

**U.S. Department of the Interior
Bureau of Land Management
White River Field Office
73544 Hwy 64
Meeker, CO 81641**

ENVIRONMENTAL ASSESSMENT

NUMBER: CO-110-2005-092-EA

CASEFILE/PROJECT NUMBER (optional): COC 068670

PROJECT NAME: Ryan Gulch 2D seismic

LEGAL DESCRIPTION: Sixth Principal Meridian,
T.1N., R.97W., sec. 31,
T.1S., R.96W., secs. 4, 7, 8, 9, 10, 15, 16, 17, 18,
19, 20, 22, 27, 28, 32, 33
T. 1S., R.97W., secs. 6,13,17,18,19,21,22,23,24,25,
26, 27, 28, 29, 30, 31, 32, 33, 34, 35
T.1S., R.98W., secs. 1, 2, 3, 9, 10, 13, 14, 15, 16, 17, 18, 19, 20,
21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34
35, 36,
T.1S., R.99W., secs. 12, 13, 23, 24, 26, 35, 36
T.2S., R.96W., secs. 5, 6
T.2S., R.97W., secs. 3, 4, 5, 6, 7, 8, 11, 12, 14, 15, 18, 19, 20,
21, 22, 29, 30, 31, 32
T.2S., R.98W., secs. All
T.2S., R.99W., secs. 1, 11, 12, 13, 14, 23, 24, 25, 26, 35, 36
T.3S., R.97W., secs. 5, 6, 7, 18
T.3S., R.98W., secs. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 13, 14, 15,
16, 17, 18, 19, 20, 22, 24, 25, 27, 29, 30, 31,
33, 34, 35, 36
T.3S., R.99W., secs. 1, 12, 13, 25, 36
T.4S., R.98W., secs. 2, 4, 9, 10, 11, 14

APPLICANT: Dawson Geophysical for Williams Production Co.

ISSUES AND CONCERNS (optional): Archeology, Threatened, Endangered and Sensitive (TES) plants, Areas of Critical Environmental Concern (ACEC's). This EA is based on a partial survey of the whole project area. The portions identified that have been surveyed are lines #1 to where it intersects line # 14, line #3 where it intersects line# 5, line#2, 4, 6, 8, 10, 12, line14 up to Ryan Gulch ACEC. The remaining lines have been mapped however, a survey must be submitted to show exact alignment on the ground and the method that will be used for data collection as well as all planned access routes. When the remaining survey is submitted, if

substantial deviations exist or if issues and concerns arise then the EA shall be supplemented and additional inventories may be required.

DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES:

Background/Introduction: The general layout of operations is:

- Determine the type of survey method to yield desired information
- Obtain necessary permission and permits
- Survey the line, set recorders/shot points
- Drill and load shot holes
- Layout the jug lines
- Set up the source points and record the data
- Pick up all lines, flagging and trash
- Inspect and reclaim if necessary
- File Notice of Completions

Proposed Action: Dawson Geophysical, proposes to conduct an exploratory, two-dimensional (2D), geophysical seismic survey of the Ryan Gulch 2D Seismic Survey project area on behalf of Williams Production RMT Company. The proposed project area is approximately 180 linear miles in size and occupies portions of townships T1, 2, 3 and 4S: R96, 97, 98, and 99W of Rio Blanco County, Colorado. The proposed seismic survey would facilitate development of a 2D image of the geologic structure and stratigraphy underlying the project area.

This survey involves approximately 150 linear miles on lands administered by the Bureau of Land Management (BLM). The remaining 30 linear miles are located on State and Private land. Entry on State lands is coordinated through the State and Colorado Division of Wildlife (CDOW). Separate applications are required for the activities on federal lands and this Statement of Work therefore pertains only to BLM lands. All private surface lands in the project will also be permitted prior to surveying the project.

The exploratory, seismic survey would involve: a) the generation of ground vibration by detonation of explosives placed underground, as well as from the use of vibroseis units and b) the recording of reflected sound waves and patterns arising from the different underground geologic strata.

Planning Surveys

To accurately define the extent and locations of project activities, a land survey crew will locate and place temporary pin flags at receiver and source points using a high-accuracy global positioning system (GPS). An eight-person crew will establish and flag the receiver and source point locations and travel routes. This work will be completed on foot, when located off of existing access roads and trails. Vehicles bringing surveyors to and from the project area will remain on existing roads and trails. The survey crew will be responsible for positioning receiver and source point stations such that they avoid all known and apparent cultural, natural, and existing land use features of importance. In addition the survey crew will make the initial determination of source type (buggy-drilled shothole vs. heli-drilled shothole vs. vibroseis) based

on surface conditions. The methodology used in selecting the appropriate source type is discussed in the Scope of Work section of this document. Once the lines have been surveyed, maps will be generated showing the type of source used for the different areas of the individual lines. In addition any deviations from the line will be clearly indicated on the maps, and the reason for the deviation will be readily apparent as well. The primary reasons for these deviations include terrain issues, and archaeological, or biological site avoidance.

Archaeologists will follow the surveyors to identify potential sites or areas of concern for cultural resources that could be affected by disturbance from conducting the seismic survey (source points and overland access routes for vehicles). Identified sites/areas of potential concern as cultural resources will be flagged for potential avoidance according to approved criteria. This work will also be conducted on foot. The results of the archaeology surveys as to areas for no disturbance will be provided to the land surveyors, and they will relocate the lines as necessary to avoid archaeological resources. The avoidance route for any preexisting or new archaeological sites will be flagged with blue and green flagging.

Biological surveys required by White River Field Office (WRFO) BLM will also be conducted at this time. Threatened and Endangered (T&E) plant species when found will be flagged for avoidance by source and vehicular activity. All locations of known plant populations will be given to the survey crew for inclusion on the project maps. Raptor surveys will be conducted in areas Dawson intends to access for drilling operations prior to the end of the nesting season. If active nests are encountered during the survey further consultation will take place with the BLM biologist, to determine how to proceed.

Scope of Work

The proposed ground-vibration energy source points (vibroiseis, explosives) are positioned every 330 feet along the 2D seismic line. The ideal configuration is modified due to topographic and other constraints, such as avoidance of archaeological and biological sites. There will be a total of approximately 2448 source points on BLM lands.

The recording of seismic information would involve recording a total of approximately 480 active receiver (geophone) stations laid out along the surveyed line. Approximately 14,688 receiver locations will be sited on BLM lands.

Methods of generating ground vibration energy vary across the project area based on vegetation type, terrain, slope conditions, and other concerns. Articulated buggy vibroseis units will be utilized in the more accessible areas where terrain allows, as well as on existing roads and trails. Articulated buggy-mounted and heliportable drills will be used in the areas not accessible by the buggy vibes. The number of each type of the various energy sources will be determined once the survey phase of each line has been completed. Maps indicating source type and any deviations from the line will be provided to WRFO BLM once the survey of the line is complete. The data generated from this study will evaluate hydrocarbon (natural gas) potential in the area without exploration drilling and prove resources available for extraction.

The following sections provide additional details regarding project activities.

Source Generation

Vibroseis and Explosives Detonation: Dawson Geophysical will use two source methods on the project. The crew will utilize 4 Mertz Vibroseis Units as one type of source. The units weigh 64,000 pounds, are 34 feet in length, with a width of 8.5 feet and are 11 feet in height. The units are equipped with low pressure tires which are 4.8 feet high and 2 feet wide resulting in an applied pressure of 32psi, to minimize surface disturbance. The vibes will drive in a staggered or flying V, pattern when driving on cross country routes of the line, as this has proven to reduce surface impacts by minimizing usage of the same track by multiple units. On established roads and trails a single file array will be used. To generate ground vibration waves, a buggy vibrator would lower a 48.6"X84"X9" metal pad onto the ground applying a pressure of 14 psi. The buggy vibrator would then cause the pad to pulse or shake and thus generate a series of ground vibrations. Duration and frequency of buggy vibrator shaking would range from a few seconds to several minutes and up to 120 hertz, respectively. The vibroseis equipment produces a superior seismic source and would be utilized wherever possible. Vibroseis produces an extended period of low-level vibration, versus an instantaneous, single pulse of energy for shot point detonations. By varying the frequency of vibration, optimal transmittance can be obtained.

Vibrator operations will for the most part be limited to roads and trails, and areas with slopes no greater than approximately 30%. Where possible, vibroseis buggies would proceed from one source location to the next with a single pass per source line. Most often, there would be two passes per source line, one for ingress, one for egress. In limited areas, there may be three passes per line. Vibrator units will not be utilized in any areas of dense tree cover, or where excessive damage to trees would occur.

The detonation of explosives set in drilled shot holes is the other seismic-energy source for this seismic survey project. Two types of transportable drills would be used to drill the shot holes: 1) a buggy drill and 2) a drill transported by sling below a helicopter (heli-portable drill). The buggy drills and the heli-portable drills would both drill 60-foot holes; each shot hole would be loaded with 15 pounds of explosive made expressly as a seismic source (60 percent vibragel).

The buggy drills travel off road and follow the path for the source line as modified by archaeological and biological surveys and obstacles. No clearing or grading by heavy equipment of routes for any off-road operation would be conducted. In some instances, tree limbs may be removed to allow passage of drill buggies and to prevent additional damage to the affected tree.

Where possible, the buggy drill rigs proceed from one source location to the next with a single pass per source line to complete the drilling of the lines shot holes. More often, there would be two passes per source line, one for ingress, one for egress. In limited areas, there may be three passes per line. Existing roads and trails are to be used where possible to access the next area of source points, or seismic line. Each 4-wheel-drive buggy-drill vehicle (low pressure-tired, articulated, off-road transport vehicles with mounted drill) weighs about 28,000 pounds, and each low-pressure tire is approximately three feet wide. Total buggy width is approximately ten feet with two, 3-foot wide tire treads. To account for maneuvering flexibility to avoid obstacles or sensitive resources, travel distance between lines, and multiple passes, it is estimated that buggies would travel no more than approximately 2.0 miles for every mile of buggy drill source

line. Exceptions to traveling the entire seismic line would include altered routes to avoid environmentally sensitive areas (cultural resources, sensitive biological conditions, etc.) or obstacles such as rock features or trees.

For source locations located off road/trail that cannot be safely reached by buggy vibes and drills, the heli-portable drill would be used to access and drill suitable shot hole locations within the more rugged terrain and to drill the shot holes. Surface disturbance by heli-portable drill operations would extend away from the shot hole approximately three feet. Heli-portable drill operations are not suited for drilling through water tables or alluvium. As such, where heli-portable seismic generation has been proposed near drainages, the source locations have been shifted far enough up and out of the respective drainage and floodplain in order to avoid these issues. Both buggy drill and heli-portable drill locations would be sited no closer than 100 feet from edges of upland escarpments.

After placing the seismic source in a shot hole, a shot hole-plug would be placed in the hole as specified by the State of Colorado regulations for seismic exploration. Providing that no water is encountered while drilling, the hole would be back-filled with drill cuttings to within three feet of the surface and a nonmetallic plug installed in the hole. The remaining three feet would be backfilled to the surface and covered with more drill cuttings and soil. Excess drill cuttings are mixed with soil and spread over the surrounding area. In the event that water is encountered during drilling, the appropriate procedures would be followed.

The seismic sources would be detonated individually within the source pattern determined appropriate for those geologic conditions. The seismic sources would be triggered from a central control truck stationed on an existing road/trail, or location that has been cleared by the archeologist.

Should the detonated charge blow the plug and drill cuttings out of the hole (a blowout), whatever limited disturbance to the surface would be repaired as part of line restoration/reclamation including re-plugging and replacing the hole packing materials with drill cuttings and soil materials that were expelled by the blast from the hole. Based on experience in similar geologic settings, blowouts are unlikely to occur.

Disturbance Estimates: Access to portions of the project area is difficult due to the steep topography and dense tree cover. Within these areas, activities would be confined to pedestrian traffic, roads, buggy drill accessible areas and in the canyon bottoms (where available), and to heli-portable locations on ridge spurs.

Short-term surface disturbance as a direct result of the seismic survey operations including vibroseis and drill buggy passage to source locations, heli-portable drilling, as well as deviations for terrain and other issues would total approximately 349 acres for the 180 linear mile project area. Surface disturbance from each buggy drill would typically consist of two, 3-foot wide tracks (total disturbance of six feet per buggy drill) from the floatation tire-equipped, 10 foot wide buggy drills. Surface disturbance for vibroseis operations in a staggered formation would consist of an area of approximately 16 feet.

