DECISION RECORD and FINDING OF NO SIGNIFICANT IMPACT for the Cherokee West 3D Seismic Survey Project

Sweetwater County, Wyoming and Moffat County, Colorado

October 2005

MISSION STATEMENT

It is the mission of the Bureau of Land Managment to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/WY/PL-05/015+1990

WY-030-05-EA-173

VERITAS DGC LAND INC.
CHEROKEE WEST 3D GEOPHYSICAL PROJECT

DECISION RECORD
AND
FINDING OF NO SIGNIFICANT IMPACT

INTRODUCTION

Veritas DGC Land Incorporated (Veritas) filed a Notice of Intent on January 26, 2005, to conduct a 3D seismic operation on public lands in the Rawlins and Rock Springs, Wyoming, and Little Snake, Colorado, Field Offices. The project area is approximately 16 miles by 18.5 miles (135.6 square miles) and covers approximately 87,304 acres. Of the total acreage in the project area, approximately 86,784 acres are BLM-administered public land, 240 acres are state-owned land, and 280 acres are private land. About 80% of the project falls within the Rawlins and Rock Springs, Wyoming, Field Offices. The remaining lands are within the jurisdiction of the Colorado Little Snake Field Office.

Actual surface use by the proposed project would be restricted to 100-foot corridors along the source lines and small staging and survey base station areas. A map showing the exact proposed locations of source and receiver points is on file at the BLM Rawlins Field Office (RFO). Portions of the project occurring on state and private lands are not subject to BLM authorization. All lands affected by the proposed project include:

TOWNSHIP AND RANGE SECTIONS

Wyoming

T12N, R96W 5-7, 18-19
T12N, R97W 1-24
T12N, R98W 1-24
T12N, R99W 1-3, 1-15, 22-24
T13N, R96W 7-8, 17-20, 29-32
T13N, R97W 7-36
T13N, R98W 7-36
T13N, R99W 11-15, 22-27, 34-36

Colorado

T12N, R97W 10-23, 26-35
T12N, R98W 13-26, 35-36
T12N, R99W 13-16, 22-24

Sixth Principal Meridian, Sweetwater County, Wyoming, and Moffat County, Colorado

ALTERNATIVES CONSIDERED IN THE ANALYSIS

The analysis considered three alternatives, the proposed action (Alternative 1), no off-road vehicle use in Adobe Town fringe areas (Alternative 2), and the no action alternative. All are described in detail under Section 2.0 of the Environmental Assessment (EA).

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM DETAILED STUDY

Several alternatives were considered but eliminated from detailed study. These alternatives include: exploratory drilling, utilizing helicopter operations for the entire project, utilizing buggy drilling for the entire project, and using passive seismic for data gathering. These alternatives were found to be technologically or economically unfeasible to meet the purpose of the proposal. The rationale for eliminating these alternatives can be found in Section 2.4 of the environmental analysis.

FINDING OF NO SIGNIFICANT IMPACT

Based on the analysis of potential environmental impacts contained in the EA, I have determined that impacts are not expected to be significant and therefore, an environmental impact statement is not required.

DECISION

Based on the analysis contained in the EA, it is my decision to approve the proposed action and authorize geophysical exploration as described in Section 2.1 of the EA. Veritas may proceed with the Cherokee West 3D vibroseis project once the Notice of Intent is approved and all necessary clearances are completed. Geophysical operations will be subject to the measures identified in Appendix A and B of this decision in addition to the standard conditions contained in the approved Notice of Intent.

RATIONALE FOR DECISION

My decision to approve this action is based upon the following:

- The proposed action is in conformance with the land use plans for the Rock Springs, Little Snake, and Rawlins Field Offices which allow geophysical operations including 3D vibroseis.
- The proposed action would avoid unnecessary and undue impacts to resource values addressed in the EA (see Sections 3.0 and 4.0).
- Public participation, consultation, and coordination have occurred. BLM issued a news release on March 11, 2005, allowing a 30-day public scoping prior to preparation of the EA. All issues brought forth during scoping have been considered in the preparation of the EA.
- BLM issued a news release on July 12, 2005, allowing a 30-day public comment period on the Environmental Assessment. All issues brought forth during this comment period have been considered.
- Public comment letters for the Environmental Assessment and BLM's response can be found in Appendix C of this decision.
- No listed, proposed for listing, or candidate species are affected by the proposed action. U.S. Fish and Wildlife Service has determined that mountain plover does not warrant listing under the Endangered Species Act and is considered a BLM sensitive species. All BLM-identified sensitive species have been given consideration and adequate protection.
- This decision is consistent with all federal, state, and county authorizing actions required to implement the Proposed Action. All pertinent statutory requirements applicable to this proposal were considered. Compliance with Section 106 of the Historic Preservation Act will be completed prior to seismic operations.

APPEAL

This decision is effective upon the date the decision or approval by the authorized officer. The decision or approval may be appealed to the appropriate office of the Interior Board of Land Appeals in accordance with regulations contained in 43 CFR 3150.2. If an appeal is filed, a copy of the notice of appeal must be

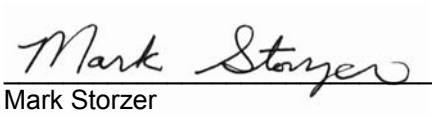
filed in this office (Rawlins Field Office, P.0. Box 2407, 1300 North Third Street Rawlins, Wyoming 82301), within 30 days of receipt of the decision. Allowing 7 days mailing time, the appeal period ends 37 days from the date of this decision. The appellant has the burden of showing the decision or approval appealed from is in error. If you wish to file a petition for stay pursuant to 43 CFR 3150.2(b), the petition for stay should accompany your notice of appeal and shall show sufficient justification based on the following standards:

1. The relative harm to the parties if the stay is granted or denied.
2. The likelihood of the appellant's success on the merits.
3. The likelihood of irreparable harm to the appellant or resources if the stay is not granted.
4. Whether the public interest favors granting a stay.

Each adverse party to an appeal must be provided copies of all documentation. The adverse parties for this action are:

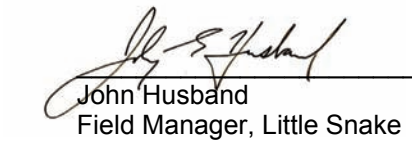
Aaron Bateman
Veritas DGC Land Inc.
10300 Town Park Drive
Houston, TX 77072

Evan Genaud
Kerr-McGee Corporation
1999 Broadway, Suite 3600
Denver, Colorado 80202



Mark Storzer
Field Manager, Rawlins

October 18, 2005
Date



John Husband
Field Manager, Little Snake

October 18, 2005
Date

Mike Holbert
Field Manager, Rock Springs

October 18, 2005
Date

APPENDIX A

SPECIAL TERMS AND CONDITIONS

Rawlins Field Office

Veritas DGC Geophysical, Inc.
Cherokee West 3D Geophysical Project

WY-030-05-EA-173

The following measures are in addition to those incorporated into the Notice of Intent to conduct this project.

AUTHORIZATION

The Plan of Operations submitted with the Notice of Intent to Conduct Geophysical Exploration is considered an integral part of the project proposal and must be followed during the execution of the project.

Cultural/Historical Resources

1. Veritas shall provide a Class III cultural resource inventory report and site forms to the established Standards of Bureau of Land Management Wyoming and Colorado Cultural Resource Use Permit. All cultural resources, unless previously determined not eligible to the National Register of Historic Places, will be avoided by all project activities, source and receiver lines, staging areas and heliportable activities. The Class III cultural survey will be guided by the following requirements:

2. Travel Route/Activity Plan: A map will be provided that has all the travel routes, staging areas, drive around ways, and support areas designated on it. This map will cover all transportation aspects of the project. This map will be at 1:24,000 foot scale. Smaller scale maps may be used for field compliance work. A copy of this map will be in the possession of all Veritas Field Crew Leaders during operation on the project.

3. Receiver Lines: A Class III cultural survey does not have to be done on receiver lines unless they are part of the travel route/activity plan. Receiver lines will only have foot traffic allowed within identified cultural sites. Flagging and other designation methods will be maintained during the life of the project and removed when the project is over. Exceptions are when the geophone lines are tested. One ATV only will be present on the receiver line to fix problems as they are identified. Driving of the ATV will be limited in scope and confined to designated areas of the receiver lines geophone spreads. ATV traffic will not be allowed through identified sites, even for geophone testing.

4. There will be no other vehicle traffic allowed on receiver lines unless they have been designated as part of the travel route/activity plan for moving equipment around. The receiver lines that are designated travel routes will have a Class III cultural resource survey completed (see Source Lines). No cross-country operation of ATV's is authorized.

5. Source Lines: Source lines are those lines on which all vehicle and vibroseis truck traffic will occur. These lines will have a Class III survey completed during the design phase of the travel route/activity plan development. The travel route/activity plan map will show all of the drive around ways. All drive around routes, for cultural resources or for other environmental reasons,

will be adequately marked. Flagging and other designation methods will be maintained during the life of the project and removed when the project is over. Source lines and travel routes will have a Class III survey conducted that is 100 feet wide, 50 feet either side of the center line. Where vibroseis trucks must turn around, a sufficient area will be surveyed at a Class III. Turn around areas will be shown on the map as well. No cross-country operation of vehicles is authorized outside the approved travel route/activity plan.

6. Drive Around Routes and Barriers: The archaeological consulting firm, in conjunction with Veritas, will provide adequate visual protection for cultural resources. Standard site avoidance (by all vehicles including ATVs) entails, at a minimum, a 32.8-meter (100 foot) or more buffer zone around all eligible and unevaluated sites. Sites of potential Native American concern are subject to special measures, as specified below. Sites previously determined to be not eligible for nomination to the NRHP require no further action if the field reexamination confirms that the previous recordation is still accurate.

7. Barriers will be flagged on both sides of the source/receiver line that bisect a cultural resource.

8. Drive-around routes will be adequately marked and will be surveyed at a Class III level. Flagging and other designation methods will be maintained during the life of the project and removed when the project is over.

9. Flagging shall be placed as necessary to ensure travel route/activity plan operations are conducted in accordance with these Special Terms and Conditions. If flagging or stakes are disturbed, they shall be replaced before proceeding with operations.

10. Support Areas: Staging, base stations, and equipment areas, as well as any other areas containing concentrations of people and equipment, will be surveyed at a Class III level with a suitable buffer, Area of Potential Effect. These areas will be identified on the travel route/activity plan map.

11. Heliportable Drill Holes: A Class III survey will be conducted at each heliportable drill point. This will include a 50-foot area around the drill location. Larger areas will be used when needed for site-specific operational reasons.

12. The operator is responsible for informing all persons who are associated with the operations that they will be subject to prosecution for knowingly disturbing historic or archaeological sites, or for collecting artifacts. If historic or archaeological materials are encountered or uncovered during any project activities, the operator is to immediately stop activities in the immediate vicinity of the find and immediately contact the authorized officer (AO) at (307) 328-4200 (Rawlins Field Office) or (970) 826-5000 (Little Snake Field Office). Within five working days, the AO will inform the operator as to:

    Whether the materials appear eligible for the National Register of Historic Places;

    The mitigation measures the operator will likely have to undertake before the identified area can be used for project activities again; and

    Pursuant to 43 CFR 10.4(g) (Federal Register Notice, Monday, December 4, 1995, Vol. 60, No. 232) the holder of this authorization must notify the AO, by telephone at (970) 826-5000, and with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony. Further, pursuant to 43 CFR 10.4(c) and (d), you must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the authorized officer.

