish (NSS), BLM states and others <sup>1</sup>	Present
<b>MAMMALS</b>				
Shrew, Dwarf	<i>Sorex nanus</i>	Mountain foothill shrub, grasslands	G4/S2S3, FSR2, NSS3, UT	<b>no</b>
Myotis, Long-eared	<i>Myotis evotis</i>	Conifer and deciduous forests, caves and mines	G5/S1B, S1?N, NSS2, ID, OR/WA, AZ	<b>no</b>
Myotis, Fringed	<i>Myotis thysanodes</i>	Conifer forests, woodland-chaparral, caves and mine	G5/S1B, S1N, FSR2, TBNG, NSS2, ID, UT, MT, OR/WA, AZ	<b>no</b>
Bat, Spotted	<i>Euderma maculatum</i>	Cliffs over perennial water, basin-prairie shrub	G4/S1B, SZ?N FSR2, FSR4, NSS2, ID, CO, UT, MT, OR/WA, AZ	<b>no</b>
Bat, Townsend's Big-eared	<i>Corynorhinus townsendii</i>	Forests, basin-prairie shrub, caves and mines	G4/S1B, S2N, FSR2, TBNG, FSR4, NSS2, ID, CO, UT, MT, OR/WA	<b>unlikely</b>
Rabbit, Pygmy	<i>Brachylagus idahoensis</i>	Basin-prairie and riparian shrub	G4/S2, NSS3, ID, MT, OR/WA, IUCN LR(nt)	<b>possibly</b>
Prairie Dog, White-tailed	<i>Cynomys leucurus</i>	Basin-prairie shrub, grasslands	G4/S2S3, NSS3, MT	<b>yes</b>
Pocket Gopher, Wyoming	<i>Thomomys clusius</i>	Meadows with loose soil	G2/S1S2, NSS4, FSR2	<b>no</b>
Pocket Gopher, Idaho	<i>Thomomys idahoensis</i>	Shallow stony soils	G4/S2?, NSS3, IUCN- LR(nt)	<b>no</b>
Fox, Swift	<i>Vulpes velox</i>	Grasslands	Removed from Federal Candidate list 01/08/01	<b>yes</b>
<b>BIRDS</b>				
Ibis, White-faced	<i>Plegadis chihi</i>	Marshes, wet meadows	G5/S1B, SZN, FSR2, TBNG, NSS3, UT, MT, CO, AZ	<b>no</b>
Swan, Trumpeter	<i>Cygnus buccinator</i>	Lakes, ponds, rivers	G4/S1B, S2N, FSR2, TBNG, FSR4, NSS2, ID, MT	<b>no</b>
Goshawk, Northern	<i>Accipter gentilis</i>	Conifer and deciduous forests	G5/S23B, S4N, FSR2, TBNG, FSR4, NSS4, ID, CO, UT, MT	<b>no</b>