Data Acquisition: Recording equipment would be transported to the field and to the staging areas (includes helicopter landing zones) by truck using existing roads and trails. Current plans call for staging areas to be utilized on either State or Private lands. Sufficient equipment to lay out 6 sets of geophones, two lengths of seismic cable, and appropriate battery and field recording boxes would be placed in reinforced nylon cache bags at helicopter landing sites and flown to the pre-determined receiver locations along the receiver line. Two helicopters would be used for the project, and would operate only in daylight hours. One helicopter will assist in moving the helicopter drills and the other will pickup and deploy the recording equipment cache bags and personnel as needed. The helicopter would move four to six cache bags at a time suspended from a long line. The helicopter would operate at an altitude of approximately 50-75 feet above the receiver line and deposit one bag at a time using GPS pin flag locations provided by the surveyors. Ground crew members would walk to the first dropped cache bag on the receiver line, prepares the I/O MRX2 recording box, and manually connect cables and geophones. Seismic cable and attached geophones would be laid out by hand around each station in a pre-determined pattern. The geophones mounted on a four-inch spike would be placed into the soil using foot pressure. The crewmember would then proceed on foot to the second bag and repeat the set up of the first station (receiver location) and its network of cable and geophones. Stations, cable, and geophones would be laid out in this manner at each station across the project area. Up to 480 geophone stations would be active at any time throughout the data acquisition task. After recording in an “active” area of receiver lines, geophones, cable, and each station’s equipment would be retrieved on foot and bagged using a procedure reverse of placement and moved to a new receiver location by helicopter. The recording control truck containing the data collection equipment that initiates the source for the active receiver locations will be located on an existing road, trail, or area that has been cleared by the archaeology study.

Approximately 50 crewmembers would conduct daily operations for 12 to 14 hours per day. Crewmembers would be organized into field groups of 4 to 6 personnel; groups would operate at intervals of 2 to 3 miles throughout the project area. A troubleshooting crew of 4 to 5 people would repair any equipment problems during the project operations utilizing Kawasaki Mules where terrain allows. Travel would be limited to designated paths of travel. Crew members would carpool daily to the project area in the morning and return to surrounding cities/towns in the evening.

Demobilization The demobilization task would proceed concurrently with data acquisition. All pin flags, flagging, and other “trash” would be gathered daily as the field groups and crew members complete data-acquisition portions of the project. The “trash” would be collected at points on roads or trails and transported by vehicle to staging areas where personnel would organize materials, handle equipment, and dispose of used/unusable materials. This task would be completed within about 5 days after conclusion of the data acquisition.

Support Operations: All equipment, including the drills and buggies, would be initially brought to the project area by 12 to 20 transport trucks/tractor trailers as part of project mobilization. Operation of most support vehicles, including pickups, would be limited to existing roads and trails or to routes/areas surveyed and cleared previously for archaeological resources.

Locations have been selected on private, and State lands as potential staging areas. The

equipment and vehicle storage site would be located in these areas. In addition to the above-mentioned location, smaller staging areas of less duration will be located along trails and roads throughout the project and will be used to expedite the placement and retrieval of equipment. Several equipment trailers would be parked at the staging area to be used for the duration of the project. The explosives and blasting cap magazines would be temporarily located on an isolated, secured private location (in accordance with Federal Bureau of Alcohol, Tobacco, and Firearms regulations) to minimize public access and to optimize public safety.

The helicopter may also land on existing road and trail intersections and existing well pads in addition to staging areas/landing zones to pick up or drop off equipment or personnel.

Project Activities and Schedule: Seismic survey activities would proceed systematically from Line 14 followed by Lines 12, 10, 8, 6, 4, 2, 1, 22, 20, 18, 16, and 5. Some flexibility will need to be maintained regarding the order in which the lines will be acquired to accommodate private landowners, as well as BLM concerns. Specific activities in order of occurrence would include:

1. The drilling of shot holes and placement of explosives. Drilling activity would proceed for a few weeks to a month before subsequent activities would commence.
2. Placement of geophones on the designated line as soon as the appropriate permits are in place for the project.
3. Controlled detonation of explosive shots, vibroseis operations, and recording would begin shortly after placement of the initial grouping of receiver stations/geophones. Time between detonations is typically a minimum of 5-10 minutes and can take longer depending on terrain and accessibility of shot points. Time between vibroseis points will vary as a function terrain and sweep length. As the source generation (acquisition) is proceeding along a seismic line, the recording equipment that has previously been utilized will be picked up and moved ahead (“leap-frog”) and laid out until lay out for that line is completed. As a line is completed the equipment will be flown to the next line to be acquired and the process begins again.
4. Source generation and recording is expected to take about 6 weeks. The duration of the complete survey is projected to be about 7 weeks including mobilization and demobilization.
5. Reclamation activities would commence as needed during the data acquisition portion of the project, with a final compliance inspection with the WRFO BLM to occur at the end of the project.

Workforce: A work crew of 12 personnel would be required during the initial drilling period (i.e., a few weeks to a month). After drilling, an additional work crew of 50 personnel would be required for approximately six weeks to mobilize and complete data acquisition. A small crew of 4 to 6 personnel may be on site for a few days after data acquisition for demobilization.

Reclamation: Reclamation will take place as the project progresses where needed. In addition, where determined necessary by the BLM or the appropriate landowner, the operator shall rake out vehicle tracks visible from existing roads or trails to disguise the seismic lines and discourage use by off-road vehicles (ORVs). All such vehicle track depressions/ruts will be raked out to approximate the original contour. All compacted areas (areas compressed and

hardened by the weight of vehicles) shall be scarified (the breaking up of the compaction) to improve water filtration, reduce surface runoff, provide a seedbed for the establishment of vegetation, and discourage subsequent ORV use. All scarified areas will be reseeded with a mix of native plant species on a site-specific basis as determined by the Field Manager. When operations are complete, signs and barricades shall be placed in appropriate areas as deemed necessary by the appropriate surface management agency (SMA) to discourage the use of seismic lines for ATV travel.

Applicant Committed Environmental Protection Measures: The specific environmental protection or mitigation measures listed below by activity or environmental resource area would be incorporated into the applicant's proposed action as integral components of the proposed project.

Fire Protection

- Vehicles with catalytic converters would be restricted to existing roads and trails; parking or idling would not be permitted in portions of roads or trails with taller vegetation.
- Off-road equipment, buggy drills, would be diesel powered (no catalytic converter).
- All vehicles would be equipped with fire extinguishers and shovels.
- All all-terrain vehicles (ATVs) would be equipped with spark arresters.
- Helicopter land zones at staging area would be equipped with fire extinguishers. Each helicopter would have a 100-gallon water bucket should the helicopters be needed to fight a fire in the area, regardless of the fire's source.

The following operational procedures would be followed:

- All brush build-up around mufflers, radiators, headers, and other engine parts would be avoided; periodic checks would be conducted to prevent this build-up.
- Smoking would only be allowed in company vehicles and/or designated smoking areas; all cigarette butts would be placed in appropriate containers and not thrown on the ground or out windows of vehicles.
- Cooking, campfires, or fires of any kind would not be allowed while working in designated high-hazard fire areas.
- Portable generators used in the project area would be required to have spark arresters.
- Dawson Geophysical would coordinate project activities with appropriate fire-fighting personnel in the State Forestry and Fire Office and White River BLM Field Office. The crew contingency plan would include a fire communications protocol for contacting fire-fighting personnel.

Existing Facilities/ROWs Protection

- Safe operating distances (based on accepted industry standards) would be maintained between shot holes and existing facilities including producing oil and gas wells, pipelines, and electrical utility lines.
- Gates would be used for crossing fences whenever possible. If however, a fence crossing is required for a location absent a gate, the fence would be cut and H-braces would be

installed to support the existing fence and, if livestock are present, a temporary gate would be installed to prevent livestock or wild horse movement from appropriate pastures. Upon termination of seismic survey activities, the temporary opening or gate would be permanently rewired and stretched to their original tension. All fence work will conform to BLM specifications.

- Any facilities impacted by the proposed seismic survey would be repaired or replaced as soon as practical before the end of the project.

Hazardous and Solid Waste/Trash Disposal

- Fuel and lubricants would be temporarily stored in transportable containment-trailers at locations approved by the appropriate SMA within staging areas to minimize potential for accidental releases/spills. No other hazardous or potentially hazardous materials would be brought into the project area.
- All spills or leaks of diesel fuel, hydraulic fluid, lubricating oil, and coolant, including contaminated soil material, would be excavated to an appropriate container and transported to an approved disposal site.
- All solid waste or trash would be transported for disposal to an approved solid waste disposal facility (most likely the Rio Blanco County sanitary landfill west of Meeker).

Public/Crew Safety

- To protect against the potential for rock falls that could impact public and survey crew safety and cultural resources, both buggy drill and heli-portable drill locations would be set back from escarpments as necessary to prevent displacement of rocks on the slope face when a source point is shot. Slope stability would be monitored and the set back distance modified to account for observations and local conditions.
- With the exception of the off-road buggy vehicles and Kawasaki Mules, vehicle traffic would be limited to existing roads and trails. Vehicles would travel at speeds within set speed limits of main access roads and at slower speeds appropriate for conditions on more remote roads and trails.
- Survey crew/staff would keep the public a safe distance away from all buggy drill activity.
- All survey crewmembers would wear safety vests, hardhats, and goggles where required.
- The shot hole detonation observer would wear a hardhat and safety goggles.
- Prior to detonation, the shot hole observer would check and make sure the area is secure and issue a verbal warning to any crewmembers or public of an impending detonation. If an unsafe condition exists the shooter will abort the procedure until proper action has been taken to secure the area.
- The helicopter would follow flight paths chosen to be efficient while following activity-specific aviation operational safety standards for flight altitudes.
- Explosives and detonator caps would be stored in or near the project area in large, secure magazines (large locked steel boxes) per Federal Bureau of Alcohol, Tobacco, and Firearms requirements. Signage for the magazines would not be placed on the magazines, but on adjacent posts or other permanent features. Explosives will be stored on private permitted lands.

- Explosives/detonators would be transported in accordance with Federal Department of Transportation regulations.

Water Resources, Wetland/Riparian/Floodplain Protection

- Should saturated conditions or water in a drilled shot hole be encountered, native bentonite would be packed into the shot hole to above the water level in the hole to seal the saturated zone.
- Project water would be obtained from adjudicated commercial sources.
- No shot holes would be drilled within 330 feet of perennial surface water features.
- No wetland/riparian vegetation would be removed during the placement of geophones. Helicopters would be used to drop equipment to support placement of recording lines to reduce surface disturbance.
- No operations other than receiver placement would be performed within 660 feet of a spring.
- Vehicles would not cross perennial water features, except on existing roads or predesignated crossings.

Soil Resource Protection

- No cross-country travel would be permitted on slopes greater than approximately 30 percent by Kawasaki Mules, Vibroseis, or Drill buggies; all other vehicles would be restricted to existing roads and trails.
- No vehicles would be operated during periods of saturated soil conditions when surface ruts greater than 4 inches would occur along straight travel routes.
- Buggy drill traffic would be planned to minimize the number of passes over the same ground, and to minimize the potential for soil compaction and for impacts to pinion and juniper trees.
- Vehicles would be instructed to travel at slow speeds to limit disturbance to soils and vegetation.
- The spinning of all vehicle tires would be avoided where possible to minimize the potential for soil displacement and for impacts to biological soil crusts by buggy drills.

Vegetation Resources Protection

- All equipment, including on-road and off-road equipment, would be cleaned to remove weed seed and soil (may contain weed seed) prior to commencing operations on lands within the project area. Disturbed areas in the project area would be monitored for project-related establishment and spread of noxious weeds. Weed infestations would be treated as necessary and as approved by the appropriate SMA to prevent additional spread.
- Larger shrubs, trees, and other obstacles would be avoided where possible; no cutting or removal of shrubs, trees, or other obstacles is proposed.
- Federally listed T&E plant species would be avoided by all seismic survey activity. If necessary, a field survey for T&E species would be completed and locations of T&E species would be identified for avoidance planning.

- Project employees and contractors would not be allowed to drive off-road or collect plants.

Wildlife Resources

- Dawson Geophysical would comply with wildlife protection measures.
- Project activities would be conducted in compliance with applicable requirements of the Endangered Species Act of 1973, as amended.
- Project personnel would be subject to the following requirements: no harassing or shooting of wildlife or wild horses; no dogs may be brought to the project area; no firearms permitted; and no littering.
- Activities other than demobilization would not be conducted in elk or mule deer crucial winter range from November 15 through April 1, unless the appropriate SMA grants an exception.
- If drilling or recording activities are proposed to occur within the raptor mating/nesting season, a survey by a qualified wildlife biologist for known and new raptor nests would be conducted on all affected line segments. Raptor nest information would be provided to the appropriate SMA for their review, and consideration of granting an exception should Dawson Geophysical propose to initiate the seismic survey prior to the end of species-specific raptor mating/nesting seasonal restrictions.

Livestock Grazing

- All gates within the project area would be left as they are found (i.e., open gates would be left open, closed gates would be closed).
- Damage to existing fences and other range improvements as a result of the seismic survey would be immediately repaired.
- If a fence crossing is required for a location absent a gate, the fence would be cut and H-braces would be installed to support the existing fence and, if livestock are present, a temporary gate would be installed to prevent livestock from appropriate pastures. Upon termination of seismic survey activities, the temporary opening or gate would be permanently rewired and stretched to their original tension.
- Removal or alteration of existing range improvements would be prohibited unless prior approval from the appropriate SMA is obtained.
- Dawson Geophysical personnel would be instructed to minimize contact and avoid harassment of livestock.

