Appendix G

Fluid Mineral Development Best Management Practices

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Appendix G. Fluid Mineral Development Best Management Practices

Best management practices (BMPs) are innovative, dynamic, and economically feasible mitigation measures applied on a site-specific basis to reduce, prevent, or avoid adverse environmental or social impacts. BMPs are applied to management actions to aid in achieving desired outcomes for safe, environmentally sound resource development by preventing, minimizing, or mitigating adverse impacts and reducing conflicts. For each management action, a number of BMPs may be applied as necessary to mitigate expected impacts. The following lists BMPs that may be applied to mitigate impacts of fluid mineral activities. Other resource disciplines have developed BMPs that may be applied to appropriate activities. For instance, the Clean Water Act includes BMPs that are frequently included as mitigation for various proposed actions, including fluid minerals actions. This list is not all-inclusive and may be modified over time as conditions change and new practices are identified. The current BMPs are listed here to show what mitigation measures are commonly implemented to reduce the impact of fluid mineral development. These procedures are based on Washington Office Instruction Memorandum 2007-021 and the *Surface Operating Standards and Guidelines for Oil and Gas Development (Gold Book, 4th ed., 2007)*.

G.1 General BMPs

G.1.1 Cultural Resources

If subsurface cultural resources are unearthed during ground-disturbing activities, activity in the vicinity of the cultural resource will cease and a BLM representative will be notified immediately. Pursuant to 43 CFR 10.4, the holder of a surface use authorization must notify the BLM Authorized Officer, by telephone, with written confirmation, immediately upon the discovery of human remains, funerary items, sacred objects, or objects of cultural patrimony in compliance with the Native American Graves Protection and Repatriation Act. Further, the operator must stop activities in the vicinity of the discovery and protect it for 30 days or until notified to proceed by the BLM Authorized Officer.

Responses to threats often involve some level of the National Environmental Policy Act and Section 106 of the National Historic Preservation Act, which identifies cultural resources in the area of potential effect, potential impacts, and mitigation measures. In compliance with 36 CFR 800.13, when the agency official's identification efforts in accordance with 36 CFR 800.4 indicate that historic properties are likely to be discovered during implementation of an undertaking and no programmatic agreement has been developed, the agency official shall include in any finding of no adverse effect or memorandum of agreement a process to resolve any adverse effects upon such properties. Actions in conformance with the process satisfy the agency official's responsibilities under Section 106. The specific responses or mitigations depend on the nature of the impacts and cultural resources involved and are determined on a case-by-case basis. These often include documentation, signage, fencing, or increased patrols.

G.1.2 Paleontological Resources

The holder shall immediately notify the BLM Authorized Officer of any paleontological resources discovered as a result of operations under this authorization. The holder shall suspend all activities in the vicinity of such discovery until notified to proceed by the BLM Authorized Officer and shall protect the discovery from damage or looting. The holder may not be required to suspend all operations if activities can be adjusted to avoid further impacts to a discovered locality or be continued elsewhere. The BLM Authorized Officer will evaluate, or will have evaluated, such discoveries as soon as possible, but not later than 10 working days after being notified. Appropriate measures to mitigate adverse effects to significant paleontological resources will be determined by the BLM Authorized Officer after consulting with the operator. Within 10 days, the

operator will be allowed to continue construction through the site, or will be given the choice of either (1) following the BLM Authorized Officer's instructions for stabilizing the fossil resource in place and avoiding further disturbance to the fossil resource, or (2) following the BLM Authorized Officer's instructions for mitigating impacts to the fossil resource prior to continuing construction through the project area.

G.1.3 Invasive and Noxious Weed Management

All surface-disturbing equipment should be inspected and cleaned prior to coming onto public lands. This is especially important on vehicles from a weed infested area.

Holders of surface use authorizations are responsible for control of invasive and noxious weeds on all disturbed and reclaimed surface associated with holder's approved applications for permit to drill, sundry notices, and rights-of-way.

If fill dirt or gravel is brought onto public lands, the source needs to be noxious weed free.

All seed shall be certified noxious weed free. There shall be no primary or secondary noxious weeds in the seed mixture. Seed labels from each bag shall be available for inspection while seed is being sown, and seed labels shall be given to the BLM Authorized Officer when seeding is complete.