Species Common Name	Scientific Name	Habitat	Designation and Ranking of others: WY Natural Heritage Program, Forest Service (FS) Regions 2 and 4; Wyoming Game and Fish (NSS), BLM states and others <sup>1</sup>	Present
Hawk, Ferruginous	<i>Buteo regalis</i>	Basin-prairie shrub, grassland, rock outcrops	G4/S3B, S3N, FSR2, TBNG, NSS3, ID, CO, MT	yes
Falcon, Peregrine	<i>Falco peregrinus</i>	Tall cliffs	G4/T3/S1B, S2N, FSR2, TBNG, NSS3, UT	no
Sage-grouse, Greater	<i>Centrocercus urophasianus</i>	Basin-prairie shrub, mountain-foothill shrub	G5/S3, TBNG, ID, CO, UT	yes
Curlew, Long- billed	<i>Numenius americanus</i>	Grasslands, plains, foothills, wet meadows	G5/S3B, SZN FSR2, TBNG, NSS3, ID, CO, UT, MT	no
Cuckoo, Yellow- billed	<i>Coccyzus americanus</i>	Open woodlands, streamside willow and alder groves	G5/S2B, SZN, FSR2, TBNG, NNS2, UT, ID, Petitioned	no
Owl, Burrowing	<i>Athene cucularia</i>	Grasslands, basin-prairie shrub	G4/S3B, SZN, FSR2, TBNG, NSS4, ID, MT, AZ	possibly
Thrasher, Sage	<i>Oreoscoptes montanus</i>	Basin-prairie shrub, mountain-foothill shrub	G5/S3B,SZN, PIF Priority	yes
Shrike, Loggerhead	<i>Lanius ludovicianus</i>	Basin-prairie shrub, mountain-foothill shrub	G5/S4B,SZN, FSR2, TBNG, ID, MT, AZ	yes
Sparrow, Brewer's	<i>Spizella breweri</i>	Basin-prairie shrub	G5/S3B,SZN, TBNG, PIF Priority, ID	yes
Sparrow, Sage	<i>Amphispiza billineata</i>	Basin-prairie shrub, mountain-foothill shrub	G5/S3B,SZN, PIF Priority, ID, MT	yes
FISH				
Chub, Roundtail	<i>Gila robusta</i>	CO River drainage, mostly large rivers, also streams and lakes	G2G3/S2?, NSS1, CO, UT	no
Chub, Leatherside	<i>Gila copei</i>	Bear, Snake and Green drainages, clear, cool streams and pools	G3G4/S2, NSS1, ID, UT	no
Sucker, Bluehead	<i>Catostomus discobolus</i>	Bear, Snake and Green drainages, all waters	G4/S2S3, NSS1, CO, UT	no
Sucker, Flannelmouth	<i>Catostomus latipinnis</i>	CO River drainage, large rivers, streams and lakes	G3G4/S3, NSS1, CO, UT	no
Trout, Colorado River Cutthroat	<i>Oncorhynchus clarki pleuriticus</i>	CO River drainage, clear mountain streams	G4T2T3/S2, FSR2, FSR4, NSS2, CO, UT, Petitioned	no
REPTILES				

Species Common Name	Scientific Name	Habitat	Designation and Ranking of others: WY Natural Heritage Program, Forest Service (FS) Regions 2 and 4; Wyoming Game and Fish (NSS), BLM states and others <sup>1</sup>	Present
Rattlesnake, Midget Faded	<i>Crotalus viridis concolor</i>	Mountain foothills shrub, rock outcrop	G5T3/S1S2, CO	<b>no</b>
<b>AMPHIBIANS</b>				
Frog, Northern Leopard	<i>Rana pipiens</i>	Beaver ponds, permanent water in plains and foothills	G5/S3, FSR2, TBNG, NSS4, CO, ID, MT	<b>no</b>
Spadefoot, Great Basin	<i>Spea intermontana</i>	Spring seeps, permanent and temporary waters	G5/S4, NSS4, CO	<b>no</b>
Toad, Boreal (Northern Rocky Mountain population)	<i>Bufo boreas boreas</i>	Pond margins, wet meadows, riparian areas	G4T4/S2,NSS2, FSR2, FSR4, UT, ID	<b>no</b>
Frog, Spotted	<i>Rana pretiosa (lutiventris)</i>	Ponds, sloughs, small streams	G4/S2S3, FSR2, FSR4, NSS4, ID, UT, MT	<b>no</b>
<b>PLANTS</b>				
Meadow Pussytoes	<i>Antennaria arcuata</i>	Moist, hummocky meadows, seeps or springs surrounded by sage/grasslands 4,950-7,900'	G2/S2	<b>no</b>
Small Rock Cress	<i>Arabis pusilla</i>	Cracks/Crevices in sparsely vegetated granite/pegmatite outcrops w/in sage/grasslands 8,000-8,100'	G1/S1 Removed from Federal Candidate list 10/25/99	<b>no</b>
Mystery Wormwood	<i>Artemisia biennis var. diffusa</i>	Clay flats & playas 6,500'	G5T1/S1	<b>no</b>
Nelson's Milkvetch	<i>Astragalus nelsonianus</i> -ox- <i>Astragalus pectinatus var. platyphyllus</i>	Alkaline clay flats, shale bluffs and gullies, pebbly slopes, and volcanic cinders in sparsely vegetated sagebrush, juniper, & cushion plant communities at 5200-7600'	G2/S2, CO	<b>no</b>
Precocious Milkvetch	<i>Astragalus proimanthus</i>	Cushion plant communities on rocky, clay soils mixed with shale on summits & slopes of white shale hills 6,800-7,200'	G1/S1	<b>no</b>
Cedar Rim Thistle	<i>Cirsium aridum</i>	Barren, chalky hills, gravelly slopes, & fine textured, sandy-shaley draws 6,700-7,200'	G2Q/S2	<b>no</b>