Cultural Resources

- Permitted archaeologists would conduct a Class III survey for cultural resources of all areas to be disturbed by source generation activities including buggy vibroseis and drill access routes, heli-portable drill locations, and staging areas. All cultural sites identified in the Class III cultural resources field survey would be flagged for avoidance. Permitted archaeologists would also be responsible for assisting with protection, identification, and assessment of any cultural resources discovered during the operations.
- If subsurface cultural resources were found during project operations, all work in the

immediate vicinity of the resource would cease and Dawson Geophysical would notify the appropriate SMA immediately. Dawson Geophysical would implement those measures requested by the appropriate SMA to protect the resource until a permitted archaeologist, if necessary, could adequately evaluate it. Further work at the archaeological site would be discontinued.

- If human remains were encountered during project operations, all work in the vicinity of the remains would cease and the remains would be protected from further exposure or damage. Dawson Geophysical would notify the appropriate SMA immediately.
- Prior to commencement of each task of operations, Dawson Geophysical employee briefings would be conducted to inform personnel of critical elements of compliance with the Archaeological Resources Protection Act (ARPA) and the National Historic Preservation Act (NHPA).
- All Dawson Geophysical employees and their contractors would be informed before commencement of operations that any disturbance to, defacement of, or removal of archaeological, historical, or sacred material would not be permitted. Violation of the laws that protect these resources would be treated as law enforcement/administrative issues.
- Any cultural sites with standing architecture would be avoided by the distance determined to be appropriate based on depth and size of charge.
- Cultural sites with rock art would be avoided by the distance determined to be appropriate based on depth and size of charge for shot hole testing.

No Action Alternative: In the no-action alternative the seismic project would not be permitted; there would be no new disturbance.

ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD: None

NEED FOR THE ACTION: Applicant requests approval to conduct Geophysical Exploration on BLM public lands.

PLAN CONFORMANCE REVIEW: The Proposed Action is subject to and has been reviewed for conformance with the following plan (43 CFR 1610.5, BLM 1617.3):

Name of Plan: White River Record of Decision and Approved Resource Management Plan (ROD/RMP).

Date Approved: July 1, 1997

Decision Number/Page: Pages 2-49 thru 2-52

Decision Language: “To make public lands available for the siting of public and private facilities through the issuance of applicable land use authorizations, in a manner that provides for reasonable protection of other resource values.”

**AFFECTED ENVIRONMENT / ENVIRONMENTAL CONSEQUENCES /
MITIGATION MEASURES:**

STANDARDS FOR PUBLIC LAND HEALTH: In January 1997, Colorado Bureau of Land Management (BLM) approved the Standards for Public Land Health. These standards cover upland soils, riparian systems, plant and animal communities, threatened and endangered species, and water quality. Standards describe conditions needed to sustain public land health and relate to all uses of the public lands. Because a standard exists for these five categories, a finding must be made for each of them in an environmental analysis. These findings are located in specific elements listed below:

CRITICAL ELEMENTS

AIR QUALITY

Affected Environment: The proposed seismic exploration is not located within a ten mile radius of any special designation air sheds or non-attainment areas. The 2D seismic operation will have little effect on air quality in the area given existing travel routes are utilized. The use of vibroseis buggies off of existing travel ways may adversely impact ground cover exposing soils to eolian processes and increase levels of fugitive dust.

Environmental Consequences of the Proposed Action: The use of vibroseis buggies off existing travel ways may invite unauthorized Off Highway Vehicle (OHV) use by the public. Additional travel on these seismic transects will destroy vegetation, reduce ground cover and increase levels of fugitive dust in response to dry and windy conditions.

Environmental Consequences of the No Action Alternative: None

Mitigation: As stated in the proposed action, use existing travel ways when possible. Minimize destruction of vegetation and removal of ground cover when vibroseis buggies are in use off existing roads. In areas that receive noticeable impacts to vegetation and ground cover (e.g. locations that may be inviting to OHVs use by the public), care should be taken to re-apply adequate ground cover to inhibit unauthorized vehicle use.

AREAS OF CRITICAL ENVIRONMENTAL CONCERN

Affected Environment: The general area the proposed action is occurring will be involving the Ryan Gulch ACEC, Dudley Bluffs ACEC and the Duck Creek ACEC. These ACEC's contain plant species that are listed as Threatened and Endangered, candidates for listing, BLM sensitive, State of Colorado plant species of concern, and/or remnant vegetation associations. There will be no seismic activity occurring within the Duck Creek ACEC boundaries. The lines have been stopped at the boundary with the exception of line 04 which all

seismic activity has been eliminated in the ACEC portion. The portion of line 14 proposed to go through the Ryan Gulch ACEC contains five colonies of Piceance twinpod (*Physaria obcordata*). The bulk of the plants are located on very steep slopes north of the line approximately 60'. Few individual colonies were located nearest the line on the toe of the slope. The line passing these colonies is on an existing, graveled BLM road. Line 16 through the Ryan ACEC is on County Road 24 which is paved. The nearby nine colonies of Dudley Bluffs bladderpod (*Lesquerella congesta*) observed all occur on or above the steep slope north of the road. A fence is located between the road and the toe of the slope which will prevent any seismic activity from veering onto suitable occupied habitat. The unsurveyed portions of the lines that go through Dudley Bluffs ACEC will be restricted to existing roads or trails.

Environmental Consequences of the Proposed Action: The proposed action will require off-road travel by all-terrain vehicles (ATVs), one-ton trucks, and seismic buggies. While the proposed action does not include construction of any roads, overland travel associated with drilling and support operations, tends to attract subsequent use by recreational users on public land, by disturbing vegetation and leaving visible tracks. Further use of these tracks firmly establishes the route as an unimproved 2-track and leads to an unplanned expansion of road networks on public lands. This in turn results in potential for destruction of the plants that are a reason for the ACEC designation. Surface occupancy or disturbance should not directly or indirectly affect the identified important values of the ACEC's with the mitigation measures. For further discussion of T & E plants, see the section below on Threatened and Endangered Plants.

Environmental Consequences of the No Action Alternative: No impacts would occur and everything would stay the same.

Mitigation: The portion of line 04 proposed to go through the Duck Creek ACEC has been eliminated due to the difficulty in avoiding impact to the Dudley Bluffs bladderpod (*Lesquerella congesta*). No seismic activity would occur between stations 04-0530 to 04-0567. Eliminating activity between those stations will provide a 100' buffer between the three colonies identified.

On line 14 seismic activities will be restricted to the existing road between stations 14-0250 to 14-0329. All seismic activities are restricted to the road surface in the case of the vibroseis method and on the south edge of the road for the receiver line.

All seismic activities on line 16 through the Ryan Gulch ACEC are restricted to County Road 24, a paved road.

CULTURAL RESOURCES

Affected Environment: At the present time 100% of the source points for the proposed seismic lines have been inventoried at the Class III (100% pedestrian) level. The consulting archaeologist is making every effort to ensure that all cultural resources that can be identified on

the ground are being avoided by all source and recording lines and associated activities. Numerous sites are in the project area that must be avoided.

Environmental Consequences of the Proposed Action: Provided the mitigation measures described in the proposed action are strictly adhered to there should be no new impacts to any known cultural resources.

Environmental Consequences of the No Action Alternative: There would be no new impacts to cultural resources under the No Action Alternative.

Mitigation: As stated in the proposed action plus:

1. The operator is responsible for informing all persons who are associated with the project 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 uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). 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 site can be used (assuming in situ preservation is not necessary)
- a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

2. Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the AO, by telephone, 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.

INVASIVE, NON-NATIVE SPECIES

Affected Environment: Houndstongue, Russian and spotted knapweed, yellow toadflax, leafy spurge, mullein, Canada and bull thistle are all present in the proposed project area. Their potential for spread and proliferation is directly proportional to the extent and duration of earthen

disturbance in the project area. The invasive alien cheatgrass is found throughout the project area primarily on unvegetated areas of earthen disturbance adjacent to roads and on oil and gas locations and pipelines.

Impact of Proposed Action: The proposed action is expected to create a small amount of earthen disturbance. With mitigation (see below) there will be little proliferation of these noxious species.

Impact of No Action Alternative: There will be no change from the present situation.

Mitigation Measures: In order to preempt noxious weed invasion, all disturbed sites should be revegetated with Native Seed mixture #3. This may mean broadcast seeding and hand raking to insure seed coverage. The applicant will be responsible for eradicating all noxious and invasive species which occur on site using materials and methods approved by the Field Manager. Dawson will be responsible for monitoring the project area for a minimum of three years post completion to detect establishment of noxious weeds on disturbed sites. A report documenting completion of this monitoring will be submitted at the close of the field season on an annual basis to the Field Manager.

MIGRATORY BIRDS

Affected Environment: A number of migratory birds fulfill nesting functions in the project area's woodland and shrubland habitats from late May through mid-July. The BLM, in cooperation with the Rocky Mountain Bird Observatory, has developed a list of migratory birds of higher conservation interest that are largely obligate to specific habitat types on the Colorado Plateau. Those birds relevant to the project area include Brewer's sparrow and Virginia's warbler for the sagebrush and mixed shrub types, respectively, and gray flycatcher, pinyon jay, juniper titmouse, and black-throated gray warbler for the woodlands. Based on local data and on average, the smaller, open-cup species (i.e., most prone to nest disruption) of higher conservation interest tend to occupy suitable habitats at a maximum collective density of about 1 pair per 5 acres.

Environmental Consequences of the Proposed Action: Based on a number of assumptions and implementation timeframes, it is likely that 1 nesting attempt by a pair of higher conservation interest would be adversely disrupted by each of the vibroseis truck and buggy drill methods and as many as 22 nest attempts disrupted by heliportable drill operations. Thus, a total of about 25 nesting failures of birds of higher conservation interest may be attributable to seismic-related operations that would occur before July 15. This figure would be expected to represent about 20-30% of the total avian influence within these affected habitats. Considering the landscape level expanse of this operation (about 72 square miles prior to 15 July) and the fact that many affected passerine nest attempts would fail from reasons other than those attributable to the proposed action (e.g., 50%), the impacts imposed on breeding populations of migratory birds in Piceance Basin's woodland and shrubland habitats would be very small (e.g., roughly calculated at 1/3 of 1% in area affected prior to 15 July). This level of impact is not considered sufficient to impose timing limitations on proposed operations. Project delays would likely

extend the project into the big game hunting seasons, which would complicate seismic operations and increase safety risks to public land users and project personnel.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have any influence on migratory bird nesting activity.

Mitigation: None.

THREATENED, ENDANGERED, AND SENSITIVE ANIMAL SPECIES (includes a finding on Standard 4)

Affected Environment: There are no animals that are candidate, proposed, or listed under the Endangered Species Act that inhabit or derive important benefit from the project area. Two species considered sensitive by the BLM occupy habitats in the general vicinity of proposed seismic operations, the greater sage-grouse and northern goshawk. The northern goshawk is addressed in the Terrestrial Wildlife section below.

Line 18 of the proposed seismic operation intersects a single sagebrush habitat parcel (for a distance of about 1 mile) that presently supports sage-grouse use. This parcel lies on the ridge between Yankee and Eureka Gulches on private-owned lands and is generally suitable for nesting, brood-rearing, and general summer and fall functions. Based on wing-collection data for Piceance Basin, an average 75% of sage-grouse nesting functions are complete by 7 July. The lower BLM-administered portions of this park are heavily encroached with young pinyon pine growth. The BLM is currently in the process of applying sagebrush restoration practices on this site, but it has no present utility as grouse habitat. The eastern half of proposed seismic line 20 would traverse about 2 miles of sagebrush communities on Magnolia that was historically occupied by sage-grouse. The character of these habitats is now variously dominated by Utah serviceberry or pinyon-juniper growth and they no longer retain utility as grouse habitat.

Environmental Consequences of the Proposed Action: The proposed action would have no influence on special status species or associated habitats with the exception of northern goshawk, which is discussed under the Terrestrial Wildlife section below.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have potential to affect special status animals.

Mitigation: Raptor nest mitigation is addressed in the Terrestrial Wildlife section below.

Finding on the Public Land Health Standard for Threatened & Endangered species: The landscape encompassing the project area currently meets the land health standards for special status animals. As conditioned, the temporary influences associated with seismic data acquisition and recording would have no influence on populations or habitats associated with affected special status species (i.e., northern goshawk). As such, neither the proposed or no-action alternatives would adversely influence populations or the condition or utility of habitat

and would not interfere with continued meeting of the land health standard for special status species.

