
APPENDIX O—SURFACE RECLAMATION PERFORMANCE STANDARD

The lessee is required to use the reclamation practices necessary to reclaim all disturbed areas. Reclamation will ensure surface and subsurface stability, growth of a self-regenerating, permanent vegetative cover, and compatibility with post disturbance land use. The vegetation will be diverse and of the same seasonal growth as adjoining vegetation.

Reclamation practices that must be applied or accomplished are re-grading to the approximate original contour; effectively controlling noxious weeds; separating, storing, and protecting topsoil for redistribution during final abandonment; seeding; and controlling erosion. If topsoil is not present, or quantities are insufficient to achieve reclamation goals, a suitable plant growth media will be separated, stored, and protected for later use. Reclamation will begin with the salvaging of topsoil and continue until the required standards are met, at a minimum of two growing seasons after reclamation is initiated. For both interim and final reclamation projects, vegetative establishment will be monitored annually. Interim reclamation, unless otherwise approved, will require meeting the same standards as final abandonment with the exception of original contour, which may be only partially achievable.

Annual reports consisting of reclamation practices completed and the effectiveness of the reclamation will be provided to the Little Snake Field Office. The first report will be due in January following initiation of reclamation practices and annually thereafter until performance measures are achieved.

There are numerous reclamation techniques and best management practices that increase the success rate of reclamation and stabilization. With the exception of those stated above, it is the lessee's prerogative to use whichever best accomplishes the objectives. However, it is recommended that state-of-the-art reclamation, stabilization, and management practices be used to achieve the desired objective in a timely and cost-effective manner. A Plan for Surface Reclamation is required as part of the Plan of Development (POD). The Authorizing Officer must approve the specific seed mix, reclamation techniques, and other details proposed by the operator in the plan.

The following objectives and definitions will be used to accomplish and determine if reclamation has been achieved.

I. RECLAMATION OBJECTIVES

The objective of interim reclamation is to restore vegetative cover and a portion of the landform sufficient to maintain healthy, biologically active topsoil; control erosion; and minimize habitat, visual, and forage loss during the life of the well or facilities.

The long-term objective of final reclamation is to return the land to a condition approximating that which existed prior to disturbance. This includes restoration of the landform and natural vegetative community, hydrologic systems, visual resources, and wildlife habitats. To ensure that the long-term objective will be reached through human and natural processes, actions will be taken to ensure standards are met for site stability, visual quality, hydrological functioning, and vegetative productivity.

II. RECLAMATION PERFORMANCE STANDARDS

The following reclamation performance standards will be met and Interim Reclamation will be judged successful when:

- ❑ Disturbed areas not needed for long-term production operations or vehicle travel have been recontoured, protected from erosion, and revegetated with a self-sustaining, vigorous, diverse, native (or otherwise approved) plant community sufficient to minimize visual impacts, provide forage, stabilize soils, and impede the invasion of noxious weeds.

Final Reclamation will be judged successful when:

- ❑ The original landform has been restored for all disturbed areas including well pads, production facilities, roads, pipelines, and utility corridors.
- ❑ A self-sustaining, vigorous, diverse, native (or otherwise approved) plant community is established on the site, with a density sufficient to control erosion and non-native plant invasion and can reestablish wildlife habitat or forage production. At a minimum, the established plant community will consist of species included in the seed mix and/or desirable species occurring in the surrounding natural vegetation. No single species will account for more than 30 percent total vegetative composition unless it is evident at higher levels in the adjacent landscape. Permanent vegetative cover will be determined successful when the basal cover of desirable perennial species is at least 80 percent of the basal cover of the adjacent undisturbed area. Plants must be resilient as evidenced by well-developed root systems and flowers. Shrubs must be well established and in a “young” age class at a minimum (therefore, not comprised mainly of seedlings that may not survive until the following year).
- ❑ In agricultural areas, irrigation systems and soil conditions are reestablished in such a way as to ensure successful cultivation and harvesting of crops.
- ❑ Erosion features are equal to or less than surrounding area and erosion control is sufficient so that water naturally infiltrates into the soil and gullying, headcutting, slumping, and deep or excessive rilling (greater than 3 inches) is not observed.
- ❑ The site is free of State- or county-listed noxious weeds, oil field debris and equipment, and contaminated soil. [Example of site-specific requirement: Given that cheatgrass is common in portions of the Project Area, it may not be possible to totally eliminate this invasive species from the reclaimed area. In the case of cheatgrass, interim reclamation will be considered acceptable if cheatgrass and other undesirable vegetation are less than five percent cover, if the adjacent vegetation is less than 50 percent undesirables. Cheatgrass will be less than 50 percent cover if the adjacent vegetation is more than 50 percent undesirable species.]
- ❑ The final inspection for final reclamation success and approval for final abandonment will be subject to an interdisciplinary review. An interdisciplinary team consisting of, at a minimum, a wildlife biologist, a rangeland management specialist, and a natural resources specialist will evaluate the reclamation against the performance standards and provide the authorized officer with a recommendation as to whether or not objectives have been met.

III. RECLAMATION ACTIONS

The following minimum reclamation actions will be taken to ensure that the reclamation objectives and standards are met. It may be necessary to take additional reclamation actions beyond the minimum in order to achieve the Reclamation Standards.

Reclamation - General Procedure:

- ❑ BLM will be notified 24 hours prior to commencement of any reclamation operations.

Housekeeping:

- ❑ Immediately upon well completion, the well location and surrounding areas(s) will be cleared of, and maintained free of, all debris, materials, trash, and equipment not required for production.
- ❑ No hazardous substances, trash, or litter will be buried or placed in pits. Upon well completion, any hydrocarbons in the pit will be remediated or removed.

Vegetation Clearing:

- ❑ Vegetation removal and the degree of surface disturbance will be minimized wherever possible. *[Example of site-specific requirement: During vegetation clearing activities, trees and woody vegetation removed from the well pad and access road will be moved aside prior to any soil disturbing activities. Care will be taken to avoid mixing soil with the trees and woody vegetation. Trees left for wood gathering will be cut (twelve inches or less from the ground), delimited, and the trunks, six (6) inches or more in diameter will be removed and placed either by the uphill side of the access road, or moved to the end of the road, or to a road junction for easy access for wood gatherers and to reduce vehicle traffic on the well pad. Trees with a trunk diameter less than six (6) inches and woody vegetation will be used to trap sediment, slow runoff, or scattered on reclaimed areas to stabilize slopes, control erosion, and improve visual resources.]*

Topsoil Management:

- ❑ The top eight (8) inches of soil material will be stripped and stockpiled around the perimeter of the well location to control run-on and run-off, and to make redistribution of topsoil more efficient during interim reclamation. The stockpiled soil will be reasonably free of brush and tree parts. Topsoil will be clearly segregated from excess spoil material.
- ❑ Earthwork for interim and final reclamation must be completed within 6 months of well completion or plugging (weather permitting).
- ❑ Salvaging and spreading topsoil will not be performed when the ground or topsoil is frozen or too wet to adequately support construction equipment. If such equipment creates ruts in excess of four (4) inches deep, the soil will be deemed too wet.
- ❑ No major depressions will be left that would trap water and cause ponding.