Species Common Name	Scientific Name	Habitat	Designation and Ranking of others: WY Natural Heritage Program, Forest Service (FS) Regions 2 and 4; Wyoming Game and Fish (NSS), BLM states and others <sup>1</sup>	Present
Ownbey's Thistle	<i>Cirsium ownbeyi</i>	Sparsely vegetated shaley slopes in sage & juniper communities 6,440-8,400'	G3/S2	no
Wyoming Tansymustard	<i>Descurainia torulosa</i>	Sparsely vegetated sandy slopes at base of cliffs of volcanic breccia or sandstone 8,300-10,000'	G1/S1	no
Large-fruited Bladderpod	<i>Lesquerella macrocarpa</i>	Gypsum-clay hills & benches, clay flats, & barren hills 7,200-7,700'	G2/S2	no
Stemless Beardtongue	<i>Penstemon acaulis var. acaulis</i>	Cushion plant or Black sage grassland communities on semi-barren rocky ridges, knolls, & slopes at 5,900-8,200'	G3T2/S1	
Beaver Rim Phlox	<i>Phlox pungens</i>	Sparsely vegetated slopes on sandstone, siltstone, or limestone substrates 6,000-7,400'	G2/S2	no
Tufted Twinpod	<i>Physaria condensata</i>	Sparsely vegetated shale slopes & ridges 6,500-7,000'	G2/S2	no
Green River Greenthread	<i>Thelesperma caespitosum</i>	White shale slopes & ridges of Green River Formation 6,300'	G1/S1	no
Uinta Greenthread	<i>Thelesperma pubescens</i>	Sparsely vegetated benches & ridges on coarse, cobbly soils of Bishop Conglomerate 8,200-8,900'	G1/S1	no
Cedar Mtn. Easter Daisy	<i>Townsendia microcephala</i>	Rocky slopes of Bishop Conglomerate 8,500'	G1/S1	no

#### <sup>1</sup>Rankings

##### Heritage Program

WYNDD uses a standardized ranking system developed by The Nature Conservancy's Natural Heritage Network to assess the global and statewide conservation status of each plant and animal species, subspecies, and variety. Each taxon is ranked on a scale of 1-5, from highest conservation concern to lowest. Codes are as follows:

- G Global rank: Rank refers to the rangewide status of a species.
- T Trinomial rank: Rank refers to the rangewide status of a subspecies or variety.
- S State rank: Rank refers to the status of the taxon (species or subspecies) in Wyoming. State ranks differ from state to state.
- 1 Critically imperiled because of extreme rarity (often known from 5 or fewer extant occurrences or very few remaining individuals) or because some factor of a species' life history makes it vulnerable to extinction.
- 2 Imperiled because of rarity (often known from 6-20 occurrences) or because of factors demonstrably making a species vulnerable to extinction.
- 3 Rare or local throughout its range or found locally in a restricted range (usually known from 21-100 occurrences).
- 4 Apparently secure, although the species may be quite rare in parts of its range, especially at the periphery.
- 5 Demonstrably secure, although the species may be rare in parts of its range, especially at the periphery.
- H Known only from historical records. 1950 is the cutoff for plants; 1970 is the cutoff date for animals.
- X Believed to be extinct.
- A Accidental or vagrant: A taxon that is not known to regularly breed in the state or which appears very infrequently (typically refers to birds and bats).
- B Breeding rank: A state rank modifier indicating the status of a migratory species during the breeding season (used mostly for migratory birds and bats)
- N Nonbreeding rank: A state rank modifier indicating the status of a migratory species during the non-breeding season (used mostly for migratory birds and bats)
- ZN or ZB Taxa that are not of significant concern in Wyoming during breeding (ZB) or non-breeding (ZN) seasons. Such taxa often are not encountered in the same locations from year to year.
- U Possibly in peril, but status uncertain; more information is needed.
- Q Questions exist regarding the taxonomic validity of a species, subspecies, or variety.

? Questions exist regarding the assigned G, T, or S rank of a taxon.

#### State Status

The Wyoming Game and Fish Department has developed a matrix of habitat and population variables to determine the conservation priority of all native, breeding bird and mammal species in the state. Six classes of Native Status Species (NSS) are recognized, of which classes 1, 2, and 3 are considered to be high priorities for conservation attention.