All seed, hay, straw, mulch, or other vegetative material transported and used on public land for site stability, rehabilitation, or project facilitation shall be certified noxious weed free.

Use of pesticides will comply with all applicable federal and state laws. Pesticides will be used only in accordance with their registered use within limitations imposed by the Secretary of the Interior. Prior to the use of pesticides, the operator will obtain approval of a Pesticide Use Proposal (PUP) showing the type and quantity of material to be used, pests to be controlled, method of application, locations of storage and disposal of containers, and any other information deemed necessary by the BLM Authorized Officer.

All pesticide applicators should hold a valid New Mexico Qualified Supervisor license or Certified Operator license, and the license should be valid for the applicable pesticide application category. For all areas treated, Pesticide Application Records (BLM Form 3-3-94) should be submitted to the BLM Rio Puerco Field Office by November 1 of each year. Pesticide Application Records should be completed no later than 14 days following the pesticide application and should be maintained for ten years.

Construction sites should be monitored for the life of the project for the presence of invasive/noxious weeds (includes maintenance and construction activities). If weeds are found, the BLM must be notified and it will determine the best method for the control of the particular weed species.

Standard operating procedures found in Instruction Memorandum NM-010-99-01 (Noxious Weed Prevention Schedule for the Albuquerque Field Office; BLM 1999) will be followed (see Appendix K). In addition to the Noxious Weed Prevention Schedule for the RPFO, guidance from the Final Programmatic Environmental Impact Statement (PEIS) for Vegetation Treatments Using Herbicides on BLM Lands in 17 Western States (BLM 2007) and the Final PEIS for Vegetation Treatments Using Aminopyralid, Fluroxypyr, and Rimsulfuron on BLM Lands in 17 Western States (BLM 2016) would be followed. Additionally, BLM would follow guidance in BLM Handbook 1740-2, Integrated Vegetation Management (BLM 2008).

G.1.4 Special Status Plant Species

All surface-disturbing projects that plan to occur in occupied, suitable, or potential habitat for special status plant populations are required to complete an appropriate clearance survey for special status plant species prior to disturbance. If populations are found, they would be recorded and avoided by the project appropriately. The project may be subject to a more than 60-day delay so that construction occurs outside the blooming season, or subject to relocation of operations of more than 660 feet.

- Prior to approving surface-disturbing or potentially impacting activities within known (occupied), suitable, or potential habitat for federally listed, proposed, and candidate species and BLM sensitive species, a plant inventory conducted by a qualified botanist and an environmental analysis would be required for the proposed action. Based on the results of the plant survey, Section 7 consultation with the US Fish and Wildlife Service may be necessary, and appropriate conservation measures may be required to avoid or minimize impacts on federally listed species. Typically, Section 7 consultation would be required prior to surface-disturbing and similar activities within occupied habitat for federally listed species. Surveys may need to occur during specific seasons as determined by a BLM biologist. The survey requirements would be 100 meters (328 feet) from the edge of disturbance for BLM sensitive species and 300 meters (984 feet) for US Fish and Wildlife Service-listed species.
- As special status plant populations recover and expand their territory, the new areas would be protected in the same manner as the current population areas.
- A survey for special status plant species is required prior to treatment for all vegetation treatment projects planned to occur in potential habitat for special status plant populations. If populations are found, they would be recorded and avoided by the project appropriately.
- Off-road motorized vehicle travel for oil and gas activities (including pre-construction survey work) would be limited in the following circumstances:
  - Within 660 feet of occupied, suitable or potential habitats for federally listed, proposed, and candidate species
  - Within 330 feet of occupied, suitable, or potential habitats for BLM sensitive species

Conditions of approval identified as appropriate through environmental analysis to mitigate the impacts on special status species and their associated habitat would be applied to land use authorizations, permits, and leases that fall within the habitat, with a 100- to 200-meter (328- to 656-foot) buffer of the affected plant species or occupied habitat. Possible mitigation strategies may include, but are not limited to:

- Adjusting the location of the disturbance outside of occupied habitat with a 100-meter (328-foot) buffer
- Using several dust abatement measures
- Using signs, fencing, and other deterrents to reduce possible human disturbance;
- Requiring construction to occur outside of the blooming season (September through March), involving possibly delaying the project by more than 60 days
- Using a higher percentage of forbs in the reclamation seed mix to promote pollinator habitat
- In reclamation of the site, replacing the soil and sub-soil layers to the pre-disturbance order of soil horizons

G.1.5 Wildlife and Sensitive Species Management

If any dead or injured threatened, endangered, proposed, or candidate species is found during construction or operation, the US Fish and Wildlife Service's New Mexico Field Office and the BLM Rio Puerco Field Office must be notified within 24 hours. If any dead or injured sensitive species is located during construction or operation, the BLM Rio Puerco Field Office must be notified within 24 hours.