Seeding:

- ❑ Seedbed Preparation. Initial seedbed preparation will consist of backfilling, leveling, and ripping all compacted areas to be seeded to a minimum depth of 18 inches with a minimum furrow spacing of 2 feet, followed by recontouring the surface and then evenly spreading the stockpiled topsoil. Prior to seeding, the seedbed will be scarified and left with a rough surface.
- ❑ Final seedbed preparation will consist of contour cultivating to a depth of 4 to 6 inches within 24 hours prior to seeding.
- ❑ Seed Application. Seeding will be conducted no more than 24 hours following completion of final seedbed preparation.
- ❑ The application rate shown in the table is based on 45 pure live seeds (PLS) per square foot, drill-seeded to a depth of 0.25 to 0.5 inch. (However, brush species will be seeded during the winter on the ground surface or preferably on top of snow.) In areas that will not be drill-seeded, the seed mix will be broadcast-seeded at twice the application rate shown in the table and covered 0.25 to 0.5 inch deep with a harrow or drag bar or will be broadcast-seeded into imprints, such as fresh dozer cleat marks.
- ❑ No seeding will occur from May 15 to September 15. Fall seeding is preferred and will be conducted after September 15 and prior to ground freezing. Spring seeding will be conducted after the frost leaves the ground and no later than May 15.

Erosion Control and Mulching:

- ❑ Mulch, silt fencing, wattles, hay bales, and other erosion control devices will be used on areas at risk of soil movement from wind and water erosion.
- ❑ Mulch will be used if necessary to control erosion, create vegetation micro-sites, and retain soil moisture and may include hay, small-grain straw, wood fiber, live mulch, cotton, jute, or synthetic netting. Mulch will be free from mold, fungi, and certified free of noxious or invasive weed seeds.
- ❑ Straw mulch will contain fibers long enough to facilitate crimping and provide the greatest cover.

Pit Closure:

- ❑ Reserve pits will be closed and backfilled within **six months** of rig-release. All reserve pits remaining open after **six months** will require written authorization of the Authorized Officer. Immediately upon well completion, any hydrocarbons or trash in the pit will be removed. Pits will be allowed to dry, be pumped dry, or solidified in-situ prior to backfilling.
- ❑ Following completion activities, pit liners will be removed or removed to the solids level and disposed of at an approved landfill, or treated to prevent their reemergence to the surface and interference with long-term successful revegetation. If it was necessary to line the pit with a synthetic liner, the pit will not be trenched (cut) or filled (squeezed) while containing fluids. When dry, the pit will be backfilled with a minimum of 5 feet of soil material. In relatively flat areas the pit area will be slightly mounded, to allow for settling and to promote surface drainage away from the backfilled pit.

Management of Invasive, Noxious, and Non-Native Species:

- ❑ All reclamation equipment will be cleaned prior to use to reduce the potential for introduction of noxious weeds or other undesirable non-native species.
- ❑ An intensive weed monitoring and control program will be implemented beginning the first growing season after interim and final reclamation.
- ❑ Monitoring will be conducted at least annually during the growing season to determine the presence of any State-listed noxious weeds. Noxious weeds that have been identified during monitoring will be promptly treated and controlled. A Pesticide Use Proposal (PUP) will be submitted to BLM for approval prior to the use of herbicides.

INTERIM RECLAMATION PROCEDURES – ADDITIONAL

Recontouring:

- ❑ The portions of the cleared well site not needed for operational and safety purposes will be recontoured to the original contour or to an interim contour that blends with the surrounding topography as much as possible. Sufficient level area will remain for setup of a workover rig and to park equipment. In some cases, rig anchors may need to be pulled and reset after recontouring to allow for maximum interim reclamation.
- ❑ If the well is a producer, the final cut and fill slopes prior to re-seeding will not be steeper than a 3:1 ratio, unless the adjacent native topography is steeper. Note: Construction slopes may be much steeper during drilling, but will be recontoured to the above ratios during interim reclamation.
- ❑ Roads and well production equipment, such as tanks, treaters, separators, vents, electrical boxes, and equipment associated with pipeline operation, will be placed on location so as to permit maximum interim reclamation of disturbed areas. If equipment is found to interfere with the proper interim reclamation of disturbed areas, the equipment will be moved so proper recontouring and revegetation can occur.