THREATENED, ENDANGERED, AND SENSITIVE PLANT SPECIES (includes a finding on Standard 4)

Affected Environment: Threatened, Endangered and BLM Sensitive plant species that are likely to occur in areas of the planned seismograph lines all occur on relative barren exposures of the Green River Formation. Within the survey area, the Green River is sandwiched between several units of the Uinta Formation. Several named and unnamed tongues of the Green River occur within the project area. Most of these exposed tongues occur along the valley slopes of Piceance Creek and its' lower tributaries and along Yellow Creek and its' lower tributaries. The Black Sulphur Tongue occurs along lower Black Sulphur Creek and along Piceance Creek above the confluence of Black Sulphur Creek. No special status species (SSS) plants have been documented on this tongue. The Thirteen Mile Creek Tongue occurs along Piceance Creek below the confluence with Hunter Creek and extends down valley below the confluence with Horse Draw. This tongue crosses over the divide between Piceance and Yellow Creeks. It is exposed on several ridge crests and slopes of some small drainages on the west side of the divide. The tongue is exposed along the slopes of Yellow Creek below the confluence with Corral Gulch and extends down Yellow Creek below the confluence with Pinto Gulch. A large exposure of this tongue occurs at the confluence with Duck Creek and extends up Duck Creek to the Big Duck Creek fork. Both listed plants, *Lesquerella congesta* and *Physaria obcordata*, occur on this tongue in both Piceance Creek and Yellow Creek. Most of the know occurrences of both plants occur with three ACECs; the Duck Creek ACEC along Yellow Creek and Duck Creek and the Dudley Bluffs and Ryan Gulch ACECs along Piceance Creek. The Dry Fork of Piceance Creek Tongue occurs along lower Piceance Creek below the confluence with Hatch Gulch. It is exposed along the slopes of several large tributaries east of Piceance Creek from Hatch Gulch to Greasewood Gulch. No SSS plants have been documented on this tongue east of Piceance Creek. A small colony of *Physaria obcordata* occurs on this tongue below the confluence of the Dry Fork of Piceance Creek on the west side of Piceance Creek. Several unnamed tongues occur in Big Duck Creek and on 84 Mesa and along Stake Springs Draw. No SSS plants have been documented on these unnamed tongues.

Environmental Consequences of the Proposed Action: **Line 04:** Three colonies of *Lesquerella congesta* (LECO) were located directly on Line 04 (LECO#03, LECO#04 and LECO#05). Two colonies, LECO#01 and LECO#02, were located near Line 04. One colony of *L. congesta* (LECO#03) on DOW state land on Line 04 adjacent the Duck Creek ACEC would be subject to disturbance from drilling several shot holes (source points) through this colony. The density of *L. congesta* is about 1 to 5 plants per square meter with small concentrations of 10 to 20 plants per square meter along this section of Line 04. The source points along this section of Line 04 should be eliminated from within 100 feet of the colony. It could be possible to place geophones by foot through this colony avoiding any individuals of *L. congesta*. **Line 06:** The source points (vibe line) are on RBC Road 91 and do not occupy any suitable habitat. Suitable habitat does come to within 40 to 50 feet of the road surface in several locations, but no impact is expected to *L. congesta* or its' habitat. However, the receiver line does cross two fairly large

colonies of *L. congesta* (LECO#06 and LECO#07). Density of the plant within these two colonies varies from 10 plants per square meter to as high as 40 plants per square meter in several spots along the line. The density is high enough that it would be very difficult to avoid any plants. It is recommended that the receiver line be moved to RBC Road 91 from station 06-0100 to 06-167.5 to avoid *L. congesta* occupied habitat. **Lines #14, #16, and #18:** The colonies of *L. congesta* and *P. obcordata* located near these lines are situated such that seismic activities in these areas are not expected to have any effect on the plants or their habitats. All seismic activities in these areas are restricted to existing roads.

Environmental Consequences of the No Action Alternative: None

Mitigation: The results of surveys for the listed Threatened plant species, *Lesquerella congesta* and *Physaria obcordata*, indicate that there are 36 “colonies” of plants covering about 93 acres along the proposed seismic survey route. To avoid disturbing the threatened plants and their habitat, the project proponent has agreed to the following avoidance measures for specifically identified sections of the seismic lines:

- (1) Portions of Lines 1, 2, 3 and 8 that were to have entered the Duck Creek ACEC have been eliminated from the project to mitigate potential impacts.
- (2) All seismic activities will be restricted to within 30 feet of line 04 between stations 04-0494 and station 04-0500, and no project activity would occur between stations 04-0530 to 04-0567 of line 04.
- (3) The receiver line of line 06 will be relocated to RBC91 from station 06-0100 to 06-167.5, and activity would be restricted to RBC91 or on alluvial soils on the east side of RBC91 from stations 06-0100 to 06-0221
- (3) Within the Ryan Gulch ACEC all (energy) source points are located on existing roads. Known colonies of *L. congesta* and *P. obcordata* occur on a Green River shale formation near line 14 in Horse Draw and near line 16 in Ryan Gulch. All seismic activity will be restricted to existing roads as it passes through this habitat. Small portions of Line 14 that occur off-road are entirely on Uinta Formation and will experience pedestrian traffic only in the ACEC. All activities on line 14 would be restricted to the existing road between stations 14-0250 and 14-0329.
- (4) The portion of Line 18 that crosses the Dudley Bluffs ACEC will experience pedestrian traffic only. No vehicle travel, drilling or other surface disturbing activity will be permitted.
- (5) The portion of Line 20 that crosses the Dudley Bluffs ACEC will have source points along an existing road at the bottom of McKee Gulch. There are exposed Green River shales on the northerly side of the Gulch (suitable habitat). The road is on the southerly side of the Gulch approximately 0.1 mi away from the formation and across a deep ravine from these shales. Project-related activities along Line 20 will be on road (source points) or next to this road (receiver points) through the ACEC.

The US Fish and Wildlife Service agrees that the project may affect but is not likely to adversely affect *Lesquerella congesta* or *Physaria obcordata*, based on the project-specific avoidance measures described in a biological assessment. We also agree that the project may affect but is not likely to adversely affect *Spiranthes diluvialis*, based on the lack of suitable habitat within the project area.

If new information becomes available regarding direct or cumulative effects, new species become listed, or should there be any changes to the project which alters the operation from that described in the biological assessment, we would expect the BLM to reinitiate section 7 consultation. Section 7 consultation also must be reinitiated if there is failure to carry out any portion of the commitments made to protect the federally listed species.

Finding on the Public Land Health Standard for Threatened & Endangered species: There is no reasonable likelihood that the proposed action or no action alternative would have an influence on the condition or function of Threatened, Endangered, or Sensitive plant species. Thus there would be no effect on achieving the land health standard.

WASTES, HAZARDOUS OR SOLID

Affected Environment: There are no known hazardous or other solid wastes on the subject lands. No hazardous materials are known to have been used, stored or disposed of at sites included in the project area.

Environmental Consequences of the Proposed Action: No listed or extremely hazardous materials in excess of threshold quantities are proposed for use in this project. While commercial preparations of fuels and lubricants proposed for use may contain some hazardous constituents, they would be stored, used and transported in a manner consistent with applicable laws, and the generation of hazardous wastes would not be anticipated. Solid wastes would be properly disposed of.

Environmental Consequences of the No Action Alternative: No hazardous or other solid wastes would be generated under the no-action alternative.

Mitigation: The operator shall be required to collect and properly dispose of any solid wastes generated by this project.

WATER QUALITY, SURFACE AND GROUND (includes a finding on Standard 5)

Affected Environment: The proposed geophysical exploration is located in stream segments 13b, 15, 16, and 17 of the White River Basin. A review of the Colorado's 1989 Nonpoint Source Assessment Report (plus updates), the 305(b) report, the 303(d) list and the Unified Watershed Assessment was done to see if any water quality concerns have been identified. It should be noted that Yellow Creek (stream segment 13b) has been identified as a perennial stream NOT meeting state water quality standards for salinity and suspended sediment.

The State has classified stream segments 13b, 16, and 17 of the White River Basin as "Use Protected" and further designated them as beneficial for the following uses: Warm Aquatic Life 2 (segment 17: Cold Aquatic Life 2), Recreation 2, and Agriculture. The antidegradation review requirements in the Antidegradation Rule are not applicable to waters designated use-protected. For those waters, only the protection specified in each reach will apply. For these reaches, minimum standards for four parameters have been listed. These parameters are: dissolved oxygen = 5.0 mg/l, pH = 6.5 - 9.0, Fecal Coliform = 2000/100 ml, and 630/100 ml E. coli. Stream segment 15 has been designated beneficial for Warm Aquatic Life 2, Recreation 1b, and Agriculture. Segment 15 is not listed as "use protected" thus the Antidegradation Rule is applicable for this stream segment.

The following table is a list of BLM springs which may be affected by the proposed actions. Appropriate measures will be taken to give these springs an adequate buffer zone of 660' (1/8 mile).

Quarter Section	Section#	Township	Range	Map Code	Water Right	Q (gpm)	Date Measured	Comments
SWNE	19	1S	96W	160-25	85CW449	0.17	5-Oct-83	Perennial
SWNW	18	1S	96W	160-27		0.18	4-Oct-83	Seasonal
Lot 8- SESW	32	2S	98W	173-03	85CW361	2.7	30-Aug- 83	Perennial

Environmental Consequences of the Proposed Action: Surface Water: The use of vibroseis buggies off existing travel ways may invite public use (OHV use) on those particular transects. Additional travel on these seismic transects will reduce vegetal cover and increase soil compaction resulting in decreased infiltration and permeability rates. Reductions in infiltration and permeability rates will elevate the potential for erosive overland flows. Furthermore, continued use of these transect lines by the public may induce rutting along portions of the roadway. Rut development will trigger gully formation and extensive head cutting.

The use of vibroseis buggies and blasting near stream channels (e.g. Piceance Creek) may be detrimental to stream banks and riparian communities. Destruction of riparian communities will result in destabilization of flood planes and stream banks. Vibrating or blasting near stream banks could trigger mass wasting in alluvial material. As a result, increased sediment loads will be introduced to stream channels.

Ground Water: Shot holes or vibration operations situated near (with in 1/8 mile radius) un-surveyed springs or seeps may result in increased particle packing or fracturing of confining layers at specific locations. Increased particle packing may cause a net loss in effective porosity which will inhibit ground water flow to local discharge points (e.g. springs and seeps). Fracturing of confining layers may allow local ground water currently recharging the spring/seep to infiltrate deeper into the ground essentially drying out the spring.

Environmental Consequences of the No Action Alternative: None

Mitigation: Avoid operations during wet periods to reduce potential for rut development. Use existing travel ways when possible and minimize operations in flood planes and riparian areas. Limit destruction of vegetation and removal of ground cover when vibroseis buggies are in use off existing roads. In areas that receive noticeable impacts on vegetation and ground cover (e.g. locations that may be inviting to OHVs use by the public), care should be taken to re-apply adequate ground cover to inhibit unauthorized motorized vehicle use.

Give federally-owned or controlled springs and flowing water wells (see above table) a minimum 660' (1/8 mile) buffer zone from blasting or vibrating operations. To help mitigate potential bank destabilization associated with vibrating or blasting, it is recommended that operations not occur within ~100 feet of any perennial surface waters (e.g. Piceance Creek and Yellow Creek).

Finding on the Public Land Health Standard for water quality: Following proper mitigation techniques, adverse environmental impacts resulting from the proposed action will be successfully mitigated. No deterioration of water quality is anticipated.

WETLANDS AND RIPARIAN ZONES (includes a finding on Standard 2)

Affected Environment: The project area encompasses a number of perennial and intermittent channel systems that support riparian vegetation and may require a form of crossing on BLM-administered lands (e.g., Eureka Creek, Ryan Gulch, Stake Springs Draw, Greasewood and Corral Gulches). According to those surveyed portions of line (67 miles north of Ryan Gulch and west of Piceance Creek), the proponent displays no off-road channel crossings on BLM-administered lands. Further, the proponent has not approached BLM on pre-designating channel crossings for vehicles (see applicant-proposed mitigation below) on the remainder of the project which would involve Eureka, Yankee, and Ryan Gulches (Line 01) and Greasewood Gulch (Line 20).

The proposed action includes the following applicant-proposed measures that are considered committed mitigation:

- *No shot holes would be drilled within 330 feet of perennial surface water features.*
- *Helicopters would be used to drop equipment to support placement of recording lines to reduce surface disturbance.*
- *No operations other than receiver placement would be performed within 660 feet of a spring.*
- *Vehicles would not cross perennial water features, except on existing roads or predesignated crossings.*

Environmental Consequences of the Proposed Action: The proposed action would have little, if any influence on channels that support riparian or wetland communities. Community effects would be confined primarily to on-line pedestrian traffic associated with geophone placement and retrieval. For that portion of the project where seismic methods have been firmly established, drilling and source generation operations and support vehicle use that would

intersect or parallel BLM-administered channels would be confined to existing roads. On the remainder of the project, it is likely that many of the BLM-administered channel crossings (i.e., Line 01: Eureka, Yankee, and Ryan Gulches; Line 20: Greasewood Gulch) would involve heliportable drilling and would not be subject to wheeled or tracked vehicle effects. In general, one-pass drilling buggy crossings would yield shallow, temporary depressions perpendicular to the channel that would be expected to quickly accumulate sediments, revegetate from in-place sources, and thereby maintain channel stability. Multiple passes by any vehicle type would tend to rut channel features, trample vegetative cover, and risk compromising channel stability. Until need is established, it is recommended that no vehicles be authorized to cross channels that bear riparian or wetland growth until crossing points and a complete rehabilitation plan is agreed to by BLM and the applicant.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have potential to influence riparian or wetland communities.