If an undocumented raptor nest is located during project construction or operation, the BLM Rio Puerco Field Office must be notified within 24 hours.

Prior to the initiation of a surface-disturbing activity, including geophysical operations, project areas designated by the BLM Authorized Officer will require a survey for raptor nests or active prairie dog towns. Surveys will be conducted by professional biologists approved by the BLM Authorized Officer. All raptor nests and active prairie dog towns will be avoided by the distances and seasonal periods listed below.

- Eagle—0.5 miles, February 1–July 15
- Prairie falcon—0.5 miles, March 1–August 1
- Ferruginous hawk—0.5 miles, February 1–July 15
- Aplomado falcon—0.5 miles, January 1–July 31
- Gunnison's prairie dog—0.25 miles, February 15–June 15
- Black-tailed prairie dog—0.25 miles, January 1–June 15
- All other raptor species—0.5 miles, during observed nest establishment through fledgling

Long duration land use activities will not be allowed to occur within the species-specific spatial buffer zone of active nests or occupied prairie dog towns listed above. Short duration activities will be avoided within the species-specific spatial buffer zones during the dates listed above. Short duration activities will be limited to the spatial buffer zone outside of the boundary of the occupied prairie dog town and will not occur within the occupied town. All other raptor species nests will be avoided by the spatial buffer zone only during the period listed above, regardless of the duration of the activity. Before land use activities can commence a raptor and prairie dog survey must be completed.

A short duration activity is defined as an activity that would begin outside of a given breeding season and end prior to initiation of a given breeding season. A long duration activity is defined as an activity which would continue into or beyond a given nesting/breeding season. An active nest is defined as any nest that has been occupied in the last seven years. A nest will be determined to be active or inactive by the BLM Authorized Officer. Surveys will be conducted by professional biologists approved by the BLM Authorized Officer.

All fences must be constructed to BLM Rio Puerco Field Office fence specifications to mitigate impacts to wildlife.

In areas where habitat and/or rangeland enhancement projects have been implemented, with the exception of large landscape projects (prescribed burns, chemical treatments, and mechanical treatments), adverse impacts to the landscape will be avoided by minimizing or excluding certain surface-disturbing activities that may degrade the objectives or intent of the project. Exceptions to this requirement will be considered on a case-by-case basis.

Tree and vegetation clearing will be limited to the minimum area required, except where vegetative objectives have been established for elimination or reduction in vegetative density.

Power lines will be constructed to standards outlined in the most recent version of "Suggested Practices for Raptor Protection on Power Lines" published by the Edison Electric Institute/Raptor Research Foundation, unless otherwise agreed to by the BLM Authorized Officer. The holder is responsible for demonstrating that power pole designs not meeting these standards are raptor safe. Such proof will be provided by a raptor expert approved by the BLM Authorized Officer. The BLM reserves the right to require modifications or additions to power line structures, should they be necessary to ensure the safety of large perching birds. The modifications and/or additions will be made by the holder without liability or expense to the United States.

All equipment installed on federal lands will be constructed to prevent birds and bats from entering them and, to the extent practical, to discourage perching and nesting.

Open top tanks, reserve pits, disposal pits, or other open tanks or pits will be required to be equipped to deter entry by birds, bats, or other wildlife. Tanks and pits must also have escape ramps when applicable.

Piping of produced liquids to centralized tank batteries offsite is recommended to reduce traffic to individual wells.

Transportation planning is recommended to reduce road density and traffic volumes.

Noise reduction techniques and designs are recommended to reduce the impact of sound to wildlife.