13. Veritas will provide a cultural resource inventory report(s) addressing that portion of the project located within the area of potential effect of historic transportation routes/site for which setting might be an issue. The report, including recommendations, will be submitted to BLM who, in consultation with the Wyoming SHPO, will determine effects of the proposed project. Geophysical activities will not be permitted to create visual intrusions or adverse effects to the Cherokee Trail and other historic transportation routes/site for which setting might be an issue. Based on determination of effect, BLM-RFO will issue project authorization for operations in this area with appropriate conditions.

14. Due to the complexity/size of the project, the project will be conducted in phases. Before each phase is authorized to proceed, a final cultural report must be submitted and reviewed by a BLM staff archaeologist

15. Vibroseis (source) points must be at further than ¼ mile or the visual horizon (whichever is closer) of the Cherokee trail. Geophone receiver cable within one quarter mile of the trail will be placed by helicopter-assisted pedestrians.

16. No project-related vehicle traffic (industrial access) is permitted on the Historic trails. The Historic trails may be crossed at existing disturbances or in areas previously determined to be noncontributing. Single pass crossings on poorly established roads will be permitted when the route is approved by the Bureau archaeologist and will not result in resource damage.

17. Veritas's archeological consultant will obtain a cultural resource files search printout from the SHPO Cultural Records Office shortly before commencing fieldwork. Based on this, the consultant will identify previously recorded cultural resource sites on federal and non-federal lands in the project area. Using site form copies obtained from SHPO, the consultant will plot these sites onto the project map for Veritas, who will design avoidance for these properties prior to the survey. Previously determined not eligible properties will be revisited to assure that they are adequately recorded.

18. Veritas is responsible for informing all persons in the area who are associated with this project that they will be subject to prosecution for knowingly disturbing historic or archeological sites, or for collecting artifacts. Also, should previously unrecorded cultural materials be encountered during the project, work shall be stopped until the BLM's Authorized Officer can be notified and then material properly evaluated by a qualified archaeologist.

19. All off-road vehicular traffic on BLM land will be confined to a corridor 100 feet wide (50 feet either side of the flagged centerline) along lines that have been inventoried for cultural resources.

20. Maps indicating the drive-around routes shall be carried by personnel in the field. If the situation arises where project personnel cannot determine the appropriate drive-around routes, Veritas must request assistance from the contract archaeologist or contact a BLM archaeologist.

21. Should there be any unanticipated damages to any cultural resources (including historic trails) the applicant will be responsible for necessary remediation measures as determined by the Authorized Officer.

Flood Plains

1. Veritas shall not utilize off-road vehicles within 500 feet of surface water or riparian areas.

2. Vibroseis and shot hole source points shall not be placed within 500 feet of surface water.

3. Recording equipment shall be deployed in the area by crew members on foot.

Invasive, Nonnative Species

1. To prevent the introduction of new weeds, Veritas shall thoroughly power-wash all field vehicles (buggy vibes, pick-ups, ATVs, etc) before transporting them to the project area.

2. Veritas shall establish a vehicle washing station at the staging area to wash equipment on site in the event of exposure to invasive and/or noxious weeds. The washing station shall be mobile and able to be transported to other areas, as necessary. Washing stations shall be located on state or private lands.

3. To help prevent the spread of existing populations of invasive and/or noxious weeds, information on the more common species with potential for occurrence in the project area shall be distributed to crew members. The crew members shall be instructed to avoid any populations of these species that they encounter, and asked to report the locations of the populations to the BLM.

4. Should Veritas be required to re-vegetate any areas upon completion of project activities, an appropriate seed mixture shall be coordinated with the appropriate BLM representatives.

Migratory Birds

1. Off road vehicle travel shall be restricted to speeds of less than 15 miles per hour.

2. No off-road vehicle travel shall be permitted within 500 feet of surface water or riparian areas.

3. Applicable offsets shall be observed to protect nesting raptors if operations are conducted around nest areas during restricted periods (February 1 through July 31 in Wyoming and February 1 through August 15 in Colorado). Seismic personnel shall move quickly through the “controlled use areas” near nests during casual use so as not to disturb nesting raptors.

4. If project field activities are proposed during the period between February 1 and July 31, a raptor nest survey shall be conducted to find nests occupied in spring 2005. From February 1 through May 31 (nest selection period), geophysical operations shall not be allowed on BLM-administered lands within 0.75-mile radius of occupied raptor nests, except ferruginous hawk nests, for which the seasonal buffer is a 1.0-mile radius, unless exception is granted.

Native American Religious Concerns

1. Regardless of surface ownership, all known sites containing prehistoric cairns, stone alignments, or wickiups shall be avoided by all vehicles by a distance of 300 feet or more. Regardless of surface ownership, all known sites containing rock art shall be avoided by all vehicles by a distance of 300 feet or more unless otherwise determined during consultation. All shot hole source points must be located at least one-quarter mile from sites containing rock art. Source points must be located at least one-quarter mile from sites containing rock art.

2. Standard stipulations regarding human remains and other discoveries shall apply to this project.

3. If any additional sites of potential Native American religious concern (e.g. rock art, vision quest structures, human burial sites, prehistoric cairns, stone circles) are identified by Veritas personnel within 500 feet of any proposed off-road travel route regardless of surface ownership, the BLM Rawlins or Little Snake River Field Archaeologist shall be promptly notified. The need for special

mitigative measures and/or additional Native American consultation shall be determined by the BLM Rawlins or Little Snake River Field Office.

BLM Wyoming State Sensitive Species – Sensitive Plants

1. Veritas shall offset vehicle travel paths to minimize impacts to vegetation in general, as well as sensitive species.

2. Crews shall receive information regarding Gibben's beardtongue in order to enable them to identify and avoid this sensitive species.

3. Should off road vehicle travel and/or drilling be necessary between July 1 and August 31 in areas identified by the RFO as potential suitable habitat for Gibben's beardtongue, surveys for presence/absence of the species shall be conducted prior to operations. If the species is present within these areas, operations shall be offset in order to prevent damaging any plants.

Threatened and Endangered Species – Plants

1. No off-road vehicle activity shall be conducted within 500 feet of surface water or riparian areas.

BLM Wyoming State Sensitive Species – Sensitive Animals

1. Veritas shall observe seasonal restrictions listed in the following table for all sensitive species to avoid disturbance. If project field activities are proposed during the period between February 1 and July 31, a raptor nest survey shall be conducted to find nests occupied in spring 2005. From February 1 through July 31 (nest selection period), geophysical operations shall not be allowed on BLM-administered lands within 0.75-mile radius of occupied raptor nests, except ferruginous hawk nests, for which the seasonal buffer is a 1.0-mile radius, unless exception is granted.

Seasonal Restrictions for Sensitive Species by State		
Sensitive Species	**Wyoming**	**Colorado**
Greater Sage-Grouse Nesting	March 1-June 30	March 1-June 30
Greater Sage-Grouse Wintering		December 16-March 15
Raptors	February 1-July 31	February 1-August 15
Mountain Plover	April 10-July 10	April 10-July 10

2. Veritas shall not conduct operations within 0.25 miles of lek sites, and leks will be avoided by two miles between March 1 and June 30 to protect nesting greater sage-grouse.

3. Veritas shall not vibrate directly on top of known prairie dog burrow locations, and no source holes shall be placed within 100 feet of active prairie dog burrows throughout the project area.

Threatened and Endangered Species – Animals

1. In order to minimize potential impacts to prairie dog towns, Veritas shall not vibrate directly on top of known prairie dog burrow locations and no source holes shall be placed within 100 feet of active prairie dog burrows throughout the project area.

2. In order to minimize impacts to species that occur in riparian habitat, no off road vehicle activity shall be conducted within 500 feet of surface water or riparian areas.

Wastes, Hazardous or Solid

1. Veritas shall clean up all oil, fuel or other spills, including contaminated soils. All spill-related material shall be hauled to a Colorado or Wyoming 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.

2. Veritas shall clean up all project lath, flagging, and incidental trash as operations proceed through an area. The collected trash shall be hauled to a DEQ approved disposal site.

3. Hazardous materials, other than those identified in Veritas's Plan of Operations, shall not be stored for any length of time on BLM administered land. Additionally, no hazardous waste will be disposed of on federal land. The term hazardous material means: 1) any substance, pollutant, or contaminant that is listed as hazardous under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980, as amended, 42 U.S.C. 9601 et seq., and the regulations issued under CERCLA, 2) any hazardous waste as defined in the Resource Conservation and Recovery Act (RCRA) of 1976, as amended, and 3) any nuclear or nuclear byproduct as defined by the Atomic Energy Act of 1954, as amended, 42 U.S.C. 2011 et seq.

4. Veritas shall clean up all oil, diesel or hydraulic fuel spills, including contaminated soils. All spill-related material shall be hauled to a Wyoming 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.

5. Veritas shall prepare an Emergency Response Plan addressing fire and submit it to the Authorized Officer for review at least one week prior to any project field operations. Veritas shall coordinate with the nearest paramedic providers for life flight and ambulance service to establish Landing Zones across the project. These zones shall be used in case of serious injury to workers needing immediate evacuation.

6. Veritas shall place all tanks holding bulk liquids within lined containment areas. Capacity of the containment area shall be 110% of the largest tank. Bulk liquids contained in tanker semi-trailers may be parked in a safe location on the staging area. Fueling of equipment or maintenance of equipment shall be done away from riparian or other open water areas.

7. Explosives/detonators shall be transported in accordance with Federal Department of Transportation regulations. Explosives shall be stored and handled according to U.S. Bureau of Alcohol, Tobacco and Firearms (ATF) and Occupational Safety & Health Administration (OSHA) standards. Explosive materials storage shall be located out of sight and at least one-quarter mile from traveled roads.

8. No holes shall be loaded except those to be fired in the next round of blasting. No explosives or blasting agents shall be left unattended at the blast site. No loaded holes shall be left unattended or unprotected.

Water Quality – Surface

1. No off-road vehicle travel shall be permitted within 500 feet of surface water or riparian areas.

2. No source points shall be located in drainages within the project area, and equipment shall not be permitted to travel in any area that exhibits saturated soil conditions in or adjacent to drainages.

3. Seismic operations shall remain at least 500 feet from all springs, stock ponds, and impoundments.

4. Veritas shall clean up all oil, fuel or other spills, including contaminated soils. All spill-related material shall be hauled to a Colorado or Wyoming DEQ approved disposal site.

Water Quality – Ground

1. Veritas shall offset all source points a distance of at least 300 feet from all water developments and groundwater wells, in accordance with BLM requirements.

2. Veritas shall plug all shot holes in accordance with COGCC and WOGCC requirements to prevent the commingling of surface and ground water.

Wetlands/Riparian Zones

1. No off-road vehicle activity or placement of shot points shall be conducted within 500 feet of riparian areas. Receiver lines shall be allowed within this distance, but equipment shall be walked in with helicopter assistance.

2. Vehicular traffic across/through drainage channels is limited to sloping drainage sides or to vertical banks of less than 2 feet. Channel crossings shall be aligned perpendicular to the stream channel, to the extent practicable.

Wilderness/WSAs

1. No off-road vehicle travel shall be permitted within the Adobe Town WSA. Helicopter support shall be utilized to lower receiver line and recording equipment to field personnel through the use of a long-line. Helicopters shall not be allowed to land within the WSA unless an emergency situation was present.