Mitigation: Until need is established, it is recommended that no vehicles be authorized to cross channels that bear riparian or wetland growth until crossing points and a complete rehabilitation plan is agreed to by BLM and the applicant.

Finding on the Public Land Health Standard for riparian systems: Due to equipment limitations in wet soil conditions, proposed seismic operations (i.e., shothole drilling) would generally avoid riparian and wetland sites and would, therefore, have no influence on channel morphology or associated vegetation. As conditioned, neither the proposed or no-action alternatives would have any effective influence on the status of the land health standards as applied to riparian and/or wetland systems on BLM-administered lands.

CRITICAL ELEMENTS NOT PRESENT OR NOT AFFECTED:

No flood plains, prime and unique farmlands, Wilderness, or Wild and Scenic Rivers exist within the area affected by the proposed action. There are also no Native American religious or environmental justice concerns associated with the proposed action.

NON-CRITICAL ELEMENTS

The following elements **must** be addressed due to the involvement of Standards for Public Land Health:

SOILS (includes a finding on Standard 1)

Affected Environment: The following data is a product of an order III soil survey conducted by the NRCS. The accompanying table highlights important soil characteristics. A complete summary of this information can be found at the White River Field Office.

CSU-1 “fragile” soils will be encountered along many portions of the project area. However, as stated in the proposed actions limited surface disturbance will occur on slopes exceeding thirty percent and at those locations heli-portable drills will be used. The surface disturbance associated with heli-portable drills extends only three feet beyond the shot hole. Because only minimal amounts of surface disturbance will occur on slopes greater than thirty percent, controlled surface use stipulations will not apply.

Soil Number	Soil Name	Slope	Ecological site	Salinity	Run Off	Erosion Potential	Bedrock
6	Barcus channery loamy sand	2-8%	Foothills Swale	<2	Slow	Moderate	>60
15	Castner channery loam	5-50%	Pinyon-Juniper woodlands	<2	Medium to rapid	Moderate to very high	10-20
33	Forelle loam	3-8%	Rolling Loam	<2	Medium	Moderate	>60
34	Forelle loam	8-15%	Rolling Loam	<2	Medium	Moderate to high	>60
36	Glendive fine sandy loam	2-4%	Foothills Swale	2-4	Slow	Slight	>60
40	Hagga loam	0-5%	Swale Meadow	2-8	Slow	Slight	>60
41	Havre loam	0-4%	Foothill Swale	<4	Medium	Slight	>60
43	Irigul-Parachute complex	12-45% 5-30%	Loamy Slopes/Mountain Loam	<2	Rapid	Slight to high	10-20
58	Parachute Loam	25-75%	Brushy Loam	<2	Medium	Very high	20-40
59	Parachute-Rhone loams	5-30%	Mountain Loam	<2	Medium	Moderate to high	20-40
64	Piceance fine sandy loam	5-15%	Rolling Loam	<2	Medium	Moderate to high	20-40
70	Redcreek-Rentsac complex	5-30%	PJ woodlands/PJ woodlands	<2	Very high	Moderate to high	10-20
73	Rentsac channery loam	5-50%	Pinyon-Juniper woodlands	<2	Rapid	Moderate to very high	10-20
75	Rentsac-Piceance complex	2-30%	PJ woodland/Rolling Loam	<2	Medium	Moderate to high	10-20
82	Silas loam	0-8%	Mountain Swale	<2	Medium	Slight to moderate	>60
87	Starman-Vandamore complex	5-40%	Dry Exposure/Dry Exposure	<2	Medium	Moderate to very high	10-20
91	Torriorthents-Rock Outcrop complex	15-90%	Stoney Foothills		Rapid	Very high	10-20
96	Veatch channery loam	12-50%	Loamy Slopes	<2	Medium	Moderate to very high	20-40
104	Yamac Loam	2-15%	Rolling Loam	<2	Medium	Slight to moderate	>60

Environmental Consequences of the Proposed Action: The use of vibroseis buggies off existing travel ways may invite public use (OHV use) on those particular transects. Additional

travel on these seismic transects will reduce vegetal cover and increase soil compaction resulting in decreased infiltration and permeability rates. Reductions in infiltration and permeability rates will elevate the potential for erosive overland flows. Furthermore, continued use of these transect lines by the public may induce rutting along portions of the roadway. Rut development will trigger gully formation and extensive head cutting.

Detonation of explosives or vibrator operations occurring on slopes greater than thirty percent during wet periods when soils are saturated may result in slope failure.

Environmental Consequences of the No Action Alternative: None

Mitigation: Avoid operations during wet periods to minimize potential for slope failures. Use existing travel ways when possible and minimize operations on steep slopes (greater than 35 %). Minimize destruction of vegetation and removal of ground cover when vibroseis buggies are in use off existing roads. In areas that receive noticeable impacts on vegetation and ground cover (e.g. locations that may be inviting to OHVs use by the public), care should be taken to re-apply adequate ground cover and vegetation (Native Seed Mix #3) to inhibit unauthorized motorized vehicle use.

Finding on the Public Land Health Standard for upland soils: The proposed actions will have little effect on soil health. Slight decreases of infiltration and permeability rates along transect lines is expected. However, the primary threat to soil health is continued use of transect lines by unauthorized vehicles. Following proper mitigation, OHV use can be detoured from using these areas.

VEGETATION (includes a finding on Standard 3)

Affected Environment: The proposed project lines occur primarily within pinyon-juniper woodland and Wyoming and basin big sagebrush vegetation types. The structure and composition of these plant communities is highly variable.

Environmental Consequences of the Proposed Action: There will be some destruction of vegetation as a result of this project. In areas where buggies/vehicles run over Wyoming and basin big sagebrush, there will be 50-75% mortality of these species depending on prevailing moisture conditions. The proposal to use buggies across Wyoming big sagebrush parks in places such as Bar D and 84 Mesa will accelerate the proliferation of roads and trails in Piceance Basin that is currently causing the piecemeal destruction and fragmentation of native plant communities in these areas.

Environmental Consequences of the No Action Alternative: There will be no change from the present situation.

Mitigation: The lines crossing Greasewood Gulch- the Seeded Greasewood fire Use area, T 1S, R 96 W should be done using the heliportable method. The seeded burn area is closed to all vehicular use. In addition, in other areas it is recommended that heliportable method be use on

all lines but those which are adjacent to existing roads and trails. In order to preempt noxious weed invasion, all disturbed sites should be revegetated with Native Seed mixture #3. This may mean broadcast seeding and hand raking to insure seed coverage. The applicant will be responsible for eradicating all noxious and invasive species which occur on site using materials and methods approved by the Field Manager. Dawson will be responsible for monitoring the project area for a minimum of three years post completion to detect establishment of noxious weeds on disturbed sites. A report documenting completion of this monitoring will be submitted at the close of the field season on an annual basis to the Field Manager.

Native Seed Mix # 3		
Species (Variety)	Lbs. PLS per Acre	Ecological Sites
Western wheatgrass (Rosanna)	2	Gravelly 10"-14", Pinyon/Juniper Woodland, Stony Foothills, 147 (Mountain Mahogany)
Bluebunch wheatgrass (Secar)	2	
Thickspike wheatgrass (Critana)	2	
Indian ricegrass (Nezpar)	1	
Fourwing saltbush (Wytana)	1	
Utah sweetvetch	1	
Alternates: Needle and thread, globemallow		

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Wildlife, Aquatic and Wildlife, Terrestrial): On a site, watershed and landscape basis, upland plant communities meet the Standard and are expected to continue to do so following implementation of this project.

WILDLIFE, AQUATIC (includes a finding on Standard 3)

Affected Environment: The project area encompasses a number of perennial and intermittent channel systems on BLM-administered lands that support only rudimentary invertebrate-based aquatic systems (e.g., Eureka Creek, Yankee and Ryan Gulches, Stake Springs Draw, Greasewood and Corral Gulches). According to those surveyed portions of line (67 miles north of Ryan Gulch and west of Piceance Creek), the proponent displays no off-road channel crossings on BLM-administered lands. Further, the proponent has not approached BLM on pre-designating channel crossings for vehicles (see applicant-proposed mitigation below) on the remainder of the project (Lines 01 and 20).

The proposed action includes the following applicant-proposed measures that are considered committed mitigation:

- *No shot holes would be drilled within 330 feet of perennial surface water features.*
- *Helicopters would be used to drop equipment to support placement of recording lines to reduce surface disturbance.*
- *No operations other than receiver placement would be performed within 660 feet of a spring.*
- *Vehicles would not cross perennial water features, except on existing roads or*

predesignated crossings.

Environmental Consequences of the Proposed Action: The proposed action would have little, if any influence on channels that support aquatic communities. Community effects would be confined primarily to on-line pedestrian traffic associated with geophone placement and retrieval. For that portion of the project where seismic methods have been firmly established, drilling and source generation operations and support vehicle use that would intersect or parallel BLM-administered channels would be confined to existing roads. On the remainder of the project, it is likely that many of the BLM-administered channel crossings (i.e., Line 01: Eureka, Yankee, and Ryan Gulches; Line 20: Greasewood Gulch) would involve heliportable drilling and would not be subject to wheeled or tracked vehicle effects. In general, one-pass drilling buggy crossings would yield shallow, temporary depressions perpendicular to the channel that would be expected to quickly accumulate sediments, revegetate from in-place sources, and thereby maintain the integrity of any existing aquatic habitat conditions. Multiple passes by any vehicle type would tend to rut channel features, trample vegetative cover, and risk compromising channel stability and habitat quality. Until need is established, it is recommended that no vehicles be authorized to cross channels that bear riparian or wetland growth until crossing points and a complete rehabilitation plan is agreed to by BLM and the applicant.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have potential to influence riparian or wetland communities.

Mitigation: Until need is established, it is recommended that no vehicles be authorized to cross channels that bear riparian or wetland growth until crossing points and a complete rehabilitation plan is agreed to by BLM and the applicant.

Finding on the Public Land Health Standard for riparian systems: Due to equipment limitations in wet soil conditions, proposed seismic operations (i.e., shothole drilling) would generally avoid channels that support aquatic habitat and would, therefore, have no influence on channel morphology or function, associated vegetation, or aquatic habitat conditions. As conditioned, neither the proposed or no-action alternatives would have any effective influence on the status of the land health standards as applied to aquatic animals or habitat conditions on BLM-administered lands.

WILDLIFE, TERRESTRIAL (includes a finding on Standard 3)

Affected Environment: The entire project area is encompassed by big game (deer and elk) winter ranges that are primarily composed of intermixed and lower elevation pinyon-juniper woodlands and Wyoming big sagebrush or mixed brush shrublands. These ranges are generally occupied from September through May. About 64 miles of the proposed seismic lines would intersect mule deer severe winter range that is classified as critical habitat by the Colorado Division of Wildlife. As a means of stabilizing or reducing the influence of vehicle use on big game (e.g. extraneous energy demands attributable to harassment, declining utility of cover and forage resources from avoidance), road density objectives of 1.5 mile per square mile were applied to big game critical habitats in the White River RMP. The proposed project remains a

minimum 1 mile distant from higher elevation big game summer ranges (also considered critical habitat).

The woodlands and rock outcrops traversed by this project are used by a number of breeding raptors, including golden eagle, red-tailed hawk, and great horned owl (cliffs), and generally the accipitrine hawks and long-eared owl in the woodlands. The nesting season is protracted for this group as a whole, with nest initiation beginning in early February and fledging of young extending through at least mid-July. Collective woodland nest densities probably average about 1 active nest per 1000 acres. At BLM's direction, the project proponent contracted raptor nest surveys for those lines where off-road or helicopter activity would be anticipated to occur prior to 15 July, when most raptors have completed their nesting cycle. Approximately 37 miles of line were surveyed in May 2005 that included about 1500 acres of suitable woodland habitats. Thirteen active raptor nests were found within 1000 feet of these lines, including long-eared owl, golden eagle, red-tailed hawk and northern goshawk. Woodland nest efforts are a minimum 300 feet interior to the nearest woodland edge and a minimum 400 feet from the nearest existing road. The northern goshawk is regarded as a BLM-sensitive species that is managed, by policy, in a manner that ensures that actions authorized by the BLM do not contribute to the species becoming eligible for listing under the Endangered Species Act.

The project spans a wide array of habitats that are occupied by resident and breeding populations of nongame small mammals and birds. The major communities include: variable age pinyon-juniper woodland, burned woodland, basin big sagebrush bottomlands, lower elevation Wyoming big sagebrush steppe, upper elevation mountain big sagebrush steppe, and mountain shrub (Gambel's oakbrush and Utah serviceberry). Species associated with these habitats are widely represented and typical of each habitat. There are no narrowly endemic or rare species, nor are there obvious deficiencies in the composition of these populations.