G.1.6 Visual Resource Management Class II and III Areas Management

New permanent electric lines and pipelines should be buried within or adjacent to existing utility or road corridors to reduce new surface disturbance. If existing corridors are not present new electric lines, pipelines and access roads should be co-located within the same corridor to impacts to viewshed.

Repeat elements of form, line, color, and texture to blend facilities and access roads with the surrounding landscape.

Paint all above-ground structures, production equipment, tanks, transformers, and insulators not subject to safety requirements to blend with the natural color of the landscape, using paint that is a nonreflective "standard environmental color" selected by the BLM Authorized Officer.

Avoid facility placement on steep slopes, ridge tops, and hilltops to reduce visibility from below.

Screen facilities from view by placing facilities behind topographic or vegetation features.

Follow contours of the land when selecting locations for access roads and well pads to reduce unnecessary disturbance and increase reclamation success.

Reclaim unnecessary access roads as soon as possible to the original contour.

Use road surfacing of a similar color to adjacent dominant soil and vegetation colors.

Avoid locating pads in areas visible from primary roads and highways.

Use subsurface or low-profile facilities to prevent protrusion above the horizon line when viewed from any primary road or highway.

Locate wells away from prominent features, such as rock outcrops.

Use of submersible pumps and partial or below-grade wellheads is recommended in VRM Class II or III areas.

G.2 Site Location and Pre-Construction BMPs

Plans of Development (PODs) are encouraged to minimize unnecessary disturbance. Field development plans should address sensitive area avoidance or mitigation, potential road, utility, and well locations, road classes, and plans for interim and final reclamation.

Dual completion, re-completion, commingling (both down-hole and at the surface), the drilling of multiple wells from a single location, and centralized tank batteries will be encouraged and permitted in order to reduce the number of new well pads and consequent surface disturbance. This will reduce impacts to soil and vegetation, reduce air impacts caused by dust, reduce habitat fragmentation, and offer less opportunity for the spread of noxious weeds.

Operators will be encouraged to unitize in areas of dense development to increase management efficiency and facilitate operations in sensitive areas. Unitization is the process by which multiple lease holders in a geographic area share facilities so as to reduce surface disturbance caused by multiple duplicate facilities such as pipelines and compressor stations.

The holder shall protect existing telephone, telegraph, and transmission lines, roads, trails, fences, ditches, and like improvements during construction, operation, maintenance, and termination of the system. Holder

shall not obstruct any road or trail without the prior approval of the BLM Authorized Officer. Damage caused by holder to utilities and improvements shall be promptly repaired by holder to a condition which is satisfactory to the BLM Authorized Officer.

The burial of pipelines associated with oil and gas exploration, development, production, and transportation is preferred. Pipelines greater than 4 inches in nominal diameter, all injection lines, and gas lines with a pressure greater than 125 pounds per square inch must be buried and constructed of steel. The use of plastic pipe will be approved by the BLM Authorized Officer on a case-by-case basis.

Holder is responsible to contact the grazing lessee(s), prior to crossing any fence on public land or any fence between public and private land, and to offer the lessee(s) an opportunity to be present when the fence cut(s) is made so the lessee(s) can be satisfied that the fence is adequately braced and secured.

No gravel or other related minerals from new or existing pits on federal land will be used in construction of roads, well sites, etc., without prior approval from the Surface Managing Agency.

G.3 CONSTRUCTION BMPS

G.3.1 Earth Work

With the overall objective of minimizing surface disturbance and retaining land stability and productivity, the operator shall utilize equipment that is appropriate to the scope and scale of work being done for roads and well pads (utilize equipment no larger than needed for the job).

Reduce the size of the well pad whenever possible, without compromising safety.

The holder shall remove only the minimum amount of vegetation necessary for the construction of structures and facilities. Topsoil shall be conserved during excavation and reused as cover on disturbed areas to facilitate regrowth of vegetation.

Only excavate topsoil and subsoil where it is absolutely necessary. Consider brush-beating, mowing, and/or parking on vegetation for surface-disturbing activities. No construction or routine maintenance activities shall be performed during periods when excessive ruts will be created because the soil is too wet to adequately support construction equipment.

Consider measures to reduce the size of well pad needed for operations, such as using closed-loop drilling with tanks instead of a lined earthen reserve pit.

Construct reserve pits within the cut side of the well pad in order to facilitate reclamation.

