

Conditions of Approval-Iron Point and Trail Gulch Seismic Surveys

Required Setbacks

Seismic activities will avoid cultural resources identified in surveys and setbacks will be applied per table below to further protect historic structures.

The following minimum horizontal distances will be observed between resources of concern and charges and vibroseis. Per applicant's indication that 1 kg (~2.2#) charges would be used, these distances are based on +/- 3# charges, no charges greater than 3# (~1kg) will be used.

Resource	3# charge minimum distance	Vibroseis minimum distance
		or Maximum PPV (IPS)
Pipelines: all diameters and materials for pressurized and non-pressurized	65' ^a	8' ^a
		4.92 ^a
Residential, culinary or irrigation wells	65' ^a	8' ^a
		4.92 ^a
Buried Fiber Optic Telephone Line	76' ^a	11' ^a
		4.00 ^a
Large High Tension Overhead Power Line Tower	127' ^a	27' ^a
		2.00
Buildings: frame, brick, concrete block, underground cistern	293' ^d	167' ^a
		0.50
Producing oil & gas wells, tank farms	65' ^a	8' ^a
		4.92 ^a
High Risk Earthen Dam	293' ^d	167' ^a
		0.50
Cultural Standing Structures, Pictographs and Petroglyphs	293' ^d	167' ^a
		0.50 ^a
Irrigation ditches	293' ^d	167' ^b
		0.5 ^{b, e}
Native cutthroat trout streams	300' ^c	300' ^c
		N/A

^aThese distances offer safe standoff distances using +99.9% confidence intervals. Similar is true for conservative IPS values. Source: Burgus, Mark L. P.G. SPECIAL REPORT: Geophysical Survey Standoff Recommendations, Denver Geophysical Society-The Record, October, 2014

^bNot included as resource in "Geophysical Standoff Recommendations"; deferred to distance of most sensitive resources

^cFrom proponent's 2/19/2019 Revised Plans of Operations; these exceed the distances in the pipeline and well categories under which they would reasonably be included; does not apply to existing roads

^dAdjusted calculations based on proponent's conversations with Burgus and site-specific calculations including linear regression modelling at +99.9% confidence interval in regard to Burgus, Mark L. P.G. SPECIAL REPORT: Geophysical Survey Standoff Recommendations, Denver Geophysical Society- The Record, October, 2014

^eA 99.9% confidence interval reduced setback may apply only to Overland Ditch and Reservoir Company with their permission to use existing road near ditch using ≤ 0.5 ips and reduced force; Source: DGS Conservative PPV Limit Table (unadjusted assumes $\geq 60,000$ pounds peak force); Burgus, Mark

Travel & Access

Wheeled vehicle travel will be limited to roads/trails open to the public in compliance with the GMUG's MVUM map or to existing administrative routes under permit. NOTE: Over-snow-vehicle use may occur and is consistent with the MVUM.

Within Colorado Roadless Areas CRAs (CRAs):

- No roads will be constructed/reconstructed;
- No standing trees will be cut;
- No surface disturbance beyond the 3-inch diameter shot holes will occur;
- Motorized vehicle use is restricted to existing motorized trails per the MVUM, except over-snow-vehicle use may occur if snow cover of 8" or more exists;
- Helicopter landings are restricted to transport of people and for emergencies.
- No helicopter landings for delivery/removal of equipment.

There will be no motorized operations on slopes greater than 60% or on actively slumping slopes. Heliportable drill rigs will be used as necessary, and where safe, to do so for drilling shot holes.

Helicopters will be used to deploy the receiver lines in most areas while receivers in some limited areas may be deployed on foot, snowmobile or by ATV.

Charges and Shot Holes

Shot holes will be plugged/capped following charges per Colorado Oil and Gas Conservation Commission (COGCC) regulations ([Section 333\(4\) Drilling and Plugging](#)). In the event of a misfired charge, shot holes shall be properly plugged and abandoned as soon as practical after the shot has been fired. Other basic requirements for abandoning a misfired charge includes: The seismic contractor must keep a permanent record of the misfire, including information on the location, explosive type and depth. Required reports must be submitted to appropriate regulatory agencies.

All explosives shall be legally and safely stored and accounted for in magazines when not in use in accordance with relevant regulations of the Alcohol, Tobacco and Firearms Division of the Federal Department of the Treasury. [COGCC regulations Section 333\(C\)\(1\) Explosive Storage](#).

No drilling/charges will be placed within the roadbeds of NFS roads.

Seismic drilling/charges is not permitted within wetlands, perennial or ephemeral streams.

Staging Areas

All staging (equipment and helicopters) will be on private property within the project area-

Operational Limitations

General

Operator must notify the Paonia District Ranger at least 2 days but no more than 5 days prior to initiating survey activities.

For areas not covered by existing leases and bonds, reclamation bonding is required to be obtained per 43 CFR 3150.

No drilling, charges, or vibroseis activities may occur on NFS lands prior to issuance of all related and/or required State, County and local permits.

Seismic operations will be conducted only during daylight hours.

For public safety, NFS roads that access the general area will be posted/signed during operations of helicopters and setting of charges.

Forest Service must be notified when operations are complete on FS Form 2800-16a NOTICE OF COMPLETION OF GEOPHYSICAL EXPLORATION OPERATIONS (OMB NO. 1004-0162) in accordance with 36 CFR part 228 and 251.

Operators shall not damage fences or cattle guards and must keep gates as found. As a last resort, should a fence be cut, that fence must be repaired to former or better condition.

All equipment will be power washed prior to entering NFS lands to help mitigate the spread of noxious weeds.

Helicopter, vehicles, and OHVs will carry shovels or other firefighting equipment to extinguish any fires that are accidentally started by the seismic operations. In the event of high or extreme fire danger, operations will be subject to local fire restrictions.

If oil, lubricants and other petroleum or man-made products are accidentally spilled onto the ground surface, the District Ranger will be contacted and provided specific information about the spill and/or leak. Spills or leaks will be cleaned from the soil and any contaminated material will be disposed of at an authorized landfill in accordance with the spill prevention control and countermeasure plan.

There will be no removal of vegetation or road construction/reconstruction for any of the project area. Individual downed and dead trees, if present at a survey site, may be sawn apart to allow for safe survey equipment placement. Oakbrush and other individual mountain shrubs may be pruned to allow for safe hiking or placement of equipment.

Wildlife

In coordination with CPW, no seismic operations will occur on NFS lands:

- From December 1- April 30 in in [mapped elk winter range](#). NOTE: Between December 1 and April 30, operations may occur, with written authorization from CPW, if CPW determines that there are no elk in the planned area of operations.
- From May 15-June 30 to protect [elk production areas](#), raptors, breeding birds and migratory birds.

Visible migratory bird nests will be avoided and not disturbed on NFS lands.

Hunting

In coordination with CPW, no operations will be permitted on NFS lands during any big game hunting seasons. NOTES: Equipment may remain in place. Operations may occur only with written authorization from CPW.

Cultural resources

Archaeological surveys to FS standards are required to be completed for any areas where ground disturbance (including shot holes) may occur and concurrence has been received from the Forest Archaeologist. Vibroseis may be conducted without an inventory provided that 100 percent of the ground is snow-covered, there is a snow depth of at least 8" and the ground is frozen. NOTE: This does not apply to roads or trails.

Inadvertent discovery of archaeological sites by field crews will be GPSed and immediately reported to Paonia Ranger District via phone call or email.

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