Environmental Consequences of the Proposed Action: Although seismic activity would occasionally encounter big game over the summer activity period, disturbances would be short term, transient, and tightly confined to the defined line. Disturbances on any given parcel of land would generally be brief (an hour or less). Temporary and narrowly focused surface activity would pose no substantive threat to resident big game in the project area. The proponent does not anticipate seismic activities other than demobilization to be conducted in elk or mule deer crucial (i.e., severe) winter range from November 15 through April 1.

This seismic operation would be immediately preceded by, or may be coincident with the beginning of Colorado's big game hunting seasons when recreational vehicle use tends to negotiate any semblance of trail or track. Subsequent use of such trails that are not effectively obliterated or made impassable establishes them as vehicle ways and incrementally expands the local road network and its attendant influences on resident wildlife.

The project proponent has proposed a number of measures intended to deter subsequent recreational use of residual off-road buggy drill and vibroseis trails, including:

- *Larger shrubs, trees, and other obstacles would be avoided where possible; no cutting or removal of shrubs, trees, or other obstacles is proposed (note: the operator asked BLM to*

- allow for the limbing of tree branches to ease passage of large equipment.*
- *Operation of most support vehicles, including pickups, would be limited to existing roads and trails or to routes/areas surveyed and cleared previously for archaeological resources.*
 - *No cross-country travel would be permitted on slopes greater than approximately 30 percent by Kawasaki Mules, Vibroseis, or Drill buggies; all other vehicles would be restricted to existing roads and trails.*
 - *Reclamation will take place as the project progresses where needed. Where determined necessary by the BLM or the appropriate landowner, the operator shall rake out vehicle tracks visible from existing roads or trails to disguise the seismic lines and discourage use by off-road vehicles (ORVs). All such vehicle track depressions/ruts will be raked out to approximate the original contour. All compacted areas (areas compressed and hardened by the weight of vehicles) shall be scarified (the breaking up of the compaction) to improve water filtration, reduce surface runoff, provide a seedbed for the establishment of vegetation, and discourage subsequent ORV use. All scarified areas will be reseeded with a mix of native plant species on a site-specific basis as determined by the Field Manager. When operations are complete, signs and barricades shall be placed in appropriate areas as deemed necessary by the appropriate SMA to discourage the use of seismic lines for ATV travel.*

The probability of these measures effectively deterring vehicle use of residual seismic trails is low, particularly where pickups and ATVs would be used as support vehicles and where limbing of branches to accommodate passage of 10-wide vehicles through woodlands occurs (e.g., about 6 miles of first 67 miles of line surveyed). To aid in reducing track recognition, the operator should be responsible for raking out all vehicle tracks visible from any existing road or trail and using crushed vegetation in a manner that most effectively disguises seismic lines and discourages use by off-road vehicles. Any material from tree limbing should be scattered along seismic tracks to help deter vehicle passage, and an approved native seed mix should be raked into mineral soil where drilling, source generation, or support vehicle operations expose patches of 1 square yard or more (e.g., turning of articulated vehicles).

Raptor nests located during survey work are located varying distances from designated points of disturbance. The long-eared owl and goshawk found along Line 10 are a minimum 490 and 300 feet, respectively, from heliportable drill points; the long-eared owl found along Line 8 is a minimum 260 feet from the series of proposed buggy-drill points. Based on experiences with woodland raptor response using identical seismic techniques in pinyon-juniper woodlands, heliportable drill and low-level helicopter transport operations represent relatively brief, but recurrent and intense disruptions to nesting raptors that have a high probability of failing ongoing nest efforts when located within a minimum 350 feet of nest sites. The mitigation measures presented below would reduce the intensity and duration of equipment and personnel exposures sufficient to prevent adverse disruption of nestling-stage nest efforts of goshawk and long-eared owl.

Nongame populations would not be substantively influenced by proposed seismic work. Although disturbances associated with seismic buggy-drill operations, foot travel of ground crews, and helicopter operation on cross-country segments are unavoidable, these impacts would

generally be of short duration, very confined in scope, and would occur largely after the reproductive season (>15 July). It is inconceivable that these operations would have any measurable influence on non-game populations at any landscape scale.

Environmental Consequences of the No Action Alternative: There would be no action authorized that would have potential to disrupt terrestrial wildlife populations or adversely modify habitat.

Mitigation:

Big Game-related

The operator should be responsible for raking out all vehicle tracks visible from any existing road or trail and using crushed vegetation in a manner that most effectively disguises seismic lines and discourages use by off-road vehicles. Any material from tree limbing should be scattered along seismic tracks to help deter vehicle passage, and an approved native seed mix should be raked into mineral soil where drilling, source generation, or support vehicle operations expose patches of 1 square yard or more (e.g., turning of articulated vehicles).

Raptor nest protection

No helicopter activity would be allowed within 0.25 mile of the golden eagle nest site in section 5, T2S, R97W until the nestlings are fledged and leave the nest site. BLM will provide the proponent the information necessary to establish this buffer.

No helicopter activity or landing zones would be allowed on the northerly side of Line 16 in section 7 SE1/4 and section 8 SW1/4 of T1S R96W to avoid disrupting a golden eagle nest territory. No helicopter landing zones would be allowed in Greasewood Gulch within 0.5 mile of Line 16.

Prior to August 15, helicopter support of vibroseis operations will not be allowed in canyons with substantive cliff series or rock outcrops, including: Ryan, Corral, Yankee, Little Corral, and Dry Gulches, and Black Sulphur and Fawn Creeks, unless these areas are specifically cleared for raptor nest activity.

No seismic related activity will occur within 1000 feet of active raptor nests identified in the final raptor survey report developed for Dawson Geophysical (BioEnvironmental Associates, 2005) during inclement weather, including persistent cold, wind, and precipitation unless information is provided to BLM verifying nest inactivity. .

Areas within 0.5 mile of raptor nests identified in the final raptor survey report developed for Dawson Geophysical (BioEnvironmental Associates, 2005) will not be used for helicopter staging or landing zones unless information is provided to BLM verifying nest inactivity.

Prior to July 15, drilling is authorized only on the following segments that have received raptor nest surveys:

- a. Line 1 north of Line 2

- b. Line 2
- c. Line 3 north of Line 8
- d. Line 8
- e. Line 10
- f. Line 12
- g. Line 14 north of Line 3 to Ryan Gulch ACEC and between Ryan Gulch ACEC to RBC 5

Nest specific mitigation:

Line 10 northern goshawk nest (T2S R98W section 18):

- a. skip shothole locations 100929.5, 100935.5, and 100941.5
- b. no-fly/no drilling activity buffer: no helicopter flights between Line 10 and RBC 68 and in a buffer extending 1000 feet northwest and perpendicular to Line 10 from shotpoints 100923.5 to 100947.5
- c. ground crews to stay on-line, keeping disturbance (i.e., noise) to absolute minimum from station 100923.5 to 100947.5
- d. notify BLM 1 day in advance of anticipated drilling adjacent to, and bypass of, buffer to allow BLM biologists to witness and document drilling activity in vicinity of nest

Line 10 long-eared owl nest (T2S, R98W section 18):

- a. no-fly /no surface activity buffer: no helicopter flights between Line 10 and RBC 68 between shotpoints 100983.5 and 100959.5. Helicopter to remain on or north of Line 10 during drilling between shotpoints 100983.5 and 100959.5.
- b. ground crews to stay on-line, keeping disturbance (i.e., noise) to absolute minimum from stations 100983.5 to 100959.5
- c. notify BLM 1 day in advance of anticipated drilling adjacent to, and bypass of, buffer to allow BLM biologists to witness and document drilling activity in vicinity of nest

Line 08 long-eared owl nest (T1S, R98W section 28):

- a. no helicopter support flights in a 500-foot radius extending from the nest site.
- b. ground crews to stay on-line, keeping disturbance (i.e., noise) to absolute minimum from stations 80371.5 to 80389.5
- c. notify BLM 1 day in advance of anticipated drilling adjacent to, and bypass of, buffer to allow BLM biologists to witness and document drilling activity in vicinity of nest

Line 18 red-tailed hawk nest (T1S, R97W section 35):

- a. no-fly /no surface activity buffer: no helicopter flights on the northerly side of Line 18 in T1S, R97W section 35 SESW and SWSE and T2S, R97W section 2 NWNE and NENW.
- b. notify BLM 1 day in advance of anticipated drilling adjacent to, and bypass of, buffer to allow BLM biologists to witness and document drilling activity in vicinity of nest

Finding on the Public Land Health Standard for plant and animal communities (partial, see also Vegetation and Wildlife, Aquatic): The land health standard for animal communities is currently being met across Piceance Basin. Although this seismic operation may result in localized instances where the land health standards are compromised (e.g., increasing road density, noxious weed establishment), as conditioned, the proposed action would not impair the continued meeting of this standard (i.e., landscape function and utility) for resident wildlife populations. The no-action alternative would have no influence on the continued meeting of the standard.

OTHER NON-CRITICAL ELEMENTS: For the following elements, only those brought forward for analysis will be addressed further.

Non-Critical Element	NA or Not Present	Applicable or Present, No Impact	Applicable & Present and Brought Forward for Analysis
Access and Transportation			X
Cadastral Survey	X		
Fire Management			X
Forest Management		X	
Geology and Minerals			X
Hydrology/Water Rights		X	
Law Enforcement		X	
Noise		X	
Paleontology			X
Rangeland Management		X	
Realty Authorizations			X
Recreation			X
Socio-Economics		X	
Visual Resources		X	
Wild Horses			X

ACCESS AND TRANSPORTATION

Affected Environment: The proposed action will utilize dozens of Rio Blanco County, BLM and privately owned roads. In addition the proposed action is planned through areas where motorized travel is limited to designated routes (such as ACECs), areas where motorized travel is limited to existing routes (no cross-country off road travel) and areas where travel is limited to existing routes from October 1 through May 1. Motorized off route travel and coinciding route proliferation is currently an issue within the WRFO.

Environmental Consequences of the Proposed Action: Where buggies and off-highway vehicles (OHVs) travel cross-country off of existing routes, the likelihood of route proliferation is increased due to route identification by proposed action and subsequent use by other public land users.

Environmental Consequences of the No Action Alternative: None.

Mitigation: All routes created by OHVs and buggies should be properly reclaimed and/or camouflaged to discourage use by other public land users. See vegetation, air quality, water quality and soils sections for other mitigation details.

FIRE MANAGEMENT

Affected Environment: On June 6, 2004 the Greasewood Fire started and actively burned until June 18, 2004 7800 acres. The fire was managed as Wildland Fire Use for resource benefit in accordance with the White River Fire Management Plan and White River Resource Land Use Plan. The fire burned a portion of the resource area's heaviest Ips Beetle infestation and consumed heavy dead and downed pinion-juniper fuel loading estimated at approximately 10 tons/acre. The fire also converted numerous PJ encroached sagebrush parks back to open meadows. The sagebrush parks that were burned will be enhanced due to the level of PJ encroachment prior to the fire, the fire provided a net benefit to these parks by removing the encroached PJ. On a landscape level fire was reintroduced to an area where at least one fire return interval was missed and converted 7,800 acres from a fire regime and condition class III to condition class I and achieved a more mosaic mix of seral age classes within the occurring vegetation strata present within and around the fire on a landscape level.

To mitigate short term impacts such as weed establishment and erosion the BLM seeded 3,100 acres of the burned area utilizing 150,000 dollars and uncountable government man hours in the fall of 2004. Seismic lines 16, 18, and 20 pass through the burned area and the mitigated portions of the burn.

Environmental Consequences of the Proposed Action: The burn area will be in its first growing season, post fire at the time of the proposed action. This is a critical time for seeding establishment and natural revegetation processes. It is also the time period when the burned area is most vulnerable to weed establishment. Surface disturbances such as vehicle traffic will easily uproot seeded species that have yet to completely develop root structure and jeopardize seeding success and make these areas directly vulnerable to weed establishment and expansion. These surface disturbances will threaten the mitigative measures the BLM spent money to preempt.

Environmental Consequences of the No Action Alternative: None

Mitigation: See Vegetation Section.

GEOLOGY AND MINERALS

Affected Environment: The eastern portions of seismic lines 4 through 16 cross existing federal sodium leases; portions of lines 10, 12, and 14 are within 1,000 feet of existing sodium operations. Line 10 crosses 700 feet of Natural Soda's existing mining and monitoring

facilities. Line 12 comes within 20 feet of American Soda's plant facilities. Line 14 crosses the southeast corner of American Soda's well and is within 350 feet of a solution mining well. American soda is currently not conducting any solution mining.

Environmental Consequences of the Proposed Action: Seismic activities in on around the existing mining operations may disrupt the ongoing mining activities.

Environmental Consequences of the No Action Alternative: None

Mitigation: Dawson should notify lease holders of the proposed action and coordinate with them to insure the seismic activities do not adversely affect the lease holders.

PALEONTOLOGY

Affected Environment: the proposed seismic lines are in areas that are mapped as the Uinta Formation in the lower elevations and portions of the Green River Formation in some of the higher elevation portions of the lines. Both formations have been classified as Condition I formations meaning that they are known to produce scientifically important fossil resources.