2. No staking or flagging shall be allowed in the Adobe Town WSA.

Access

1. Vehicle travel paths shall be offset to minimize impacts.

2. No off-road vehicle traffic shall be allowed within 500 feet of surface water or riparian areas.

3. Veritas shall make every effort to avoid disturbing or altering fences. Gates shall be used when possible. Gates shall be closed immediately after passing through them. If a fence must be crossed, it shall be let down or cut (as determined by the grazing lessee or owner/operator), crossed, and immediately returned to the original condition. The wires shall be stretched to the original tension from the nearest brace or gate panel.

Fluid Materials

1. Source points shall be located a minimum of 300 ft from oil/gas wells and pipelines, unless written permission to encroach closer has been given by the owner/operator.

Hydrology-Ground

1. Veritas shall offset all source points a distance of at least 300 feet from all groundwater wells, in accordance with BLM requirements.

2. Veritas shall plug all shot holes in accordance COGCC Rule 333, Subsection C, Item 4.

3. Veritas shall conduct all drilling and hole plugging operations in strict conformance with all Wyoming Oil and Gas Conservation Commission requirements

4. Veritas shall submit a copy of the "Hole Plugger's log" for each hole of the shotline describing: whether the holes were wet or dry; static water level if appropriate; any flowing holes; breached or caved holes; approximate volume of bentonite used per hole; any lost hole locations; etc., with the Notice of Completion.

5. Shot holes shall be inspected for subsidence within one field season and prior to release of the bond liability.

Hydrology, Surface

1. No equipment shall be permitted to travel in areas where saturated soil conditions are present in order to prevent rutting, which could potentially result in hydrologic alteration.

2. Seismic operations shall remain at least 300 feet from all water developments and groundwater wells.

3. All seismic recording equipment shall be laid out on foot within 500 feet of surface water or riparian areas.

4. Pumping water out of stock ponds or other water reservoirs on BLM administered land for any project use is not allowed, unless authorized by the BLM.

Paleontology

1. Veritas is responsible for informing all persons associated with this project that they shall be subject to prosecution for damaging, altering, excavating or removing any vertebrate fossil objects on site.

2. If vertebrate paleontological resources (fossils) are discovered on BLM-administered land during project operations, Veritas shall suspend operations that could disturb the materials, and immediately contact the BLM Rawlins Field Office Manager (Authorized Officer). The Authorized Officer shall arrange for evaluation of the find within 5 working days and determine the need for any mitigation actions that may be necessary. Any mitigation shall be developed in consultation with Veritas, who may be responsible for the cost of site evaluation and mitigation of project effects to the site. If the operator can avoid disturbing a discovered site, there is no need to suspend operations; however, the discovery shall be immediately brought to the attention of the Authorized Officer.

Range Allotment(s)/Range Improvement Projects

1. Veritas shall be responsible for notifying grazing lessees prior to entering their allotments. Affected grazing lessees are listed above, and their addresses are available from the BLM upon request.

2. Veritas shall make every effort to avoid disturbing or altering fences. Gates shall be used when possible. Gates shall be closed immediately after passing through them. If a fence must be crossed, it shall be let down or cut (as determined by the grazing lessee or owner/operator), crossed, and immediately returned to the original condition. The wires shall be stretched to the original tension from the nearest brace or gate panel.

3. Source points shall be located a minimum of 300 feet from all BLM-managed water wells and reservoirs.

4. Any and all facilities damaged, destroyed or removed in connection with this geophysical exploration operation shall be immediately restored to original condition or replaced with a similar facility.

5. Veritas' operations shall comply with and shall not compromise the standards set for rangeland health for public lands administered by the BLM for each state, which can be found online at: www.co.blm.gov/standguide.htm (Colorado) and http://www.blm.gov/nhp/efoia/wy/1997im/wy1997-105atch.pdf (Wyoming).

6. Vibroseis source points shall be located a minimum of 300 feet from standing structures unless written permission to encroach closer has been given by the land owner or operator (BLM H-3150-1 Handbook).

7. Surveying paint shall not be applied to any existing structures or objects (i.e., buildings, fences, signs, rocks, etc.)

8. Veritas shall be required to repair any damage to facilities caused by their operations.

Realty Authorizations

1. Source points shall be located a minimum of 300 feet from oil/gas wells and pipelines, unless written permission to encroach closer has been given by the owner/operator. Spills resulting from ruptured pipelines or well casings shall be cleaned up as directed by DEQ and the facility owner/operator.

2. Veritas shall utilize the *One Call* service to obtain information in the planning for and avoidance of buried utilities.

3. Source points shall be offset away from powerlines, communication sites, and public water reserves, in accordance with safe operating distances.

4. Surveying paint shall not be applied to any existing structures or objects (i.e., buildings, fences, signs, rocks, etc.)

5. Veritas shall be required to repair any damage to facilities caused by their operations.

Recreation

1. Veritas shall avoid, to the maximum extent possible, working in the immediate vicinity of hunters and recreational visitors known to be utilizing the area.

2. Signs shall be posted at common recreation and gathering sites throughout the project area to inform the public of operations and make hunters aware of crews in the area at least 1 month prior to the project's start.

3. Veritas shall require all crew members to wear orange/yellow safety vests, making them easily visible to all hunters, and shall designate a contact person to resolve any issues that may arise during hunting season.

4. No dogs or firearms shall be in the possession of project employees within the project area.

Soils

1. Veritas shall conduct no vehicle operations during periods of saturated ground conditions when surface rutting could occur. If vibroseis operations result in ruts of 4 inches deep or more, operations shall cease until conditions dry out sufficiently enough to prevent rutting. Shot points rather than vibroseis points shall be placed along rims in the southwest corner of project area and on the east end of the project area in areas with steep topographic grade in order to minimize compaction and/or rutting.

2. Up hill and down hill buggy (vibe or drill) operations shall be allowed only on slopes of 25 percent (14 degrees) or less. Other vehicle operations (e.g. ATVs, jug trucks, pick-ups, transcriber trucks, radio repeater trucks) are limited to slopes of 25 percent (14 degrees) or less. All vehicle travel is restricted to the travel/route activity plan map. No cross-country travel is allowed.

3. Veritas shall avoid constant use of the same access routes in order to reduce soil compaction. Highly erodible soils locations, particularly steep slopes, sand dune areas, or drainages, shall be avoided.

4. Any ruts created shall be repaired in a way that shall produce the least disturbance (i.e., hand shovel).

5. Veritas shall reclaim and reseed any areas where their operations have caused surface rutting, or have otherwise removed all of the surface vegetation as detailed in Appendix B "Project Reclamation and Reseeding Guidelines."

Vegetation

1. Source points and vehicle traffic shall be offset around individual trees and, where possible, entire stands, as these can sometimes occur in tight clusters. No trees shall be cut.

2. No off road vehicle traffic is permitted within 500 feet of riparian vegetation. This stipulation measure applies to federal and non-federal lands (per Endangered Species Act).

3. The geophysical operations shall be conducted whereby the vibroseis buggies shall stagger their paths of travel, so that no vehicle is treading over the path of another vehicle, except when using existing roads and trails. Optimally, this shall occur such that the total disturbance width shall be as narrow as possible.

4. Disturbance of vegetation shall be kept to a minimum by limiting the number of times the vehicles travel over their designated access routes. If required, damaged areas shall be seeded with native plant species recommended by the BLM authorized officer.

Visual Resources

1. To the maximum extent feasible, Veritas shall offset side-by-side all off-road vehicle (including ATV) traffic over a 50-foot wide swath on either side of the seismic line, so that one vehicle does NOT drive the same path as another vehicle. Where travel is on two track ways or road surfaces, vehicles shall travel one behind another.

Wildlife, Aquatic

See Wetlands/Riparian mitigation section

Wildlife, Terrestrial

1. Operations shall be restricted in areas designated as crucial winter range during the period of November 15th to April 30th within the Wyoming portion of the project area, to protect wintering pronghorn antelope, elk, and mule deer.

Wild Horse and Burro Areas

1. To aid in avoiding interference with herd management operations, Veritas shall communicate with the BLM prior to and throughout the project period regarding wild horse gathers, the areas and times at which they will occur, and flight plans associated with these operations, as to minimize potential safety and disturbance risks. Veritas' preliminary flight plans shall be available to the BLM following the survey phase of the project.

2. The following information concerning the helicopter shall be reported directly to Rawlins Fire Dispatch Center at (307)328-4391 or to Craig Interagency Dispatch Center at (970)826-5037:

   Dates of operation
   Helicopter tail or N number
   Helicopter Model/type
   Location of landing zone/base (latitude and longitude)
   Area the helicopter will be flying in (either on a map or geographical listing)
   Contact for helicopter (Company, pilot, COR)
   Radio frequencies helicopter may be using

3. Off-road vehicle travel shall be limited to speeds of 15 mph.

4. Crews shall be instructed to not harass wild horses or domestic livestock, and pilots shall be instructed to be aware of their presence within the herd management area in efforts to avoid disturbance.

5. To protect wild horses, helicopter activity shall take special care to avoid frightening or running wild horses.

6. The operator shall make every effort to minimize disruption and displacement of the wild horses in the area by seismic related ground and aerial activity.

7. Veritas shall be in close communication with the BLM in order to coordinate helicopter activities during the planned wildhorse gather.

8. Helicopter operations for this project shall be restricted to the project area (excepting ingress and egress in a direct manner to and from the project area).

Project Cleanup

1. As directed by the Authorized Officer, Veritas DGC shall be responsible to clean up the lines used for the geophysical operations on public lands managed by BLM. All trash, flagging, lath, etc. will be removed and disposed of in an authorized location.

2. No open burning of garbage or refuse is allowed in association with seismic activities.

Monitoring and Compliance

1. Designated Bureau of Land Management personnel will monitor and review project operations as needed to ensure compliance with the terms and conditions of the exploration permit. Operations can be suspended during any portion of the project when in the judgment of the BLM Authorized Officer, Veritas DGC or any contractor hired by Veritas DGC have not complied with any terms or conditions described in the approved NOI and attached Special Terms and Conditions.

Accepted by:

_____ Date_____

Veritas DGC Land

APPENDIX B

PROJECT RECLAMATION AND RESEEDING GUIDELINES

At the earliest mutual convenience upon completion of the project, areas disturbed by seismic activities will be evaluated in the field by the BLM Authorized Officer and the operator's representative to determine the need for restorative re-vegetation.

In general:

Disturbed areas where major compaction has occurred will require scarification or disking to loosen subsoil.

Certified weed-free straw or other mulch may be applicable where erosion potential is deemed likely.

Planting will occur between September 15 and the time of ground freeze or snow cover, or in the spring prior to May 30. Seed must be certified weed-free. Pounds of seed specified in the mix are based on weight of pure live seed (PLS). The total 26 pounds of mixed pure live seed are to be applied to one acre. This application rate is double that for drilled seed, based on the assumption that the seed will be broadcast and raked in by hand. Seed shall be broadcast as uniformly as possible, and incorporated in the soil to an optimum depth of 0.5 inch with hand rakes.

The basic seed mix below will be used or modified as directed by the Authorized Officer.

RECOMMENDED GENERAL SEED MIXTURE

Species of Seed	**Variety**	**Lbs. PLS***
Grasses		
Thickspike wheatgrass *(Agropyron dasystachyum)*	Critana	8.0
Slender wheatgrass *(Agropyron trachycaulum)*	Pryor	4.0
Western wheatgrass *(Agropyron smithii)*		4.0
Indian ricegrass *(Oryzopsis hymenoides)*		2.0
Bottlebrush squirreltail *(Sitanion hystrix)*		2.0
Needle-and-thread *(Stipa comata)*		2.0
Shrubs		
Gardner's saltbush *(Atriplex gardneri)*		4.0
Total	**Lbs. PLS**	26.0

APPENDIX C

SUMMARY OF EA COMMENTS AND BLM RESPONSES

The BLM released the Final Environmental Assessment on July 12, 2005. Fifty nine comment letters were received in response to BLM's request for public input.

