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Surface Reclamation Protocol

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CHAPTER 1
INTRODUCTION

The purpose of this protocol document is to provide guidelines regarding the development and submittal of site-specific surface reclamation plans by project proponents. This protocol establishes specific reclamation success criteria. A site-specific reclamation plan provides project proponents the opportunity to identify proposed practices and procedures that are intended to effectively reclaim disturbed lands. This protocol provides the minimum information and operation standards that the White River Field Office (WRFO) expects to be incorporated into a site-specific reclamation plan at the level of detail necessary for the WRFO to assess the technical adequacy and land use plan conformance of reclamation practices proposed by the proponent.

The diversity of site characteristics (i.e., elevation, topography, precipitation, and soil type) present across the 2.6 million acres within the WRFO requires a standards-based approach to reclamation rather than a one-size fits-all procedure-based approach. The following standards are specific to the WRFO and are intended to complement current reclamation guidance found in the "Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development" (The Gold Book) and other BLM policy and guidance.

All surface disturbing activities approved on BLM lands administered by the WRFO will be subject to reclamation standards described in this protocol. It is important to note that reclamation success criteria expressed in this protocol are considered standards that, through the authorized officer (AO), are subject to adaptation depending on site-specific reclamation challenges (i.e., physical or biological constraints beyond the operator's control). WRFO will consider authorizing well-designed reclamation experiments and trials outside established strategies that may serve as the basis for enhancing reclamation efficacy or efficiency consistent with BLM's reclamation objectives.

Standards-based reclamation focuses on using the desired end condition as the ultimate determinant of reclamation success. Reclamation procedures are designed to provide soil stabilization while expediting the return of a functional and desirable plant community. These standards are to be location specific and strictly adhered to unless a written exception is granted by the AO. There are numerous other sources of guidance (e.g., Best Management Practices) to aid operators in achieving reclamation success. Industry is encouraged to propose analogous innovative approaches to help meet or exceed BLM reclamation standards.

Additional reclamation planning, requirements, implementation methods, and monitoring guidance can be found in the following references or on the WFRO's webpage:

- Revised Onshore Order Number 1 (Effective May 7, 2007)
- Surface Operating Standards and Guidelines for Oil and Gas Exploration and Development (The Gold Book)
- Bureau of Land Management – Colorado Standards for Public Land Health
- BLM Technical Reference 1730-1 and 1734-4
- Natural Resource Conservation Service (NRCS) Range/Ecological Site Descriptions

1.1 Authority

The BLM is required by law to ensure that authorized actions are carried out in a manner that does not result in "permanent impairment of the productivity of the land or the quality of the environment" (Federal Land Policy and Management Act (FLPMA), 1976). In order to promote a consistent and science-based approach to reclamation, this protocol identifies minimum information and operational requirements and performance-based criteria that are expected to satisfy WRFO's responsibilities under FLPMA and Colorado's Public Land Health Standards.

The Mineral Leasing Act of 1920 (30 U.S.C. § 181-287), amended by the Federal Onshore Oil and Gas Leasing Reform Act of 1987, PL 100-203, among other things, authorizes the Secretary of Interior to regulate all surface-disturbing activities associated with any lease and to impose mitigation and reclamation measures in order to "conserve surface resources."

The White River 1997 Record of Decision/Resource Management Plan (ROD/RMP) specifies that surface disturbance be promptly reclaimed to the satisfaction of the Area Manager and reclamation be implemented concurrent with construction and site operations to the fullest extent possible.

BLM regulations established in 43 C.F.R. §3160 (i.e., Onshore Oil and Gas Order Number 1) require that a reclamation plan be submitted with the Surface Use Plan in the Application for Permit to Drill (APD). The Onshore Order Number 1, Section XII. B., in referencing Section III.D.4.j., requires that surface reclamation plans must be designed to return the disturbed areas to productive use and meet the objectives of the land and resource management plan.

CHAPTER 2
SITE-SPECIFIC RECLAMATION PLANS

As described in Onshore Order Number 1(Revised 2007), project specific reclamation plans are required for any surface disturbing activity related to oil and gas activities. Exceptions may be warranted for wells on existing multi-well pads with approved reclamation plans. The Code of Federal Regulations (CFR), at 43 CFR 2800 describes requirements for surface use plans and associated reclamation plans for rights-of-way. Reclamation plans must be designed to return the disturbed area to a condition that meets the objectives of the White River 1997 ROD/RMP. Reclamation plans will address surface reclamation and/or stabilization of all disturbed areas for both the interim reclamation of all areas not needed for production and final reclamation of locations (after plugging) or linear facilities (upon completion of construction). Such plans must include the reclamation timelines, configuration of the reshaped topography, drainage systems, segregation of spoil materials (stockpiles), storage, and redistribution of topsoil, soil treatments, seeding or other steps to stabilize soils and reestablish vegetation, and weed control. The Reclamation Plan is part of the Surface Use Plan (SUP). An APD may have additional site specific Conditions of Approval (COAs) attached by the BLM.