Disturbed areas should be contoured to blend with the natural topography. Blending is defined as reducing form, line, and color contrast associated with the surface disturbance. Disturbance should be contoured to match the original topography, where matching is defined as reproducing the original topography and eliminating form, line, and color caused by the disturbance as much as possible

Remove all available topsoil from constructed well locations including areas of cut and fill, and stockpile at the site. Topsoil will be pushed from the center of the pad outwards to create a topsoil berm around the edge of the pad. This reduces the amount of soil movement necessary to create stockpiles. Topsoil will also be salvaged for use in reclamation on all other areas of surface disturbance (roads, etc.). Clearly segregate topsoil from excess spoil material. Any topsoil stockpiled for one year or longer will be signed and stabilized with annual ryegrass or other suitable cover crop. Windrows would be rotated to prevent sterilization of soil.

The operator will not push soil material and overburden over side slopes or into drainages. All soil material disturbed will be placed in an area where it can be retrieved without creating additional undue surface disturbance and where it does not impede watershed and drainage flows.

During construction, emissions of particulate matter from well pad and road construction will be minimized by application of water or other nonsaline dust suppressants with at least 50 percent control efficiency. Dust inhibitors (surfacing materials, nonsaline dust suppressants, and water) will be used as necessary on unpaved roads that present a fugitive dust problem. The use of chemical dust suppressants on public surface will require prior approval from the BLM Authorized Officer.

G.3.2 Site Maintenance

Operators may not leave unattended personal property on public lands administered by the BLM for a period of more than 48 hours without written permission of the BLM Authorized Officer, with the exception that vehicles may be parked in designated parking areas for up to 14 consecutive days. Unattended personal property is subject to disposition under the Federal Property and Administrative Services Act of 1949 as amended.

All unguarded pits (reserve/production/blow) containing liquids will be fenced with woven wire. Drilling pits will be fenced on three sides, and once the rig leaves location, the fourth side will be fenced. All fencing must be a legal fence in accordance with New Mexico State Law. Liquids in pits will be allowed to evaporate, or be properly disposed of, before pits are filled and recontoured. Under no circumstances will pits be cut and drained. Aeration of pit fluids must be confined within pit area. Upon completion of the well, the reserve pit will be covered with screening or netting and remained covered until the pit is reclaimed. All production pits will be covered with screening or netting.

At a minimum, all pits must meet the New Mexico Oil Conservation Division (NMOCD) "Pit Rule" and guidance requirements for maintenance and closure.

No excess equipment may be stored on the well site.

G.3.3 Spill Prevention and Containment

Oil and fuel for equipment and vehicles must be carefully handled and disposed of to prevent soil or water contamination.

Develop a spill contingency plan that identifies all actions to be taken in the event of a chemical spill, including phone numbers for federal, state, and local agencies that must be notified.

Berms or firewalls will be constructed around all storage facilities sufficient in size to contain the storage capacity of tanks, or the combined capacity of tanks if a rupture could drain more than one tank. Berm walls will be compacted with appropriate equipment to assure proper construction.

Store chemicals within secondary containment in case of a spill.

Any spilled or leaked oil, produced water, or treatment chemicals must be reported in accordance with NTL-3A and immediately cleaned up in accordance with BLM requirements. This includes clean-up and proper disposition of soils contaminated as a result of such spills/leaks.

The operator and their contractors shall ensure that all use, production, storage, transport and disposal of hazardous and extremely hazardous materials associated with the drilling, completion and production of these wells will be in accordance with all applicable existing or hereafter promulgated federal, state and local government rules, regulations and guidelines. All project-related activities involving hazardous materials will be conducted in a manner to minimize potential environmental impacts. In accordance with OSHA

requirements, a file will be maintained onsite containing current Material Safety Data Sheets (MSDS) for all chemicals, compounds and/or substances that are used in the course of construction, drilling, completion and production operations.

G.3.4 Waste Management

Well area and lease premises will be maintained in a workmanlike manner with due regard to safety, conservation, and appearance.

All liquid waste, completion fluids, and drilling products associated with oil and gas operations will be contained and then buried in place, or removed and deposited in an approved disposal site.