Comments were provided by the following individuals and organizations:

William L. Baker
Paul Moss
Bertha Ward
Bunny J. Johnson
Constantina Economou
Carolyn L. Hazlett
Jason A. Lillegraven
Mark Anderson
Ellen Conroy
Kirsten Carlson
Richelle Lucas
Ken Driese
Mark R. Ritchie
Dave Welch, OCTA

Albert Richard Bitner
Michael Oxley
Josephine D. Larsen
William I. Baker
John P. Stoltenberg
Daniel A. Dale
Katie Fite
Angelina Korzhova
Loretta Hollings
Isolde Richard
Debra Donahue
Richard Baldes
Bradford Howard

John R. Swanson
Dennis Thomas
Lydia Garvey
Shelly and John Ellis
Ron & Fran Chilcote
Jason Lehrer
Mary Byrnes
Mary Forester
Janet McLaughlin
Katherine Inman
Leila Bruno
David A. Lein
Sue and Jim Tarjan

Brian T. Kelly, U.S. Fish and Wildlife Service
Wyoming State Office, Cheyenne
Jerry Ellis, AMS America's Learning Development
Ron Marquart, Marquart Natural Images
Bruce Pendery, Wyoming Outdoor Council
Kathleen C. Zimmerman, National Wildlife Federation
Bill Wichers, Wyoming Game and Fish Department
Mark Jenkins, OUTSIDE Magazine
Rebecca Hanson, Smartwool
Larry W. Hazlett, University of Wyoming
Brenda Johnson, U.S. Geological Survey
Mark Salvo, Sagebrush Sea Campaign
Bart Geerts, University of Wyoming
Leslie Wischmann, Alliance for Historic Wyoming
Jason A. Lillegraven, University of Wyoming
Eric Molvar, Biodiversity Conservation Alliance
Wyoming Wilderness Association
The Wilderness Society
Oil and Gas Accountability Project
Center for Native Ecosystems
Californians for Western Wilderness and Sagebrush Sea Campaign
Talli Nauman, International Relations Center
Ericka S. Cook, Petroleum Association of Wyoming

3 comment letters had incomplete or illegible names.

We appreciate all those who took time to comment.

Below are summaries of the substantive comments received (noted in ***italic font***) and our response (regular font). A substantive comment is one that would alter conclusions drawn from the analysis based on: 1) new information, 2) why or how the analysis is flawed, 3) evidence of flawed assumptions, 4) evidence of error in data presented, and 5) requests for clarification that bear on conclusions presented in the analysis." However, to save space, comments with a similar theme have been incorporated into one.

Dave Welch, OCTA, National Preservation Officer

Comment 1: ***One shortcoming of the document is that it does not fully describe the Cherokee Trail and, therefore, it is impossible to know what exactly is being protected. On EA page 23 there is a table of "Known Cultural/Historic Sites" which lists the Cherokee Trail as one eligible site. Is this actually a site or is the reference to the trail?***

Response: Technically, the Cherokee Trail is a single site or more accurately, an historic property as defined in 36 CFR 800. Table 2 is referring to the Cherokee Trail. See also the response to Comment 3 below.

Comment 2: ***On June 21, 2005, we met with Debbie Johnson and other members of the Rawlins FO staff in Rock Springs to discuss OCTA's work (by Jack and Pat Fletcher) on the Cherokee Trail. We feel that our information on the routes is much better than that available to the BLM. We have offered this information to the BLM and are working with Anadarko Petroleum in support of their studies.***

Response: See response to Comment 3 below.

Comment 3: ***We would like to offer the same information to those working on this project. We would like to be sure that all contributing segments of the Cherokee Trail and their settings are protected.***

Response: A Class III cultural resource inventory was completed for this project as was required under Section 3.3.3 of the Cherokee West EA. As a result of this inventory, the Cherokee Trail was located on the ground and extensively updated to assess any potential impacts the proposed project might have. The project was subsequently modified to ensure protection of the Cherokee Trail and its setting.

Brian T. Kelly, U.S. Fish and Wildlife Service, Wyoming Field Office

Comment 4: ***Page 31, section 3.7, Migratory Birds, Paragraph 3; and Page 46, section 3.12.3, Mitigative Measures: The service commends the Bureau for requiring protective measures for raptor nests during nesting season. However, to further the conservation of all migratory birds we strongly encourage the Bureau to require that seismic activities occur outside nesting season. Also, please clarify the size of the protective buffers applied.***

Response: Project activity timing restrictions for raptors, mountain plover and greater sage-grouse allows protection of other species of migratory birds during their nesting season as well. The protective buffer for raptor nests is 1.0 mile for eagles and ferruginous hawks. Other raptors are 0.75 mile. See Appendix D, Errata, Page 34.

Comment 5: ***Page 33, section 3.9.2.2, Proposed Action, paragraphs 4-5: Although a 100-foot buffer may ensure an intact burrow, nesting burrowing owls may be disturbed by nearby human activity, which may result in nest abandonment. We recommend a 0.5-mile buffer for nesting burrowing owls.***

Response: The buffer for no surface occupancy for burrowing owls is 825 feet. The buffer during nesting season is the same as for other raptors, 0.75 mile.

Comment 6: ***Page 34, 3.7.3, Mitigative Measures, Paragraph 4: The Service reminds you that these dates are general and some species and/or individual pairs may nest earlier or later that the stated restricted dates. We encourage the Bureau to require that protective buffers be applied from the period of courtship until the chicks are fully fledged and no longer on the natal nest.***

Response: The stated restriction dates in the Special Terms and Conditions include buffers at the beginning of the period for courtship and at the end of the period for fledging.

Comment 7: ***Page 36, section 3.10 Threatened and Endangered Species-Sensitive Plants: For clarification, the Service recommends that the EA remove the threatened and endangered species portion of this header since listed plants are discussed in section 3.11.***

Response: This has been renamed section 4.17 BLM Wyoming State Sensitive Species – Sensitive Plants. See Appendix D, Errata, Page 36.

Comment 8: ***Page 41, section 3.12 Threatened and Endangered Species-Sensitive Animals: For clarification, the Service recommends that the EA remove the threatened and endangered species portion of this header since listed animals are discussed in section 3.13.***

Response: This has been renamed section 4.18 BLM Wyoming State Sensitive Species – Sensitive Animals. See Appendix D, Errata, Page 41.

Comment 9: ***Page 41, section 3.11.1 Affected Environment: It is unclear what the determination of effects is for Ute ladies'-tresses. Therefore the service recommends that you analyze the potential effect of this project to the species and issue a determination based on your analysis. The Service supports your "no off-road vehicle use within 500 feet of surface waters or riparian areas" measure to minimize effects to potential habitat for this species.***

Response: Since there will be no off-road vehicle use within 500 feet of surface waters or riparian areas, the project would have no effect on Ute ladies'-tresses.

Comment 10: ***Page 46, section 3.13.1 Threatened and Endangered Species-Animals: Please note that "block clearance" must not be interpreted to mean that the area is free of all value to black-footed ferrets. These areas are merely cleared from the need for ferret surveys. Therefore, block clearance from the survey recommendations reflects only the negligible likelihood of a wild population of ferrets occurring in an area. Block clearance does not provide insight into an area's value for survival and recovery of the species through future reintroduction efforts. Nor does it relieve the Bureau of its responsibility to evaluate the effects of its actions on the survival and recovery of the species. For example, while an action proposed in a cleared area needs no survey and is not likely to result in take of individuals, the***

action could have an adverse effect upon the value of a prairie dog town as a future reintroduction site and should be evaluated to determine the significance of that effect. Additionally, the Bureau has similar responsibilities under section 7(a)(1) of the Act to protect prairie dog towns where ferrets have been reintroduced such as in Moffat County, Colorado. Finally, block clearance of an area does not imply that other values of maintaining the integrity of the prairie dog ecosystem are unimportant.

Response: The project area does not include areas where ferrets have been reintroduced in Moffat County, Colorado. Implementation of the Special Terms and Conditions would maintain the integrity of future black-footed ferret reintroduction sites.

Comment 11: Although the Service is not aware of any evidence that indicates that vibroseis seismic activity in prairie dog towns results in negative effects to prairie dogs and/or black-footed ferrets, we continue to be concerned with the serious threats that subsequent oil and gas development has on wildlife habitat. These threats include habitat fragmentation, disruption of seasonal migration routes, disruption of breeding activity, and increased predation caused by well pads, access roads, pipelines, power lines, transmission stations, compressor noise, and increased traffic that accompany such development. The Service recommends that the Bureau consider the above information during the project planning as well as for reasonably foreseeable development for this area.

Response: Geophysical exploration is essentially an inventory and data collection process to determine whether the subsurface geology contain suitable structure for mineral development. It is analogous to conducting big game inventories to determine if there are sufficient animals to support hunting. Geophysical projects can provide valuable insight of future actions. Without suitable data it is extremely difficult for the energy industry to predict/project future development. The EA discusses and discloses the anticipated impacts related to the proposed seismic survey activity. In the absence of the targeted geophysical data, it is not possible for the oil and gas industry to predict where and what level of future oil and gas development may or may not be proposed. It is equally not possible for BLM to make these predictions. Oil and gas development will likely occur with or without the proposed project.

Eric Molvar, Biodiversity Conservation Alliance, Wyoming Wilderness Association, The Wilderness Society, Oil and Gas Accountability Project, Center for Native Ecosystems, Californians for Western Wilderness, and Sagebrush Sea Campaign

Comment 12: The Proposed Action and action alternatives are not adequately protective of other multiple uses; lower-impact alternatives are available that increase the compatibility of proposed 3-D seismic exploration with maintaining recreation, wildlife habitat, watershed resources, and wilderness characteristics. The BLM should require one of these lower-impact alternatives for the project.

Response: From 1998 to 2004, there have been six previous seismic surveys partially overlapping and adjacent to the Cherokee West project. Three of these geophysical surveys overlap areas of the Citizens proposed Adobe Town fringe. Past experience with these projects, using a combination of vibroseis and shothole methods, indicates that the proposed action would not create long-term adverse impacts to recreation, wildlife habitat, watershed resources, visual resources, vegetation, and wilderness characteristics with implementation of the site specific Special Terms and Conditions. The Proposed Action

alternative is adequately protective of other multiple uses. The Decision Record for the Cherokee West 3D EA determines that the project would not have significant impact to other multiple use resources.

Comment 13: We fully expect the BLM to require COAs to be applied both to federal lands and to private lands if they are underlain by federal minerals.

Response: See Appendix D, Errata, Page 5.

Comment 14: Is this project slated to commence in 2005 or 2006, and when exactly would operations commence within the appropriate year?

Response: The project is slated to commence in the fall of 2005. If the project is not able to be completed in 2005, the project would be restarted in the summer of 2006 in areas when there would be no further seasonal constraints upon project activities.

Comment 15: The proposed project would impact a broad swath of nesting habitat for ferruginous hawks and other raptors. We are also concerned about potential project impacts to nesting golden eagles, peregrine falcons, and prairie falcons that may nest within the project area. A thorough analysis of nest site locations is needed, and the project should be designed to avoid all lands within two miles of active raptor nests during the nesting season.