Environmental Consequences of the Proposed Action: Provided the only disturbance to the underlying rock formations is from the drilled shot holes and not blading into and through any rock there should only be a very minimal impact to fossil resources. Deeply buried fossil may be impacted but it is virtually impossible to identify the fossils or the impacts from a four to six inch drill hole.

Environmental Consequences of the No Action Alternative: There would be no new impacts to Fossil Resources under the No Action Alternative.

Mitigation: 1. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing paleontological sites, or for collecting fossils. If fossil materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear to be of noteworthy scientific interest
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not feasible)

If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

REALTY AUTHORIZATIONS

Affected Environment: The project routes cover private, federal, and state lands. The proposed lines cross linear rights-of-way for roads, pipelines, and utility lines. No staging areas, helicopter sites, or explosive magazines are planned to be located on federal lands.

Environmental Consequences of the Proposed Action: Utilizing vibroseis and shot hole methodology can adversely affect nearby facilities such as pipelines.

Environmental Consequences of the No Action Alternative: The project will not be authorized and there would be no additional impacts.

Mitigation: 1. Colorado One Call must be activated before any surface disturbance and Dawson should coordinate with holders of existing linear and site rights-of-way.
2. If any staging areas, helicopter sites, or explosive magazines are relocated to public lands, Dawson needs to apply for Temporary Use Permits.

RECREATION

Affected Environment: The proposed action occurs within the White River Extensive Recreation Management Area (ERMA). BLM custodially manages the ERMA to provide for unstructured recreation activities such as hunting, dispersed camping, hiking, horseback riding, wildlife viewing and off-highway vehicle use.

The project area has been delineated/most resembles a Recreation Opportunity Spectrum (ROS) class of Semi-Primitive Motorized (SPM). SPM physical and social recreation setting is typically characterized by a natural appearing environment with few administrative controls, low interaction between users but evidence of other users may be present. SPM recreation experience is characterized by a high probability of isolation from the sights and sounds of humans that offers an environment that offers challenge and risk.

The project area has been delineated/most resembles a Recreation Opportunity Spectrum (ROS) class of Roaded Natural (RN). RN physical and social recreation setting may have modifications which range from being easily noticed to strongly dominant to observers within the area. However, from sensitive travel routes and use areas these alterations would remain unnoticed or visually subordinate. There is strong evidence of designed roads and/or highways. Structures are generally scattered, remaining visually subordinate or unnoticed to the sensitive travel route observer. Structures may include utility corridors, microwave installations and so on. Frequency of contact is moderate to high on roads and low to moderate on trails and away from roads. RN recreation experience is characterized by a moderate probability of isolation from the sights and sounds of humans that offers an environment that offers challenge and risk.

The project area has been delineated/most resembles a Recreation Opportunity Spectrum (ROS) class of Rural (R). Rural physical and social recreation setting is culturally modified to the point that it is dominant to the sensitive travel route observer. This may include pastoral, agricultural, intensively managed wildland resource landscapes, or utility corridors. Pedestrian or other slow moving observers are constantly within view of culturally changed landscape. There is strong evidence of designed roads and/or highways. Structures are readily apparent and may range from scattered to small dominant clusters including utility corridors, farm buildings, microwave installations, and recreation sites. Frequency of contact is moderate to high at developed sites and on roads and trails; moderate away from developed sites. Rural recreation experience is characterized by a low probability of isolation from the sights and sounds of humans.

Environmental Consequences of the Proposed Action: The public will most likely not recreate in the vicinity of these activities and will be dispersed elsewhere. If action coincides with hunting seasons (September through November) it will most likely disrupt the experience sought by those recreationists.

With the introduction of new well pads and roads, an increase of traffic could be expected increasing the likelihood of human interactions, the sights and sounds associated with the human environment and a less naturally appearing environment.

Environmental Consequences of the No Action Alternative: No loss of dispersed recreation potential and no impact to hunting recreationists.

Mitigation: None.

WILD HORSES

Affected Environment: Part of the proposed project is located within the Piceance-East Douglas wild horse herd management area (HMA). BLM manages the Piceance-East Douglas herd in a manner designed to assure a healthy, viable breeding population. Foaling season for this herd occurs between March 1 and June 15 each year.

Environmental Consequences of the Proposed Action: Wild horse bands inhabiting the project area will be temporarily displaced for the duration of the project. The amount of stress experienced by wild horse bands is expected to be more intense on portions of the seismic line surveyed using the heli-portable drill because of the increased noise and existence of overhead mechanical noise and activity. Older horses and foals that possess less stress stamina will likely be most adversely affected by the proposed action. The degree of stress on all horses, regardless of age, is expected to be more intense on wild horses in Square S Pasture C.

Environmental Consequences of the No Action Alternative: Wild horse bands in the Piceance-East Douglas herd would not experience stress resulting from, or be adversely affected by completion of the Dawson Geophysical Seismic Project.

Mitigation: Activities will not be conducted until after June 15th in order to protect wild horses during the spring foaling and breeding period.

Activities within the wild horse herd management area (HMA) (Map 1) will require the following requirement: if an HMA fence crossing is required for a location absent a gate, the fence would be cut and H-braces would be installed to support the existing fence and a temporary gate would be installed to prevent livestock from appropriate pastures what?. Upon termination of seismic survey activities, the temporary opening or gate would be permanently rewired and stretched to their original tension.

To minimize young foals becoming separated from their mares, or wild horses being run through fences as a result of the noise and overhead mechanical presence, helicopters will widely transect each geographic area at an altitude of at least 300 feet prior to beginning low-level delivery of supplies on heli-portable sections of a line.

To minimize the incident of young foals becoming dislocated from their mares due to the buggy vibrator crews, the crew members will slow, or stop when wild horse bands are encountered to allow bands to move away at a pace slow enough that sleeping foals, or very young foals become aware that the band is leaving and can keep pace with the band as it escapes.

Because the project is expected to extend as much as 14 hours each day, Dawson Geophysical employees will not camp or recreate on water sources in the project area after hours to allow wild horses free access to water after the seismic operations are halted at the end of each day.

CUMULATIVE IMPACTS SUMMARY: No cumulative impacts were identified.

PERSONS / AGENCIES CONSULTED: None

INTERDISCIPLINARY REVIEW:

Name	Title	Area of Responsibility
Nate Dieterich	Hydrologist	Air Quality
Tamara Meagley	Natural Resource Specialist	Areas of Critical Environmental Concern
Tamara Meagley	Natural Resource Specialist	Threatened and Endangered Plant Species
Michael Selle	Archaeologist	Cultural Resources Paleontological Resources
Mark Hafkenschiel	Rangeland Management Specialist	Invasive, Non-Native Species, Vegetation, Rangeland Management
Ed Hollowed	Wildlife Biologist	Migratory Birds
Ed Hollowed	Wildlife Biologist	Threatened, Endangered and Sensitive Animal Species
Bo Brown	Hazmat Collateral	Wastes, Hazardous or Solid
Nate Dieterich	Hydrologist	Water Quality, Surface and Ground Hydrology

Name	Title	Area of Responsibility
		and Water Rights
Ed Hollowed	Wildlife Biologist	Wetlands and Riparian Zones
Chris Ham	Outdoor Recreation Planner	Wilderness
Nate Dieterich	Hydrologist	Soils
Ed Hollowed	Wildlife Biologist	Wildlife Terrestrial and Aquatic
Chris Ham	Outdoor Recreation Planner	Access and Transportation
Ken Holsinger	Natural Resource Specialist	Fire Management
Bob Fowler	Forester	Forest Management
Paul Daggett	Mining Engineer	Geology and Minerals
Linda Jones	Realty Specialist	Realty Authorizations
Chris Ham	Outdoor Recreation Planner	Recreation
Keith Whitaker	Natural Resource Specialist	Visual Resources
Valerie Dobrich	Natural Resource Specialist	Wild Horses

Finding of No Significant Impact/Decision Record (FONSI/DR)

CO-110-2005-092-EA

FINDING OF NO SIGNIFICANT IMPACT (FONSI)/RATIONALE: The environmental assessment and analyzing the environmental effects of the proposed action have been reviewed. The approved mitigation measures (listed below) result in a Finding of No Significant Impact on the human environment. Therefore, an environmental impact statement is not necessary to further analyze the environmental effects of the proposed action.

DECISION/RATIONALE: It is my decision to approve the implementation of the seismic exploration project as described in the proposed action and submitted plan of operations with mitigation measures listed below.

MITIGATION MEASURES:

1. No action will be taken on those lines where a survey has not been submitted until a written notice to proceed is received by the operator. The lines identified without a survey are line #1 from the intersection of line #14 through to line #22, line #3 from the intersection of line# 5 through to line # 22, line # 14 on the east side of Ryan Gulch ACEC, all of lines 5, 16, 18, 20, and 22. When the survey is received it will be reviewed to ensure this EA adequately analyzed the project. If any issues arise from the survey then inventories may have to be completed and the EA supplemented to reflect the new information.

2. As stated in the proposed action, use existing travel ways when possible. Minimize destruction of vegetation and removal of ground cover when vibroseis buggies are in use off existing roads. In areas that receive noticeable impacts to vegetation and ground cover (e.g. locations that may be inviting to OHVs use by the public), care should be taken to re-apply adequate ground cover to inhibit unauthorized vehicle use.

3. The operator is responsible for informing all persons who are associated with the project 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 uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). 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 site can be used (assuming in situ preservation is not necessary)

- a timeframe for the AO to complete an expedited review under 36 CFR 800-11 to confirm, through the State Historic Preservation Officer, that the findings of the AO are correct and that mitigation is appropriate.

4. If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

5. Pursuant to 43 CFR 10.4(g) the holder of this authorization must notify the AO, by telephone, 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.

6. In order to preempt noxious weed invasion, all disturbed sites should be revegetated with Native Seed mixture #3. This may mean broadcast seeding and hand raking to insure seed coverage. The applicant will be responsible for eradicating all noxious and invasive species which occur on site using materials and methods approved by the Field Manager. Dawson will be responsible for monitoring the project area for a minimum of three years post completion to detect establishment of noxious weeds on disturbed sites. A report documenting completion of this monitoring will be submitted at the close of the field season on an annual basis to the Field Manager.

7. The operator shall be required to collect and properly dispose of any solid wastes generated by this project

8. Avoid operations during wet periods to reduce potential for rut development. Use existing travel ways when possible and minimize operations in flood planes and riparian areas. Limit destruction of vegetation and removal of ground cover when vibroseis buggies are in use off existing roads. In areas that receive noticeable impacts on vegetation and ground cover (e.g. locations that may be inviting to OHVs use by the public), care should be taken to re-apply adequate ground cover to inhibit unauthorized motorized vehicle use.

9. Give federally-owned or controlled springs and flowing water wells (see above table) a minimum 660' (1/8 mile) buffer zone from blasting or vibrating operations. To help mitigate potential bank destabilization associated with vibrating or blasting, it is recommended that operations not occur within ~100 feet of any perennial surface waters (e.g. Piceance Creek and Yellow Creek).

10. Until need is established, it is recommended that no vehicles be authorized to cross channels that bear riparian or wetland growth until crossing points and a complete rehabilitation plan is agreed to by BLM and the applicant.

11. Avoid operations during wet periods to minimize potential for slope failures. Use existing travel ways when possible and minimize operations on steep slopes (greater than 35 %). Minimize destruction of vegetation and removal of ground cover when vibroseis buggies are in use off existing roads. In areas that receive noticeable impacts on vegetation and ground cover (e.g. locations that may be inviting to OHVs use by the public), care should be taken to re-apply adequate ground cover and vegetation (Native Seed Mix #3) to inhibit unauthorized motorized vehicle use.

12. The lines crossing Greasewood Gulch- the Seeded Greasewood fire Use area, T 1S, R 96 W should be done using the heliportable method. The seeded burn area is closed to all vehicular use. In addition, in other areas it is recommended that heliportable method be use on all lines but those which are adjacent to existing roads and trails. In order to preempt noxious weed invasion, all disturbed sites should be revegetated with Native Seed mixture #3. This may mean broadcast seeding and hand raking to insure seed coverage. The applicant will be responsible for eradicating all noxious and invasive species which occur on site using materials and methods approved by the Field Manager. Dawson will be responsible for monitoring the project area for a minimum of three years post completion to detect establishment of noxious weeds on disturbed sites. A report documenting completion of this monitoring will be submitted at the close of the field season on an annual basis to the Field Manager.

Native Seed Mix # 3		
Species (Variety)	Lbs. PLS per Acre	Ecological Sites
Western wheatgrass (Rosanna)	2	Gravelly 10"-14", Pinyon/Juniper Woodland, Stony Foothills, 147 (Mountain Mahogany)
Bluebunch wheatgrass (Secar)	2	
Thickspike wheatgrass (Critana)	2	
Indian ricegrass (Nezpar)	1	
Fourwing saltbush (Wytana)	1	
Utah sweetvetch	1	
Alternates: Needle and thread, globemallow		

13. Until need is established, it is recommended that no vehicles be authorized to cross channels that bear riparian or wetland growth until crossing points and a complete rehabilitation plan is agreed to by BLM and the applicant.