Waste materials shall be disposed of promptly at an appropriate waste-disposal site. "Waste" means all discarded matter, including human waste, trash, garbage, refuse, oil drums, petroleum products, ashes, and equipment.

Cans, rubbish, and other trash shall not be discarded, buried, or dumped on public lands or related waters. Wet garbage, such as eggshells, orange peels, leftover solid food, bones, melon rinds, etc., must be carried out. Trash cleanup at campsites and day use areas will include all litter or discarded items including small items such as bottle caps and cigarette butts.

G.4 ACCESS ROAD BMPS

G.4.1 Road Design & Planning

Base road design criteria and standards will be based on road management objectives such as traffic requirements of the proposed activity and the overall transportation objectives, and minimizing damage to the environment.

Construction and other project-related traffic will be restricted to approved routes. Cross-country vehicle travel will not be allowed.

Design roads to minimize total disturbance, to conform to the surrounding topography, and to minimize disruption of natural drainage patterns.

Locate roads on stable terrain such as ridge tops, natural benches, and flatter transitional slopes near ridges and valley bottoms and moderate side slopes and away from slumps, slide prone areas, concave slopes, clay beds, and where rock layers dip parallel to the slope. Locate roads on well-drained soil types and avoid wet areas.

Minimize the number of unimproved stream crossings. When a culvert or bridge is not feasible, locate drive-through (low water crossings) on stable rock portions of the drainage channel. Harden crossings with the addition of rock and gravel if necessary. Use angular rock if available.

Those segments of road where grade is in excess of ten percent for more than 300 feet shall be designed by a professional engineer.

Companies will contact the appropriate county transportation department to pursue development of maintenance agreements to ensure county roads are adequately maintained for the projected increase in use.

G.4.2 Road Construction

Construct roads for surface drainage by using out-slopes, crowns, grade changes, drain dips, water bars, and/or in-sloping to ditches as appropriate.

Construct roads when soils are dry and not frozen. When soils or road surfaces become saturated to a depth of 3 inches, BLM-authorized activities should be limited or cease unless otherwise approved by the BLM Authorized Officer.

Retain vegetation on cut slopes unless it poses a safety hazard or restricts maintenance activities. Roadside brushing of vegetation should be done in a way that prevents disturbance to root systems and visual intrusions (i.e., avoid using excavators for brushing).

Retain adequate vegetation between roads and streams to filter runoff caused by roads.

Strip and stockpile topsoil ahead of construction of new roads, if feasible. Reapply soil to cut and fill slopes prior to revegetation

Establish adapted vegetation on all cuts and fill immediately following road construction and maintenance.

The minimum diameter for culverts will be 18 inches. However, all culverts will be appropriately sized in accordance with standards in BLM Manual 9113.

Culverts will be placed on channel bottoms on firm, uniform beds that have been shaped to accept them and aligned parallel to the channel to minimize erosion. Backfill will be thoroughly compacted.

G.4.3 Road Maintenance

Roads shall be maintained in order to preserve the functioning of drainage features, culverts, and surfacing.

Consider improving inadequately surfaced roads that are to be left open to public traffic during wet weather with gravel or pavement to minimize sediment production and maximize safety.

Replace undersized culverts and repair or replace damaged culverts and downspouts. Provide energy dissipaters at culvert outlets or drainage dips.

G.4.4 Road Reclamation

Any roads used exclusively for construction purposes shall be adequately closed to all vehicular travel, and rehabilitated after completion of construction. The manner of closure shall be determined in conjunction with a representative of the BLM Authorized Officer.

At the time that final well pad reclamation takes place, the access road and any associated ROW corridors will be recontoured to match the surrounding topography, ripped to a depth of 24 inches, installed with water bars, and seeded with a BLM-designated seed mixture.

All ripped surfaces are to be protected from vehicular travel by erection of a sturdy physical barrier, such as a dead-end ditch with an earthen barricade, gates, large berms, trenches, logs, stumps, brush piles or rock boulders to accomplish permanent closure. The operator is responsible for preventing vehicle travel on reclaimed areas.

If road reclamation has not been achieved after two growing seasons, re-seeding may be necessary.