Response: This concern is addressed on EA page 45, Section 3.12.3. The nature of the restrictions and the protection radius would vary according to the raptor species involved and would be determined by the BLM.

Comment 16: The one-mile buffers proposed for ferruginous hawks and ½-mile buffers for other raptors appear to be inadequate; BLM must, by law, provide some scientific evidence that this smaller buffer size will effectively prevent major impacts to nesting raptors.

Response: The protective buffer for raptor nests is 0.75 mile. Mitigative measures are developed in consultation with Wyoming Game and Fish Department and the U.S. Fish and Wildlife Service.

Comment 17: All sage grass leks within the project area must be identified and seismic exploration activities must not be undertaken within two miles of a greater sage-grouse lek during the nesting and breeding season. Furthermore, the lek sites themselves should be protected from mechanical damage from off-road driving of thumper trucks or other vehicles at all times. In addition, there is known early brood rearing and presumed nesting habitat in the sagebrush steppes along the western end of the Powder Rim.

Response: Greater sage-grouse leks are mapped within the project area. No operations will be conducted within 0.25 miles of lek sites, and leks will be avoided by two miles between March 1 and June 30 to protect nesting greater sage-grouse, see EA page 46, Section 3.12.3.

Comment 18: Our scoping comments present a photograph of a hen with young chicks, taken T.12N., R.97W., Section 3, NE ¼, within the project area. The presence of hens with pre-fledgling chicks in this area indicates that nesting took place nearby, and also may indicate the presence of an as-yet undiscovered lek in this area. BLM has

identified a single greater sage-grouse lek in its review of records, EA at 43. In addition, greater sage-grouse lek activity may be occurring in the Racetrack Flat vicinity as well as elsewhere on the Colorado side of the state line. Greater sage-grouse leks and primary nesting habitat should be field surveyed for the entire project area, and determinations should be made whether greater sage-grouse in this area are migratory or nonmigratory, which would influence the degree of protection needed for habitats farther than 2-3 miles from the lek site.

Response: The presence of hens with pre-fledgling chicks does not necessarily indicate that nesting took place nearby, or the presence of an as-yet undiscovered lek in this area. Greater sage-grouse are known to migrate from their lek sites. The Racetrack Flat lek is a known and active lek. It, and other known leks, will be protected with the mitigative measures listed in the special terms and conditions developed in cooperation with U.S. Fish and Wildlife Service and the Wyoming Game and Fish Department.

Comment 19: ***In addition, we have concerns that vibroseis traffic through sagebrush may create pathways for predators in greater sage-grouse nesting habitat, increasing predation and reducing nest success (see Comments of Dr. Clait Braun on the Rawlins RMP DEIS, Attachment 1 to our Scoping comments).***

Response: Veritas has committed to spreading out their vehicle traffic to avoid creating permanent tracks, see EA page 76, section 4.12.3.

Comment 20: ***We support BLM's mitigation measures that prevent seismic activity from occurring between November 15 and April 30th, EA at 80. It should be explicitly stated in the Decision that exceptions to seasonal restrictions will not be granted under any circumstances.***

Response: The seasonal big game winter range dates were established in cooperation with the Wyoming Game and Fish Department. The seasonal "restrictions" in the Great Divide RMP are management guidelines, they are not hard and fast rules. The RMP specifies that the Authorized Officer may grant exceptions to seasonal restrictions in consultation with the Wyoming Game and Fish Department (WGFD), if conditions warrant. If operations have not cleared these winter ranges by November 15, operations will be suspended unless conditions warrant a request for and approval of exception to the restriction.

Comment 21 ***The BLM must analyze this project's impacts to migrating ungulates including elk, mule deer, and pronghorns and establish precautionary measures to ensure that the activities associated with the Cherokee West project will not in any way alter or impair the traditional migratory routes of these animals.***

Response: Pronghorn antelope, mule deer, elk, and other terrestrial wildlife species may be temporarily disturbed and/or displaced from immediate areas in which crews are working during the proposed project period. They may move into adjacent suitable habitat; however, impacts would be short term, localized, and negligible, and the animals are expected to return to their original habitat once crews vacate the area, see page 80, 4.15.2.1.

Comment 22: ***The yellow-billed cuckoo is listed as Threatened under the Endangered Species Act. The Powder Rim contains cottonwood riparian woodlands that provide potential nesting habitat for the yellow-billed cuckoo. Riparian vegetation is found along Shell Creek within the project area, and potentially within some of the***

smaller draws along the south face of the Powder Rim. During the nesting season, surveys should be undertaken of the cottonwood woodlands to determine the presence or absence of yellow-billed cuckoo in these riparian woodlands. These surveys should be conducted by a trained ornithologist. In addition, the USFWS should be consulted pursuant to Section 7 of the Endangered Species Act regarding potential impacts of the project on yellow-billed cuckoos. Activities should not be allowed to occur in or near yellow-billed cuckoo habitat during the nesting season.

Response: This concern is addressed on EA page 47, section 3.13.

Comment 23: In our scoping comments, we noted that prairie dog colonies within the project area must be mapped and seismograph lines must be designed to avoid colonies entirely. The Cherokee West EA fails to present the mapped location of prairie dog colonies within the project area, despite the fact that this is common practice for other EAs in the Rawlins Field Office and is required to meet NEPA's baseline data requirements.

Response: The project is located outside of nonblock-cleared areas for black-footed ferret. The USFWS does not require mapping of prairie dog colonies in these areas. Brian T. Kelly of the U.S. Fish and Wildlife Service, Wyoming Field Office, has stated in his Comment 11; "…the Service is not aware of any evidence that indicates that vibroseis seismic activity in prairie dog towns results in negative effects to prairie dogs and/or black-footed ferrets."

Comment 24: Menkens and Anderson (1985) reported that prairie dog colonies subjected to vibroseis-method exploration showed population declines while neighboring colonies experienced population increases. The BLM points out that these researchers concluded that vibroseis had no effect on prairie dogs. This is a correct characterization of the conclusions; we can provide no rational explanation for the complete failure of these researchers to interpret their own data, which showed obvious negative effects in the treatment colony subjected to vibroseis versus the untreated, "control" colonies. In light of this flaw in the study, we assert that the results, not the conclusions, of this study have some scientific merit and deserve to be incorporated into the BLM's analysis of impacts for the Cherokee West project.

Response: See Response to Comment 23.

Comment 25: It is also interesting that Menkens and Anderson extrapolated their apparently specious findings to black-footed ferrets. Neither investigator has any particular expertise in ferrets; on the other hand, Tim Clark (1986) is a ferret expert, and stated, "Two common oil/gas exploratory techniques are vibroseis, which uses large truck-mounted vibrating devices to generate shock waves, and explosive charges, which are detonated on or below the surface. These shock waves may affect prairie dogs and BFFs [black-footed ferrets] by collapsing tunnel systems, causing auditory impairment, disrupting social systems, or other mechanisms."

Response: See Response to Comment 23.

Comment 26: There is no information or analysis in the Menckens and Anderson report which would convince the objective reader that there is any support for the hypothesis that seismic exploration would have no effect on ferrets.

Response: See Response to Comment 23.

Comment 27: ***The BLM has provided no evidence whatsoever that these mitigation measures will prevent burrow collapse or adverse impacts to the survival and/or fitness of burrowing owls and prairie dogs. It is obvious that prairie dog burrow systems run throughout active colonies, and are no vertical shafts limited to the area directly beneath a burrow entrance. It is, therefore, foolish for BLM to allow vibroseis within an active prairie dog colony as long as the vibrator pad is not lowered directly atop a burrow. Similarly, there is no evidence to support the contention that a 100-foot offset from an active prairie dog colony is adequate to prevent significant adverse effects to prairie dogs.***

Response: See Response to Comment 23.

Comment 28: ***The BLM must perform a credible analysis, backed by scientific evidence that investigates the adequacy of proposed mitigation measures, evaluates a range of various measures, and answers the following questions:***

"What proportions of burrows collapse when an 11-pound charge of pentolite is detonated 100 feet from a prairie dog colony at a depth of 60 feet, and what proportion collapse when a 5.5-pound charge is detonated at a depth of 40 feet a similar distance from the colony?"

"How far away from a colony must a charge of 11 pounds at a depth of 60 feet, or a charge of 5.5 pounds at a depth of 40 feet, be detonated to achieve no adverse impacts to prairie dogs and burrowing owls?"

"How far away from an active prairie dog burrow or colony must a buggy vibe be performed to prevent significant adverse impacts to individual prairie dogs or burrowing owls?"

Only after these questions have been answered will the BLM be in position to prescribe appropriate mitigation measures for fossorial wildlife. In the absence of hard information on impacts, the BLM must employ the precautionary principle, designing the project mitigation measures conservatively to ensure that adverse impacts will not occur. Thus far, BLM has failed to do this. We recommend avoidance areas of ¼-mile around active prairie dog colonies for both vibroseis and shot-hole seismic to prevent adverse impacts to prairie dogs and burrowing owls.

Response: Shotholes would be used primarily in areas where vibroseis buggies are prohibited, in areas with slopes greater than 25%. It is not likely that prairie dog colonies exist where slopes are greater than 25%; therefore adverse impacts to prairie dogs and burrowing owls are unlikely to occur.

Comment 29: ***In addition, BLM has the responsibility to conduct a Section 7 consultation under the ESA with the U.S. Fish and Wildlife Service concerning black-footed ferrets.***

Response: We have performed Section 7 consultation with the U.S. Fish and Wildlife Service on all threatened and endangered species in the project area. We have evaluated the affects of this action in this area and the areas' value for survival and recovery of the species through future reintroduction efforts.

Comment 30: ***Where exactly are Wyoming's pocket gopher populations located in the project area? A field survey is needed to determine their distribution, and it should be done as part of the "hard look" the agency should take through the NEPA process for this seismic project.***

Response: A survey is not necessary as the EA recognized that "Temporary displacement of sensitive species from areas where operations are being conducted to adjacent suitable habitat is expected; however, impacts of this nature would be short-term, localized, and negligible," EA page 45, section 3.12.2.1.

Comment 31: ***Veritas should be required to hire a professional field botanist to survey for* Penstemon gibbensii *throughout potentially suitable habitats within the project area, prior to establishing the seismic source and receiver lines. All source and receiver lines should then be routed at least 100 feet away from penstemon populations. This requirement should be clearly elucidated in the final decision document.***

Response: Procedures for surveying for *Penstemon gibbensii* are listed in EA page 40, section 3.10.3. Undocumented sensitive species could potentially be crushed or killed under or in the immediate area of the heliportable drills; however, the likelihood of damage to sensitive species is minimal.

Comment 32: ***The EA did an incomplete job of evaluating the current distribution of BLM Sensitive Species, their distribution throughout the project area, and the impacts of various alternatives on these BLM Sensitive Species. Under BLM Sensitive Species policy, Field Office Managers have the responsibility to undertake a number of actions, including "[c]onducting and maintaining current inventories of special status species on public lands, " BLM Manual 6840.04F(1). Data on BLM Sensitive Species distribution throughout the project area should be available through the Wyoming Natural Diversity Database (WYNDD) and the Colorado Natural History Program (CNHP). These data should have been included in the forthcoming EA as part of the baseline information that is the necessary prerequisite for the "hard look" required by NEPA.***

Response: BLM uses the best available data and applies stipulations to protect sensitive species. Mitigative measures are developed in consultation with Colorado Department of Wildlife, Wyoming Game and Fish Department, and the U.S. Fish and Wildlife Service.