Application of Topsoil and Revegetation:

- ❑ Topsoil will be evenly respread and aggressively revegetated over the entire disturbed area not needed for all-weather operations including road cuts and fills and to within a few feet of the production facilities, unless an all-weather, surfaced, access route or small “teardrop” turnaround is needed on the well pad.
- ❑ In order to inspect and operate the well or complete workover operations, it may be necessary to drive, park, and operate equipment on restored, interim vegetation within the previously disturbed area. Damage to soils and interim vegetation will be repaired and reclaimed following use. To prevent soil compaction, under some situations, such as the presence of moist, clay soils, the vegetation and topsoil will be removed prior to workover operations and restored and reclaimed following workover operations.

Visual Resources Mitigation:

- ❑ Oil and gas operations will be subject to the range of mitigation practices noted on the BLM VRM website: <http://www.blm.gov/nstc/VRM/>.
- ❑ Trees and vegetation will be left along the edges of the pads to provide screening.
- ❑ To help mitigate the contrast of recontoured slopes, reclamation will include measures to feather cleared lines of vegetation and to save and redistribute cleared trees, debris, and rock over recontoured cut and fill slopes.
- ❑ To reduce the view of production facilities from visibility corridors and private residences, facilities will not be placed in visually exposed locations (such as ridgelines and hilltops).
- ❑ Production facilities will be clustered and placed away from cut slopes and fill slopes to allow the maximum recontouring of cut and fill slopes.
- ❑ All long-term above ground structures will be painted an appropriate color from the BLM “Supplemental Environmental Colors” chart to blend with the natural color of the landscape background.
- ❑ Visually mitigate all surface disturbance activity back to the integrity of the VRI scenic quality rating.

FINAL RECLAMATION PROCEDURES – ADDITIONAL

- ❑ Final reclamation actions will be completed within 6 months of well plugging.
- ❑ All disturbed areas, including roads, pipelines, pads, production facilities, and interim reclaimed areas will be recontoured to the contour existing prior to initial construction or a contour that blends indistinguishably with the surrounding landscape. Resalvaged topsoil will be respread evenly over the entire disturbed site to ensure successful revegetation. To help mitigate the contrast of recontoured slopes, reclamation will include measures to feather cleared lines of vegetation and to save and redistribute cleared trees, woody debris, and large rocks over recontoured cut and fill slopes.
- ❑ Water breaks and terracing of the site will only be installed when absolutely necessary to prevent erosion of fill material. Water breaks and terracing are not permanent features and will be removed and reseeded when the rest of the site is successfully revegetated and stabilized.
- ❑ If necessary to ensure timely revegetation, the pad will be fenced to BLM standards to exclude livestock grazing for the first two growing seasons or until seeded species become firmly established, whichever comes later. Fencing will meet standards found on page 18 of the Gold Book, 4th Edition, or will be fenced with operational electric fencing.
- ❑ Final abandonment of pipelines and flow lines will involve flushing and properly disposing of any fluids in the lines. All surface lines and any lines that are buried close to the surface that may become exposed in the foreseeable future due to water or wind erosion, soil movement, or anticipated

subsequent use, must be removed. Deeply buried lines may remain in place unless otherwise directed by the authorized officer.

Monitoring and Final Abandonment Approval

- Reclaimed areas will be monitored annually. Actions will be taken to ensure that reclamation standards are met as quickly as reasonably practical.
- Reclamation monitoring will be documented in an annual reclamation report submitted to the Authorized Officer by December 31. The report will document compliance with all aspects of the reclamation objectives and standards, identify whether the reclamation objectives and standards are likely to be achieved in the near future without additional actions, and identify actions that have been or will be taken to meet the objectives and standards. The report will also include acreage figures for Initial Disturbed Acres, Successful Interim Reclaimed Acres, and Successful Final Reclaimed Acres. Annual reports will not be submitted for sites approved by the Authorized Officer in writing as having met interim or final reclamation standards. Any time 30 percent or more of a reclaimed area is redisturbed, monitoring will be reinitiated.

The Authorized Officer will be informed when reclamation has been completed, is successful, and the site is ready for final inspection.