These classes can be defined as follows:

NSS1 Includes species with on-going significant loss of habitat and with populations that are greatly restricted or declining (extirpation appears possible).

NSS2 Species in which (1) habitat is restricted or vulnerable (but no recent or significant loss has occurred) and populations are greatly restricted or declining; or (2) species with on-going significant loss of habitat and populations that are declining or restricted in numbers and distribution (but extirpation is not imminent).

NSS3 Species in which (1) habitat is not restricted, but populations are greatly restricted or declining (extirpation appears possible); or (2) habitat is restricted or vulnerable (but no recent or significant loss has occurred) and populations are declining or restricted in numbers or distribution (but extirpation is not imminent); or (3) significant habitat loss is on-going but the species is widely distributed and population trends are thought to be stable.

#### Forest Service

Region 2 - Rocky Mountain Region

Region 4 - Intermountain Region

TBNG - Thunder Basin National Grassland

#### Other BLM states

AZ Arizona, CO Colorado, ID Idaho, MT Montana, OR/WA Oregon/Washington, UT Utah

**IUCN** - International Union for Conservation of Nature, Rodent Specialist Group. North American Red List. LOWER RISK (LR) - A taxon is Lower Risk when it has been evaluated, does not satisfy the criteria for any of the categories Critically Endangered, Endangered or Vulnerable. Taxa included in the Lower Risk category can be separated into three subcategories:

1. Conservation Dependent (cd). Taxa which are the focus of a continuing taxon-specific or habitat-specific conservation programme targeted towards the taxon in question, the cessation of which would result in the taxon qualifying for one of the threatened categories above within a period of five years.
2. Near Threatened (nt). Taxa which do not qualify for Conservation Dependent, but which are close to qualifying for Vulnerable.
3. Least Concern (lc). Taxa which do not qualify for Conservation Dependent or Near Threatened.

**PIF** - Partners in Flight, a coalition of federal, state and provincial agencies, private groups, corporations and individuals dedicated to neotropical migratory bird conservation

**Petitioned** - Species which has been petitioned for listing under the Endangered Species Act

#### For Plants:

**P** - Indicates occurrence within BLM Field Office area on Private Land Ownership

**S** - Indicates occurrence within BLM Field Office area on State Land Ownership

**F** - Indicates occurrence within BLM Field Office area on other Federal Land Ownership

**?** - Indicates likely occurrence within BLM Field Office area

## Washakie Basin, Haystacks, Haystack Flats Habitats

### Townsend's Big-eared bat

The species occurrence in the project area is considered casual. The clay caves and rocky overhangs are too cool to provide suitable long term use by bats and a general survey of a representative sample found no evidence of bat habitation.

Pygmy rabbit

Recent inventories of this species indicates its distribution to Bitter Creek . Further studies may extend the range into Haystack Flats.

White-tailed prairie dog

At least seven low density colonies have been identified. A loosely connected colony of <5 holes/acre occurs from Willow reservoir south and out of the project area. Hole-to-hole black-footed ferret surveys have been done on part of the colony over the past several years. No evidence of ferrets have been found within the Haystacks 3-D area.

Swift fox

No reported sightings, however most of the project area provides suitable habitat for this species.

Ferruginous hawk

Five known nests have been recorded since 1974. With the general decline in abundance of this species in Wyoming, active nesting has declined to three active nests in the Haystacks 3-D area in 2001.

Sage grouse

Portions of two sage grouse nesting areas encroach on the area. Adults with young can be found in Haystack Flats and southwest of Manuel Gap during spring. Adult groups can be found along Sand creek during summer. No strutting grounds have been found within the project area.

Sage Thrasher

More commonly found in Haystack Flats than Adobe Town, sage thrashers are more closely associated with sagebrush which is two feet and taller in height. More commonly found here in spring than summer or late summer.

Loggerhead shrike

These birds are uncommon, but are known to nest and forage in most parts of the Haystacks 3-D prospect..

Brewer's sparrow, Sage sparrow

Both species are found in both the Haystack Flats and Adobe Town habitats. The sage sparrow is more abundant than the brewers and both species become less abundant in late summer. Adverse impacts to passerine birds should be negligible after the nesting season.