Comment 33: ***It is, therefore, necessary for the BLM and USFWS to undertake a biological assessment, and this assessment should be included as an appendix to the forthcoming EA or EIS.***

Response: Consultation with the U.S. Fish and Wildlife Service has been completed.

Comment 34: ***Of the species we mentioned in our scoping comments as meriting special attention in the EA, the following were completely omitted. : The BLM should evaluate the project area for the presence of additional sensitive species such as the dwarf shrew, pygmy shrew, Ord's kangaroo rat, Great Basin pocket mouse, pygmy rabbit, ringtail, Preble's shrew, and grey wolf. According to data from the Wyoming Natural Diversity Database, the ringtail has been recorded in the Baggs area, and the WGFD noted a high-probability wolf sighting about five miles north of Baggs last year. In addition, the Preble's shrew is quite rare in Wyoming (two***

occurrences statewide) and is an obligate inhabitant of sagebrush desert, which is present in the project area.

Response: See response to Comment 30.

Comment 35: Sagebrush habitats are sensitive to fragmentation, which has a detrimental effect on many sagebrush obligate species. Thus, if this project is allowed to go forward, it should do so in a way that ensures that linear destruction of sagebrush will not occur. In addition, rare plant species and/or associations should be mapped, and these should be protected from any disturbance whatsoever.

Response: Veritas has committed to spreading out their vehicle traffic to avoid creating permanent tracks, EA page 76, section 4.12.3. Vehicle impacts to grasses and forbs are anticipated over the same surfaces as the brush impacts (with the affected area constituting a little over one percent of the overall project area). Impacts to these species, however, would be very short-term in effect, as grasses and forbs are not likely to be killed by vehicle traffic, and would re-sprout from their established root systems in the spring, EA page 75, section 4.12.2.1. See also the response to comment 32.

Comment 36: The use of this type of heavy machinery would cause major impacts to the juniper woodlands and riparian woodlands of the Powder Rim, an unacceptably extreme level of impact. This must not be allowed to be repeated along the Powder Rim, and vibroseis and shothole buggies must be excluded from wooded areas under this project.

Response: These areas are protected under the Special Terms and Conditions. See EA page 76, section 4.12.3.

Comment 37: We are particularly concerned with the soil compaction and destruction of biological soil crusts inherent to off-road driving, particularly in 31-ton vehicles. On a landscape scale, this will result in widespread scarring that will take decades if not centuries to heal. In addition, fragile soils and steep slopes prone to erosion must be avoided by off-road vehicles of all kinds. The BLM failed to include any discussion of biological soil crusts in its EA, a failure that violates NEPA's Hard look standard.

Response: See Appendix D, Errata, Pages 71, 72, and 87.

Comment 38: BCA specifically requested in our Scoping comments that the BLM use GIS technology to map which lands within the project area are visible from the Adobe Town Rim. Impacts to visual resources would impact the wilderness experience of visitors within the WSA and neighboring lands of wilderness quality, rendering such a viewshed analysis mandatory in order to satisfy NEPA's Hard look requirement. And yet the EA lacks such an analysis, EA at 76-77.

Response: See Response to Comment 12.

Comment 39: The BLM must fully evaluate the difference in vehicle weights and tire-loading pressures between vibroseis buggies and buggy-mounted drills, the number of vehicles required to complete the source lines, and the resulting visual impacts that result from these two types of seismic.

Response: See Response to Comment 38.

Comment 40: ***The BLM once again has the responsibility to analyze the creation of Wilderness Study Areas under the Great Divide RMP revision, and thus areas like the Adobe Town citizens' proposed expansions and Kinney Rim South unit must be given stronger protection consistent with BLM's Interim Management Policy for WSAs.***

Response: Analyzing the creation of Wilderness Study Areas is outside the scope of this EA. Protection measures are adequate, as past experience indicates that the proposed action would not create long-term adverse impacts to the area's natural character with implementation of the site-specific Special Terms and Conditions. See Response to Comment 12.

Comment 41: ***In its EA, BLM analyzes the impacts of the Proposed Action and Alternative 2 on Wilderness Study Area lands, but while the fringe areas are noted for their wilderness qualities, the BLM has made no effort to forecast the effects of the various alternatives on the wilderness qualities of these lands. EA at 54-55. This deficiency in analysis must be remedied in order to meet NEPA's "Hard look" requirements.***

Response: See Response to Comment 12.

Comment 42: ***It is notable that BCA conducted a much more thorough and in-depth inventory of this unit by personnel with wilderness credentials that cannot be matched by any Wyoming BLM personnel, and determined that this area does indeed possess wilderness characteristics.***

Response: Thank you for your comment.

Comment 43: ***In fact, BLM's determination that the Kinney Rim South Unit lacks wilderness qualities is arbitrary and capricious and an abuse of discretion. In its Inventory Area Evaluation of September 27, 2002, the BLM claimed that this unit possessed the requisite size, but lacked naturalness and opportunities for solitude or outstanding primitive and unconfined recreation. As BCA's Citizens' Wilderness Inventory of the Kinney Rim South Unit has clearly shown, this area, as defined by BCA, lacks gas wells (which were excluded by BCA from the unit), a primary argument by BLM used to discount the area's naturalness. We incorporate this citizens' inventory, as well as BLM's statewide wilderness EIS for Wyoming, into these comments by reference. Assorted livestock reservoirs scattered around the unit no more detract from the area's naturalness than do similar reservoirs scattered throughout existing Wilderness Study Areas. There are a number of two-track trails scattered throughout the unit, which do not detract significantly from the naturalness of the area, just as the BLM has seen fit to include similar two-tracks in previously established Wilderness Study Areas. In fact, in the Cherokee West EA, BLM itself admits that,"Unmodified, natural scenes are common in the area, with human modifications including gas wells, bladed and two-track roads, power lines, water impoundments, fences, and grazing cattle and sheep comprising relatively minor components of the overall project landscape," EA at 76. It is important to note that the Kinney Rim South Unit is devoid of bladed vehicle routes, powerlines, and gas wells, while other intrusions are sparsely scattered across the landscape.***

Response: Conversion of the Kinney Rim South Unit into WSA is outside the scope of this EA.

Comment 44: ***In terms of solitude, the vast extent of the area (over 125,000 acres) without improved roads means that solitude is found in abundance throughout the unit. A large number of visitors could be absorbed by this vast expanse of empty country, and each would still have outstanding opportunities for solitude. Thus, BLM's conclusion that the Kinney Rim South unit lacks wilderness qualities is demonstrably flawed.***

Response: See Response to Comment 43.

Comment 45: ***The project should provide for a moratorium on off-road vehicle travel near sites eligible for the National Register; such stipulations could mitigate adverse effects. Therefore, a thorough review of the impacts on historic and cultural resources must be done prior to approval of the project. Motor vehicle use could result in permanent damage to eligible sites.***

Response: This concern is addressed in Section 3.3 of the EA. To meet its responsibilities under Section 106 of the National Historic Preservation Act, the BLM required a Class III (100% pedestrian) cultural resource inventory during the project design and surveying to determine if any cultural resources would be potentially affected by the proposed project. All cultural resources located within the area of potential effect were systematically recorded and the project was redesigned to avoid all impacts to the cultural resources encountered, as discussed in Section 3.3.3 of the EA.

Comment 46: ***In the instant case, the implementation of the Cherokee West project, without even the consideration of alternative plans of development that would avoid archaeological or historical sites, would foreclose future alternatives to preserve archaeological and cultural sites and their settings.***

Response: See Response to Comment 45.

Comment 47: ***The BLM had yet to initiate formal consultation with SHPO concerning impacts to the 70 sites in the project area that are within Wyoming and are eligible for the NRHP. BLM's failure to initiate consultation on these known sites in a timely fashion violates both NEPA and the NHPA.***

Response: Consultation with the SHPO occurred per the terms of the Wyoming State Protocol Agreement.

Comment 48: ***Because of the known presence of cultural resources on these lands, BLM must conduct a Section 106 review as part of the NEPA process. Allowing this project to proceed without first conducting Section 106 review forecloses BLM's ability to preserve cultural and historic values in violation of the mandates of the NHPA.***

Response: See Response to Comment 45.

Comment 49: ***The proposed action must adequately protect identified cultural and historic properties, and traditional religious and cultural properties.***

Response: This concern is addressed in the EA, see page 25, section 3.3.3; and page 35, section 3.8.3.

Comment 50: ***The Cherokee West project could unquestionably have an adverse effect on historic properties present in the project area. Federal regulation provides,***

"An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association."

Response: With the implementation of the spread out vehicle pattern (see Visual Resources, section 4.9), the saturated soil operations prohibition (see Soils, section 4.6), and the standard cultural resource procedures prescribed below (pursuant to the Wyoming BLM-SHPO and Colorado BLM-SHPO State Protocols regarding implementation of the NHPA Sec. 106 and BLM 8100 series manuals), no effect to significant cultural resources is anticipated. All cultural resources will be avoided by seismic project activities on source and receiver lines, staging areas, and heliportable activities, EA page 24, section 3.3.2.

Comment 51: ***The Cherokee West NEPA process needed to include a full and complete consultation with applicable tribes (including Shoshone, Bannock, Arapaho, Ute, Comanche, Crow, Cheyenne, and Sioux) to identify respected sites and Traditional Cultural Properties and to provide mitigation measures which occur the maximum level of protection for these areas. And while it is laudable that the BLM provided on-site consultation with representatives from the Mountain Ute nation, it is absolutely unacceptable that the BLM never even had a telephone conversation with any of the Wyoming tribes concerning TCPs, see EA at 35. This failure to consult actively with <u>all</u> of the interested tribes violates federal law and regulation.***

Response: The BLM consulted with the appropriate tribes as discussed in Section 3.8 of the EA. As a result of the efforts to contact the tribes regarding this project, representatives from the Ute Tribe expressed an interest in visiting the project area to help establish appropriate avoidance measures for sites near the area of potential effect.

Comment 52: ***The setting of the Cherokee Trail is vital to its inclusion in the National Historic Trail System, and must absolutely be protected from scarring as a result of off-road vehicle travel by vibroseis buggies, buggy-mounted drills, or other substantial vehicles. The EA is silent on whether buggy-supported shot-hole units would be allowed within ¼-mile. What mitigation measures will apply to buggy-mounted drills vis-á-vis the Cherokee Trail? These vehicles, and <u>all</u> off-road vehicle traffic, must be precluded as a mitigation measure for the Cherokee Trail under this project.***

Response: See Responses to Comments 45 and 50, and Appendix D, Errata, Page 27

Comment 53: ***Potential impacts to artifacts associated with the Outlaw Trail should certainly be analyzed for this project. And yet the Outlaw Trail and the Cassidy cabin site received no analysis in the Cherokee West EA, in violation of hard look requirements of NEPA.***

Response: See Response to comment 45. Additionally, the protection of structures is addressed in the EA on page 65, 4.6.3

Comment 54: ***The BLM surveys of this area have been haphazard, and data is incomplete; a new and complete survey is needed prior to the issuance of an EA (DeMarcay, pers. comm.). There is no evidence in the EA that this necessary survey has been accomplished. DeMaracay has recommended that all seismic activities avoid this***

site by a minimum of ¼ mile. This level of protection should also be extended to other significant archaeological sites in the project area.