G.5 Interim Reclamation BMPs

Interim Reclamation—Includes disturbed areas that may be redisturbed during operations and will be redisturbed at final reclamation to achieve restoration of the original landform and a natural vegetative community. Interim reclamation will be judged successful when the BLM Authorized Officer determines that disturbed areas not needed for active, long-term production operations or vehicle travel have been recontoured, protected from erosion, and revegetated with a self-sustaining, vigorous, diverse, native (or as

otherwise approved) plant community sufficient to minimize visual impacts, provide forage, stabilize soils, and impede the invasion of noxious, invasive, and nonnative weeds.

Interim reclamation of the well and access road will begin as soon as practicable after a well is placed in production. Interim reclamation will include road cuts and fills and will extend to within close proximity of the wellhead and production facilities.

Facilities will be grouped on the pads to allow for maximum interim reclamation. Production facilities (including dikes) must be placed on the cut portion of the location and a minimum of 15 feet from the toe of the back cut unless otherwise approved by the BLM Authorized Officer.

Salvaging and spreading topsoil will not be performed when the ground or topsoil is frozen or too wet to adequately support construction equipment or so dry that dust clouds greater than 30 feet tall are created. If such equipment creates ruts in excess of four inches deep, the soil will be deemed too wet.

G.6 Production and Maintenance BMPs

At a minimum, all pits must meet NMOCD "Pit Rule" and guidance requirements for maintenance and closure.

Mud and blow pits will be constructed so as not to leak, break, or allow discharge of liquids or produced solids. At least half of the capacity of the reserve pit must be in cut. The top of the outside wall of reserve pit should be smoothed-off with a minimum of one blade width. The pit should have adequate capacity to maintain 2 feet of free board. Pits are not to be located in natural drainages. Pit walls are to be "walked down" by a crawler type tractor following construction and prior to usage. Any plastic material used to line pits must be removed to below-ground level before pits are covered. The final grade of reserve pit (after reclamation) shall allow for drainage away from pit area.

Remote monitoring of wells and related production equipment is encouraged to reduce wildlife disturbance and road deterioration.

Minimize noise in sensitive wildlife habitats. Consider using noise reduction mufflers, earthen berms, walls, sheds, and/or distance to reduce sound levels. Consider requiring vent stack/exhaust stack coverings on heater-treater/separator units to prevent wildlife from entering.

All production related pits and tanks, regardless of size, will be covered and fenced to exclude wildlife.

G.7 Final Reclamation BMPs

If necessary after reclamation, a BLM-standard barbed wire fence will be constructed to exclude livestock for a minimum of at least two successful growing seasons.

Reclaimed soil will be free of contaminants and will have adequate depth, texture, and structure to provide for successful vegetation reclamation. Vegetation reclamation will be considered successful when healthy, mature perennials are established with a composition and density that closely approximates the surrounding vegetation as prescribed by the BLM, and the reclamation area is free of noxious weeds.

Seeding shall be accomplished between July 1 and September 15 (later date may be extended on a case-by-case basis with the BLM Authorized Officer approval).

For drill seeding, compacted areas shall be ripped to a depth of 24 inches and disked to a depth of six inches before seeding. Seed with a disk-type drill with two boxes for various seed sizes. The drill rows shall be eight to ten inches apart. The seed shall be planted at not less than one-half inch deep or more than one inch deep. The seeder shall be followed with a drag, packer, or roller to ensure uniform coverage of the seed and adequate compaction. Drilling shall be done on the contour where possible, not up and down the slope.

For broadcast seeding, the site shall be ripped to a depth of 24 inches, then a pitter, dimpler, or similar equipment should be used to create depressions in the soil to catch seeds and water. The teeth of a track hoe bucket or the tracks of a dozer or backhoe can also be used. Seeding is accomplished by use of a cyclone hand seeder or similar broadcast seeder. Seed shall then be covered to the depth described above by whatever means is practical, e.g., hand raked. If the seed is not covered, the prescribed seed mixture amount (pounds/acre/PLS) will be doubled.

Seeding shall be repeated if a satisfactory stand is not obtained as determined by the BLM Authorized Officer upon evaluation after the second growing season.

G.8 REFERENCES

BLM (United States Department of the Interior, Bureau of Land Management). 1999. Instruction Memorandum NM-010-99-01, Noxious Weed Prevention Schedule for the Albuquerque Field Office. BLM, Albuquerque Field Office, Albuquerque, New Mexico. May 14.

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