14. The operator should be responsible for raking out all vehicle tracks visible from any existing road or trail and using crushed vegetation in a manner than most effectively disguises seismic lines and discourages use by off-road vehicles. Any material from tree limbing should be scattered along seismic tracks to help deter vehicle passage, and an approved native seed mix should be raked into mineral soil where drilling, source generation, or support vehicle operations expose patches of 1 square yard or more (e.g., turning of articulated vehicles).

Raptor nest protection mitigation

15. No helicopter activity would be allowed within 0.25 mile of the golden eagle nest site in section 5, T2S, R97W until the nestlings are fledged and leave the nest site. BLM will provide the proponent the information necessary to establish this buffer.

16. Prior to August 15, helicopter support of vibroseis operations will not be allowed in canyons with substantive cliff series or rock outcrops, including: Ryan, Corral, Yankee, Little Corral and Dry Gulches, and Black Sulphur and Fawn Creeks, unless these areas are specifically cleared for raptor nest activity.

17. No seismic related activity will occur within 1000 feet of nests during inclement weather, including persistent cold, wind, and precipitation.

18. Areas within 0.5 mile of raptor nests will not be used for helicopter staging or landing zones.

19. Prior to July 15, drilling is authorized only on the following segments that have received raptor nest surveys:

Line 1 north of Line 2

Line 2

Line 3 north of Line 8

Line 8

Line 10

Line 12

Line 14 north of Line 3 to Ryan Gulch ACEC and between Ryan Gulch ACEC to RBC 5

Nest specific mitigation:

20. **Line 10 northern goshawk nest** (T2S R98W section 18):

- skip shothole locations 100929.5, 100935.5, and 100941.5
- no-fly/no drilling activity buffer: no helicopter flights between Line 10 and RBC 68 and in a buffer extending 1000 feet northwest and perpendicular to Line 10 from shotpoints 100923.5 to 100947.5
- ground crews to stay on-line, keeping disturbance (i.e., noise) to absolute minimum from station 100923.5 to 100947.5
- notify BLM 1 day in advance of anticipated drilling adjacent to, and bypass of, buffer to allow BLM biologists to witness and document drilling activity in vicinity of nest

21. **Line 10 long-eared owl nest** (T2S, R98W section 18):

- no-fly /no surface activity buffer: no helicopter flights between Line 10 and RBC 68 between shotpoints 100983.5 and 100959.5. Helicopter to remain on or north of Line 10 during drilling between shotpoints 100983.5 and 100959.5.
- ground crews to stay on-line, keeping disturbance (i.e., noise) to absolute minimum from stations 100983.5 to 100959.5
- notify BLM 1 day in advance of anticipated drilling adjacent to, and bypass of, buffer to allow BLM biologists to witness and document drilling activity in vicinity of nest

22. **Line 08 long-eared owl nest** (T1S, R98W section 28):

- no helicopter support flights in a 500-foot radius extending from the nest site.
- ground crews to stay on-line, keeping disturbance (i.e., noise) to absolute minimum from stations 80371.5 to 80389.5
- notify BLM 1 day in advance of anticipated drilling adjacent to, and bypass of, buffer to allow BLM biologists to witness and document drilling activity in vicinity of nest

23. Dawson should notify lease holders of the proposed action and coordinate with them to insure the seismic activities do not adversely affect the lease holders.

24. The operator is responsible for informing all persons who are associated with the project operations that they will be subject to prosecution for knowingly disturbing paleontological sites, or for collecting fossils. If fossil materials are uncovered during any project or construction activities, the operator is to immediately stop activities in the immediate area of the find that might further disturb such materials, and immediately contact the authorized officer (AO). Within five working days the AO will inform the operator as to:

- whether the materials appear to be of noteworthy scientific interest
- the mitigation measures the operator will likely have to undertake before the site can be used (assuming in situ preservation is not feasible)

25. If the operator wishes, at any time, to relocate activities to avoid the expense of mitigation and/or the delays associated with this process, the AO will assume responsibility for whatever recordation and stabilization of the exposed materials may be required. Otherwise, the operator will be responsible for mitigation cost. The AO will provide technical and procedural guidelines for the conduct of mitigation. Upon verification from the AO that the required mitigation has been completed, the operator will then be allowed to resume construction.

26. Colorado One Call must be activated before any surface disturbance and Dawson should coordinate with holders of existing linear and site rights-of-way.

27. If any staging areas, helicopter sites, or explosive magazines are relocated to public lands, Dawson needs to apply for Temporary Use Permits.

28. Activities will not be conducted until after June 15th in order to protect wild horses during the spring foaling and breeding period.

29. Activities within the wild horse herd management area (HMA) (Map 1) will require the following requirement: if an HMA fence crossing is required for a location absent a gate, the fence would be cut and H-braces would be installed to support the existing fence and a temporary gate would be installed to prevent livestock from appropriate pastures. Upon termination of seismic survey activities, the temporary opening or gate would be permanently rewired and stretched to their original tension.

30. To minimize young foals becoming separated from their mares, or wild horses being run through fences as a result of the noise and overhead mechanical presence, helicopters will widely transect each geographic area at an altitude of at least 300 feet prior to beginning low-level delivery of supplies on heli-portable sections of a line.

31. To minimize the incident of young foals becoming dislocated from their mares due to the buggy vibrator crews, the crew members will slow, or stop when wild horse bands are

encountered to allow bands to move away at a pace slow enough that sleeping foals, or very young foals become aware that the band is leaving and can keep pace with the band as it escapes.

32. Because the project is expected to extend as much as 14 hours each day, Dawson Geophysical employees will not camp or recreate on water sources in the project area after hours to allow wild horses and wildlife free access to water after the seismic operations are halted at the end of each day.

33. The portion of line 04 proposed to go through the Duck Creek ACEC has been eliminated due to the difficulty in avoiding impact to the Dudley Bluffs bladderpod (*Lesquerella congesta*). No seismic activity would occur between stations 04-0530 to 04-0567. Eliminating activity between those stations will provide a 100' buffer between the three colonies identified.

34. On line 14 seismic activities will be restricted to the existing road between stations 14-0250 to 14-0329. All seismic activities are restricted to the road surface in the case of the vibroseis method and on the south edge of the road for the receiver line.

35. All seismic activities on line 16 through the Ryan Gulch ACEC are restricted to County Road 24, a paved road.

36. The results of surveys for the listed Threatened plant species, *Lesquerella congesta* and *Physaria obcordata*, indicate that there are 36 “colonies” of plants covering about 93 acres along the proposed seismic survey route. To avoid disturbing the threatened plants and their habitat, the project proponent has agreed to the following avoidance measures for specifically identified sections of the seismic lines:

- Portions of Lines 1, 2, 3 and 8 that were to have entered the Duck Creek ACEC have been eliminated from the project to mitigate potential impacts.
- All seismic activities will be restricted to within 30 feet of line 04 between stations 04-0494 and station 04-0500, and no project activity would occur between stations 04-0530 to 04-0567 of line 04.
- The receiver line of line 06 will be relocated to RBC91 from station 06-0100 to 06-167.5, and activity would be restricted to RBC91 or on alluvial soils on the east side of RBC91 from stations 06-0100 to 06-0221
- Within the Ryan Gulch ACEC all (energy) source points are located on existing roads. Known colonies of *L. congesta* and *P. obcordata* occur on a Green River shale formation near line 14 in Horse Draw and near line 16 in Ryan Gulch. All seismic activity will be restricted to existing roads as it passes through this habitat. Small portions of Line 14 that occur off-road are entirely on Uinta Formation and will experience pedestrian traffic only in the ACEC. All activities on line 14 would be restricted to the existing road between stations 14-0250 and 14-0329.

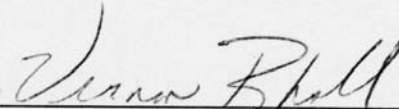
- The portion of Line 18 that crosses the Dudley Bluffs ACEC will experience pedestrian traffic only. No vehicle travel, drilling or other surface disturbing activity will be permitted.

37. The portion of Line 20 that crosses the Dudley Bluffs ACEC will have source points along an existing road at the bottom of McKee Gulch. There are exposed Green River shales on the northerly side of the Gulch (suitable habitat). The road is on the southerly side of the Gulch approximately 0.1 mi away from the formation and across a deep ravine from these shales. Project-related activities along Line 20 will be on road (source points) or next to this road (receiver points) through the ACEC.

NAME OF PREPARER: Tamara Meagley

NAME OF ENVIRONMENTAL COORDINATOR: Caroline Hollowed

SIGNATURE OF AUTHORIZED OFFICIAL:



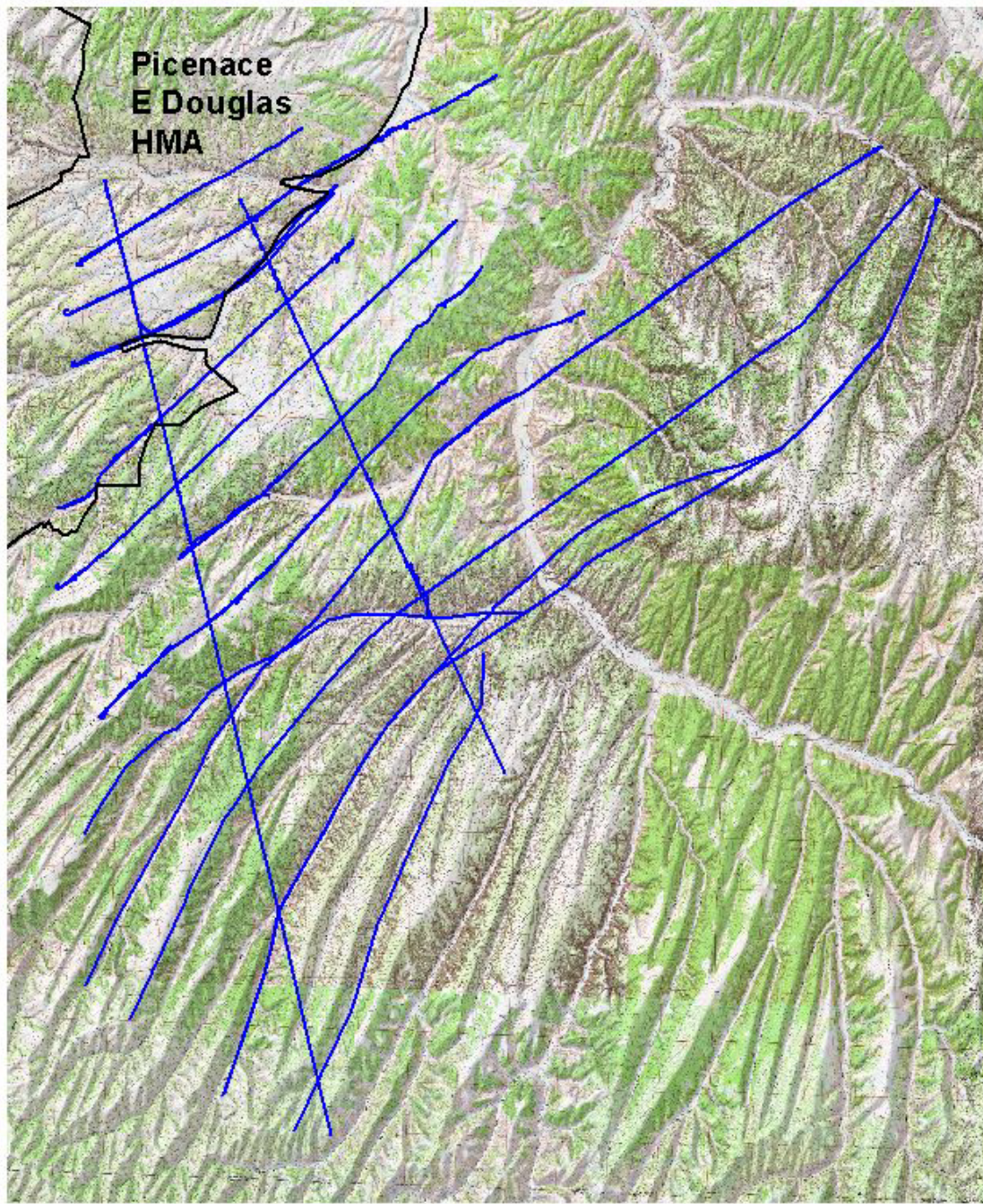
Field Manager

DATE SIGNED:

8/17/05

ATTACHMENTS: Map 1; Herd Management Area
Location Map of the proposed action

Map 1-- Location of HMA



Bureau of Land
Management

Map compiled on June 10, 2005

Disclaimer:

The BLM does not guarantee the accuracy, completeness, or timeliness of the information shown and shall not be liable for any loss or injury resulting from reliance upon the information shown.

2 0 2 Miles

A horizontal scale bar with a black background and white markings. The bar is divided into two equal segments, each labeled "2" at the ends, with a "0" in the center. The word "Miles" is written to the right of the bar.

Location of Proposed Action CO-110-2005-092-EA