Response: New cultural surveys are required prior to the approval of the project, EA page 25, 3.3.3. BLM Manual Handbook, H-3150-1, Oil and Gas Geophysical Operations, identifies standard distances for shot holes from standing structures and rock art. We contacted Gary DeMarcay regarding the ¼-mile avoidance of other significant archeological sites in the project. He does not agree with BCA's statement. *(DeMarcay, pers. comm.).*

Comment 55: These resources could be easily damaged by being run over by a vibroseis buggy or a buggy-mounted drill, or by underground shots used as source points. For this reason, all proposed source and receiver lines for which vehicle travel will be allowed must be completely surveyed and cleared in advance for archaeological and cultural resources, and significant sites must be allowed to be fully excavated and cataloged before the vehicles can be allowed to roll.

Response: See Response to Comment 50. New cultural surveys are required prior to the approval of the project, EA page 25, 3.3.3.

Comment 56: According to the BLM, "The land manager's concern for paleontological resources should focus on Class 5 acres," Table 3-8, id. We have seen no indication in the Cherokee West EA that the land manager has focused any particular attention on these high-value fossil resources.

Response: Due to the lack of disturbance of bedrock that may contain significant fossils, and the extremely low possibility of contacting a significant fossil during activities, a detailed analysis of the geology and a survey for paleontological resources for this project is determined to be unnecessary. The current mitigation measures incorporated in the document provide adequate protection. The standard paleontological stipulation, soils requirements to protect steep slopes, and the level of activity proposed result in minimal probability of impacts to fossil resources.

Comment 57: Indeed, the EA places paleontological resources under the heading of "Non-Critical Resources.

Response: The commenter misunderstands the use of the term Non-Critical Resources in the EA. Critical elements to the human environment are subject to requirements specified in statute, regulation, or executive order, BLM NEPA Handbook H-1790-1, page 20.

Comment 58: The BLM must map outcroppings of the Wasatch and Washakie formations in its NEPA document and fully analyze the impacts of various alternatives on fossil resources contained therein. The agency should conduct full-scale surveys along proposed source and receiver lines prior to issuing an EA or EIS. This mitigation measure is completely necessary to prevent significant impacts to paleontological resources. Paleontologists, not archaeologists, should conduct these surveys as archaeologists possess a different skill set that will not necessarily notice, identify, and properly evaluate paleontological resources. The results of these surveys will then provide the necessary baseline information for BLM to make a reasoned assessment of impact levels under the various alternatives of the Cherokee West project.

Response: See Response to Comment 56.

Comment 59: ***It is imperative that seismic exploration projects such as the Cherokee West project do nothing to impair or reduce the flow of springs. The EA should have mapped the near-surface groundwater flows that could potentially be impacted by vibroseis and/or shot-hole seismic, provide an in-depth analysis of potential impacts, and require mitigation measures that guarantee that aquifer and spring flows will not be disrupted by this project. This has not been done.***

Response: We impose restrictions on geophysical operations on BLM-administered lands that prohibit seismic shot-holes and vibroseis operations within 300 feet of water wells and springs. This distance exceeds the distance recommended in BLM Handbook H-3150-1, Onshore Oil and Gas Geophysical Exploration Surface Management Requirements, to prevent damage to surface resources caused by vibration from energy sources.

Comment 60: ***The BLM has provided a 500-foot offset from surface waters, which presumably includes springs, see EA at 29. In the case of subsurface explosives use, the agency has not provided any conclusive evidence that this mitigation measure will in fact be sufficient to prevent the disruption of groundwater flows as well as surface flows of springs in the project area. After reviewing BLM's analysis, we continue to have substantial concerns that major impacts will occur to groundwater resources and spring flows in the project area.***

Response: See Response to Comment 59.

Comment 61: ***The proposed project area lies astraddle the Adobe–Vermillion Core Area and the Powder Rim Linkage, which are integral parts of the Heart of the West Conservation Plan. The BLM should spare no effort in ensuring that core and corridor areas under this plan receive the maximum protection from degradation under the Cherokee West project.***

Response: Implementing or constraining geophysical activities to conform to the Heart of the West Conservation Plan is not consistent with the Great Divide RMP

Comment 62: ***The Cherokee West project will use a mixture of vibroseis and shot-hole methods for generating source points. Veritas has represented in the past that shot-hole and vibroseis methods produce data that is mutually incompatible. Please clarify the compatibility of shot-hole and vibroseis-generated data for the conducting 3D geophysical exploration in subsequent NEPA documents.***

Response: Vibroseis and shot hole energy sources are compatible with each other. The mixture of the two methods for generating source points is a very common practice on seismic projects in the Rockies."

Comment 63: ***In the instant case, the project would occur across 279 square miles, a vast expanse of public land, DR at 1. "Intensity" addresses the severity of the impacts, Id. § 1508.27(b). In this case, phalanxes of heavy equipment potentially weighing 62,000 pounds apiece would be drive across the project area in a grid pattern. Scars from this type of impact last for years, as sagebrush is killed and the tracks of the vehicles remain as a visual impact.***

Response: Factually, the project area consists of approximately 135.6 square miles, EA page 2, section 1.2. See also the Response to Comment 12.

Comment 64: ***In this case, the Cherokee West project is likely to result in significant impacts to a number of resources. On the Wyoming side alone, there are 70 sites that are eligible for the National Register of Historic Places, EA at 24. As noted elsewhere in these comments, the setting of these sites may contribute toward their eligibility for NRHP listing. This is particularly true for rock art sites, the Cherokee and Outlaw Trails, and the cabin site used by Butch Cassidy and his Powder Wash Gang. The BLM has itself recognized that:***

"Direct impacts could occur from vehicle traffic through sites during geophysical field operations, creating two-tracks, surface soil displacement and/or soil compaction, and rutting in wet weather. The new trails themselves, a direct impact, could affect the setting of sites for which setting is a component of site significance," EA at 24.

Response: Continuing reading on EA page 24, "With the implementation of the spread out vehicle pattern (see visual resources section 4.9), the saturated soil operations prohibition (see soils section 4.6), and the standard cultural resource procedures prescribed below (pursuant to the Wyoming BLM-SHPO and Colorado BLM-SHPO State Protocols regarding implementation of the NHPA Sec. 106 and BLM 8100 series manuals), no effect to significant cultural resources is anticipated. All cultural resources will be avoided by seismic project activities on source and receiver lines, staging areas, and heliportable activities." See also the Responses to Comments 12, 45, and 50.

Comment 65: ***Direct impacts could occur from vehicle traffic through sites during geophysical field operations, creating two-tracks, surface soil displacement and/or soil compaction, and rutting in wet weather. The new trails themselves, a direct impact, could affect the setting of sites for which setting is a component of site significance.***

Response: See Response to Comment 64.

Comment 66: ***EA at 24, and yet the BLM anticipates "no significant effect on cultural resources" based on avoidance of known sites, Id. This conclusion directly contradicts the agency's own analysis. Avoidance of known sites would be "a 32.8 meter (100 foot) or more buffer zone around all eligible or evaluated sites," EA at 26. The BLM provides guarantees or standards that require these avoidance routes to remain outside the line-of-site from sites eligible for the NRHP only for the Cherokee Trail, Id at 27. Other sites, including rock art sites, receive no similar protection; the BLM merely offers a 300-foot buffer for rock art sites (1/4-mile buffer for explosives use) with no guarantee or standard that requires impacts to be moved outside the setting of these sites. EA at 35.***

Response: See Response to Comment 65.

Comment 67: ***We have substantial concerns that this project will also lead to significant impacts to paleontological resources. BLM itself states, "If any such fossils are located here, activities could damage the fossils and the information that could have been gained from them would be lost. The significance of the impact would depend upon the significance of the fossil," EA at 62. And while the BLM points out that damage could be mitigated if (and only if) the fossil was correctly identified and reported by the operator, thereby triggering a dig, it is far more likely that important fossils would go unnoticed or unrecognized by seismic crews, and would be crushed, displaced, or otherwise damaged or destroyed. As noted in our***

scoping comments, Dr. Jason Lillegraven asserted that even a trained archaeologist lacks the skills and knowledge needed to recognize fossil sites. If this is the case, then a seismic crew with zero training in recognizing fossils has little, if any, chance in recognizing an important fossil site in time to prevent significant impacts. Thus, after reviewing the EA, we have substantial concerns that this project will result in significant impacts to important paleontological sites.

Response: There are no known fossil sites within the project area. In the unlikely event that the proponent wanted to change their operations to include activities such as road construction or ground excavation of any type, a field survey would be required prior to surface disturbance. Appropriate measures would be taken at that time to protect the resource. Thus, there will be no impact to paleontological resources.

Comment 68: ***In addition, the BLM has noted major impacts to woody vegetation: "It has been observed on previous geophysical projects using the spread-out vehicle pattern that the woody brush plants are sometimes severely affected, but that the more herbaceous and resilient grasses and forbs continue to survive and vegetate the vehicle paths," EA at 75. This significant impact to woody plants translates directly into significant impacts to visual resources, because even where herbaceous vegetation recovers in the wheel tracks, the scars left behind are a significant visual intrusion on the landscape. The BLM claims that "visual scarring is anticipated to be minimal" using the offset pattern of virboseis tracks, EA at 77. However, similar projects in the Upper Green River Valley utilizing identical offsetting of vibroseis truck paths have resulted in highly visible scars that last for untold years. The BLM's conclusion that visual scarring will be minimal is not only completely unsupported by any evidence, but it is directly contradicted by a wealth of evidence presented by BCA in the photographs presented in our scoping comments.***

Response: Protection measures are adequate, as past experience indicates that the proposed action would not create long-term adverse impacts to the visual resources with implementation of the site specific Special Terms and Conditions. See response to Comment 12.

Comment 69: ***The BLM also indirectly notes the strong potential for scarring from vibroseis in stating for Alternative 2, "There would be no off-road vehicle traffic in the fringe areas; therefore, there would be no potential for creating visual scars on the landscape in these areas as a result of the passage of equipment," EA at 77. We concur with this statement, and also its inverse: In areas where off-road vehicle traffic will be permitted, there is significant potential for creating visual scars as a result of the passage of equipment. It can, therefore, be shown by BLM's own logic that scarring of land, particularly in the areas characterized by sagebrush and desert shrub habitats that dominate the project area, that significant impacts to visual resources are likely as a result of this project.***

Response: See Response to Comment 68.

Comment 70: ***It is also unclear from proposed mitigation measures whether vibroseis buggies will be allowed to overrun and crush juniper trees. Is the BLM willing to guarantee that Veritas will not run over junipers? Is the agency at least willing to forbid Veritas from driving over trees, and provide some monitoring to ensure compliance? If not, then significant impacts to juniper woodlands are guaranteed.***

Response: Mitigation is addressed on EA page 76, section 4.12.3. Compliance is addressed in Appendix A, Special Terms and Conditions.

Comment 71: ***In this case, the Cherokee West project would create potentially major impacts to lands which are undeveloped, roadless under BLM definitions, and of wilderness quality (i.e., the Adobe Town Fringe and Kinney Rim South unit).***

Response: See Responses to Comments 12 and 68.

Comment 72: ***Thus, the BLM is obligated to take a "hard look" at the impact of the various alternatives to the proposed projects upon all of the resources of concern outlined above. And yet, throughout the EA, the BLM has failed to take the requisite "hard look" at impacts to various resources, lands, and multiple uses, as noted in the foregoing sections.***

Response: BLM did take a "hard look" at the impact of the various alternatives to the proposed projects upon all of the resources of concern outlined above. The Decision Record for the Cherokee West 3D EA determines that the project would not have significant impact to these resources.

Comment 73: ***As BCA noted in it scoping comments, this project overlaps the Desolation Flats Natural Gas project as well as existing drilling activities in the Washakie Basin, Powder Rim, and Powder Wash areas, the cumulative effects of these activities must be studied together. Such impacts are often multiplicative rather than additive. In addition, because elk from the Baggs herd migrate out to the Powder Rim, the impacts of other projects that impact the Baggs Elk Herd (e.g., South Baggs Natural Gas Project, Atlantic Rim CBM Project) must be considered together with the Cherokee West project. Cumulative impacts of the project on wildlife, water quality (particularly waters which contribute to the Upper Colorado Rivers system, home to 4 species of endangered fishes–Colorado pikeminnow, razorback sucker, humpback chub, and bonytail), air quality, visual resources, and wilderness resources, should have been fully studied. Instead of providing such a cumulative impacts analysis, the BLM has presented in the Cherokee West EA a pathetic recounting of recent overlapping seismic projects only. Impacts caused by permitted activities in this area are not limited to previous seismic projects; the impacts of this project to wildlife, for example, will be cumulative with the impacts of drilling and production for natural gas and oil projects within the project area. This is particularly true for the Baggs and Petition elk herds, Powder Rim mule deer population, and prairie dog colonies already being negatively impacted by drilling operations in the Powder Wash field. It is also true that the long-term visual impacts left behind by scarring from the passage of vibroseis buggies over shrub-dominated terrain will be cumulative with other human-caused visual intrusions, such as roads, well sites, and pipeline corridors. These cumulative impacts cannot be ignored by BLM and must, by law, be studied and disclosed in the NEPA document.***

Response: The low, short-term impacts generated by the Proposed Action would add little to cumulative impacts from larger and more permanent developments such as existing roads, gas wells, and pipelines in the project area. See EA page 84, section 5.0 and responses to Comments 11 and 12.

Comment 74: ***In addition, we have been notified that the Little Snake Field Office is in the process of permitting a similar geophysical project in adjacent lands in Colorado.***

What are the status, nature, and location of this project? Will it impact resources and wildlife populations affected by the Cherokee West project? If these projects are indeed connected, then BLM should combine them into a single EIS. Segmentation of connected action is illegal under NEPA. At minimum, BLM is responsible for analyzing the cumulative effects of these two projects on regional wildlife populations, a duty which it has failed to perform in the Cherokee West EA.

Response: The Cherokee West 3D EA does not consider projects that are not connected to the Cherokee West project. The proposal in the Little Snake Filed Office was designed for a different producing company with different timing, to collect inventory data from unconnected and unrelated subsurface plays.

Comment 75: The BLM, pursuant to FLPMA, must manage public lands in a manner that does not cause either "undue" or "unnecessary" degradation, 43 U.S.C. § 1732(b). The regulations interpreting this part of FLPMA define "unnecessary and undue degradation" as "impacts greater than those that would normally be expected from an activity being accomplished in compliance with current standards and regulations and based on sound practices, including the use of the best reasonably available technology," 43 C.F.R. § 3802.0-5(l). The vibroseis method of geophysical exploration, which is a primary component of the Cherokee West project, inherently results in unnecessary and undue degradation to public lands and resources. Buggy-supported vibroseis vehicles weigh approximately 60,000 pounds with a tire loading pressure of 10-14 PSI, while buggy drills weigh approximately 18,000 pounds with a tire loading pressure of 4-5 PSI. EA at 14. Thus, for each wheel track, the intensity of impacts would be three times greater for vibroseis versus buggy-supported shot-hole methods. In addition, only a single buggy drill need to be driven over a source line, while four different vibroseis buggies need to be driven over each source line, Id. Thus, the areal extent of impacts on each source line would be four times as great for vibroseis versus shot-hole methods. But the real proof is in the on-the-ground impacts: While the tracks of buggy-mounted drills in the nearby Veritas Haystacks Project area (circa 2002) are hard to detect, the scars left behind by vibroseis seismic in the Upper Green River Valley more than 5 years ago are still readily visible and obvious to the untrained observer today.

Response: See Response to Comment 12.

Comment 76: Shot-hole methods of geophysical exploration have been used for decades in the Red Desert, and these methods produce seismic data of comparable quality to vibroseis with a much lesser amount of environmental impact. Because shot-hole seismic is the traditional method in the Red Desert, because it can fulfill the purpose and need of providing 3D geophysical exploration equally well as vibroseis, and because it has a much lower environmental impact, the greater environmental impacts of vibroseis perforce constitute unnecessary and undue degradation of public lands and resources under FLPMA. Put simply, the failure of BLM to require types of seismic exploration–especially when equally feasible–means that the agency is proposing to allow this project to go forward with unnecessary impacts to public lands, in violation of FLPMA.

Response: See response to Comment 12.

Comment 77: It is important to note here that vibroseis may be cheaper and/or faster than shot-hole methods; this potentiality, if true, would be immaterial to the BLM's obligation not to allow unnecessary and undue degradation to lands and resources. FLPMA

provides important illumination in the role of economics in the grand scheme of multiple use management:

"The term "multiple use" means the management of the public lands and their various resource values so that they are utilized in the combination that will best meet the present and future needs of the American people; making the most judicious use of the land for some or all of these resources or related services over areas large enough to provide sufficient latitude for periodic adjustments in use to conform to changing needs and conditions; the use of some of the land for less than all of the resources; a combination of balanced and diverse resource uses that takes into account the long-term needs of future generations for renewable and non-renewable resources, including, but not limited to, recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values; and harmonious and coordinated management of the various resources without permanent impairment of the productivity of the land and the quality of the environment with consideration being given to the relative values of the resources and not necessarily to the combination of uses that will give the greatest economic output or the greatest unit output," 43 C.F.R. § 1702(c), emphasis added. Thus, the BLM's multiple-use mandate also constrains the agency to select a lower-impact alternative than vibroseis.

Response: Past experience with geophysical projects using a combination of vibroseis and shothole methods indicates that the proposed action would not create long-term adverse impacts to the multiple use management of recreation, range, timber, minerals, watershed, wildlife and fish, and natural scenic, scientific and historical values. The Decision Record for the Cherokee West 3D EA determines that the project would not have significant impact.

Comment 78: ***A key requirement of NEPA is that an agency analyze and consider a range of reasonable alternatives to any action it is proposing, 42 U.S.C. § 4332(2)(E); 40 C.F.R. §§ 1501.2(c), 1502.14, 1508.9(b); Ohio Forestry Ass'n, Inc. v. Sierra Club, 523 U.S. 726, 730 (1998); Davis v. Mineta, 2002 WL 1401690, 10 (10th Cir. 2002); Sierra Club v. Dombeck, 161 F. Supp. 2d 1052, 1067-68 (D. Ariz. 2001). The alternatives section "is the heart of the environmental impact statement," 40 C.F.R. § 1502.14(a). Federal agencies must "rigorously explore and objectively evaluate all reasonable alternatives, and for alternatives which were eliminated from detailed study, briefly discuss the reasons for their having been eliminated," Id. The existence of "[a] 'viable but unexamined alternative renders [an] environmental impact statement inadequate,'" Muckleshoot Indian Tribe v. U.S. Forest Service, 177 F.3d 800, 814 (9th Cir. 1999). This requirement is separate and independent from the requirement for an environmental impact statement, and also applies in cases where only an environmental assessment is required, 40 C.F.R. § 1508.9(b); Davis, 2002 WL 1401690 at 10.***

Response: We considered in detail an alternative for no off-road vehicle use in the Adobe Town fringe areas, EA page 16, section 2.2. Additional alternatives considered but eliminated from detailed analysis include: exploratory drilling, utilize helicopter operations for the entire project, utilize buggy drilling for the entire project, and use passive seismic for survey, EA pages 17-20, section 2.4. Also considered was a no action alternative. The EA recognized that consideration of the no action alternative could lead to proposals for wildcat wells. Without the 3D data, lessees are more likely to drill "dry holes;" resulting in greater environmental impact than if they had the 3D data, EA pages 85-86, section 9.0.

Comment 79: ***NEPA requires the BLM to "study, develop, and describe appropriate alternatives to recommended courses of action in any proposal which involves unresolved conflicts concerning alternate uses of available resources." 42 U.S.C. § 4332(E). "The alternatives analysis is characterized as 'the heart' of the environmental impact statement." Colorado Envtl. Coalition v. Dombeck ("CEC"), 185 F.3d 1162, 1175 (10th Cir. 1999) (citing 40 C.F.R. §1502.14). Courts have found, "in examining alternatives to the proposed action, an agency's consideration of environmental concerns must be more than a pro forma ritual. Considering environmental costs means seriously considering alternative actions to avoid them," Southern Utah Wilderness Alliance v. Norton, 237 F. Supp. 2d 48, 55 (D.D.C. 2002) [citing Calvert Cliffs' Coordinating Comm., Inc. v. U.S. Atomic Energy Comm., 449 F.2d 1109, 1128 (D.C.Cir.1971)]. Though NEPA does not specify the number of alternatives that the BLM must consider, a "rule of reason" analysis applies to determine whether the range of alternatives BLM fully considered permitted it to arrive at a reasoned choice, and if that range of alternatives fostered informed agency decision-making and public participation, see id. at 1174.***

Response: See Response to Comment 78.

Comment 80: ***The Tenth Circuit recently examined NEPA's alternatives requirement and agreed with the Seventh Circuit and other courts that "have interpreted NEPA to preclude agencies from defining the objectives of their actions in terms so unreasonably narrow that they can be accomplished by only one alternative (i.e., the applicant's proposed project)," Id. at 1174 [citing Simmons v. United States Corps. of Eng'rs, 120 F.3d 664, 669 (7th Cir. 1997)]. At the same time, an agency may not completely ignore an applicant's objectives, see id. at 1174-75. When reconciled, these directives "instruct agencies to take responsibility for defining the objectives of an action and then provide legitimate consideration to alternatives that fall between the obvious extremes," Id. at 1175. See All Indian Pueblo Council v. United States, 975 F.2d 1437, 1444 (10th Cir. 1992) (thorough discussion of alternatives is "imperative"); see also Biodiversity Assoc., IBLA 2001-166, at 6-7 (2001) (rejecting BLM EA that failed to consider alternatives between extremes because record was insufficient to review BLM's rationale). In sum, "An agency is obligated to take the needs and goals of the project applicant in mind when considering alternatives…but that obligation does not limit the scope of the agency's analysis to what the applicant says it needs," Southern Utah Wilderness Alliance v. Norton 237 F. Supp. 2d 48, 55 (D.D.C., 2002).***

Response: See Response to Comment 78.

Comment 81: ***The purpose of NEPA is to "promote efforts which will prevent or eliminate damage to the environment," 42 U.S.C. § 4331, emphasis added. Both hand-laid receiver lines and helicopter supported shot-hole drilling, as well as passive seismic, fall under the category of alternatives that may prevent or eliminate damage to the environment, while in no case does vibroseis fall into this category. Advances in shot-hole technology now allow 3-D seismic exploration to be conducted even in cities (Hansen 1993). Hansen later pointed out that exploration companies have a high degree of flexibility in locating shot points, increasing their ability to reduce impacts with this method (Hansen 1996).***

Response: Helicopter use and hand laying of geophone lines in the Adobe Town WSA is part of the proposed action, EA page 12, section 2.1. Shot hole methods are part of the proposed action due to rough or steep terrain, in order to minimize and or avoid negative impacts to