2.1 Plan Components

At a minimum, project specific reclamation plans sufficient to accurately characterize surface and site conditions prior to disturbance will be submitted to the WRFO and must include:

1. Documentation of surface and site conditions prior to disturbance:
    a. Photos of area to be disturbed, taken from permanent photo points.
    b. Pre-disturbance terrain and contour.
    c. Soil type, average topsoil depth and characteristics (i.e., physical and chemical properties), and average depth to bedrock by soil type.
    d. If topsoil is expected to be stored for more than six months, its physical and chemical characteristics will be measured to determine pre-disturbance baseline values and to identify potential changes during storage. Site specific exceptions may be granted. The topsoil will be retested during Phase II interim reclamation using the same baseline methods to determine if there is a need for soil amendments. Suggested parameters for testing include pH, organic carbon, fertility (nitrogen, phosphorus, and potassium), aeration porosity, water-holding or available water capacity, bulk density, hydraulic conductivity, and electrical conductivity.

An adequate number of samples should be taken to ensure that changes in soil attributes can be detected.

e. Pre-disturbance ground cover, including surface rock and vegetation (by species). Data must be gathered using quantitative methods such as those described in BLM Technical Reference 1730-1, 1734-4, or other pre-approved methods.

f. NRCS range/ecological site description.

2. Construction practices and Phase I interim reclamation drainage design (including a plan view figure or diagram):

   a. Pipeline construction practices that define the method of installation such as using a plow, trencher, or excavator and a description of soil management practices during construction including storage of topsoil, subsoil, and methods for bedding the pipeline.

      Note: Topsoil will only be used as a seed bed for reclamation. Under no circumstances will topsoil be used as a pipe bedding material, to fill sacks for trench breakers, or for any other use as a construction material.

   b. Drainage systems including any stormwater measures, diversion ditches, catchment ditches, infiltration ponds, culverts, low-water crossings, or waterbars.

   c. Planned disturbance including locations of stockpiles, stormwater measures, production facilities pads, or other needed infrastructure.

3. Weed management:

   a. Pre-disturbance survey identifying and quantifying noxious and/or invasive weeds within the area of direct and indirect use (project disturbance and a 200 foot buffer), including all access roads, pipelines, or other associated surface disturbance. Pre-disturbance treatment plans will also be included.

   b. Plans for washing all vehicles and equipment to prevent the spread of weeds. Plans must address weed free zones identified in the White River 1997 ROD/RMP. Weed free zones are areas designated for intensive weed management through cooperation with private land owners, and State and county governments. Maps of designated weed free zones are in the White River 1997 ROD/RMP. A summary of methods used to monitor, treat, and report the colonization or re-colonization of noxious or undesirable invasive weeds within the project area and surrounding area (i.e., within 200 feet of areas of direct use). Ensure that weed

treatments are developed to be conducted in an effective manner compatible with approved seed mixes.

4. Monitoring protocols:
    a. The location of permanent photo points, which should show all aspects of planned surface disturbance and the adjacent undisturbed landscape.
    b. Reclamation monitoring plans including proposed methods, sampling design, inspection frequency, and reporting schedules. The operator will consult with the Reclamation Coordinator when developing the monitoring plan.
5. Interim reclamation (Phase I & II):
    a. Soil stabilization methods and stormwater management practices.
    b. Topographic diagram showing interim reclamation footprint including the extent of recontouring (Phase II only) and the means employed to maximize the extent of disturbance available for effective reclamation (e.g., placement of production facilities).
    c. Topsoil management and stabilization practices.
    d. Surface preparation before and after seeding.
    e. Seeding methods and seed mix.
    f. Methods for managing livestock and wild horse influences.
6. Final reclamation:
    a. Diagram showing proposed final recontouring.
    b. Proposed seeding methods and seed mixes.
    c. Methods for managing livestock and wild horse influences.
7. Long-term maintenance plans for roads, pipelines, power lines, and facilities:
    a. Weed control.
    b. Erosion control.
    c. Stormwater BMP maintenance.
    d. Control of unauthorized use or travel.
    e. Inspection and reporting schedule.

2.2 Timeframe for Site-Specific Reclamation Plan Submission

Reclamation plans will be required:

- As an attachment to Sundry Notice and Report on Well (Form 3160-5) if the APD was formerly approved without a reclamation plan.
- As an attachment to a Notice of Intent to Plug and Abandon or Subsequent Report of Plug and Abandon.
- Prior to requesting to abandon a right-of-way.

The operator/holder can propose to amend the reclamation plan at any time via Sundry Notice.

CHAPTER 3
TIMEFRAMES, SUCCESS CRITERIA, AND REQUIREMENTS

Reclamation success is determined by specific standards (that vary by phase) associated with a self-sustaining desirable plant community (DPC) as defined by the range/ecological site description. In Phase I interim reclamation, physical measures may be combined with vegetation-based techniques to successfully stabilize, protect, and preserve soils. Phase II interim reclamation and Final reclamation for oil and gas activities would be considered successful once attaining 70 percent of the DPC's vegetation, soil surface cover, and plant community composition (in a healthy early seral state) as defined by the range/ecological site description or in relation to the seed mix applied. It is the responsibility of the operator to make repeated attempts (e.g., seeding, weed control) until successful reclamation has been achieved and accepted by the BLM. A timeline for reclamation activities is provided below in Table 1.

3.1 Interim Reclamation

There are two distinct phases of interim reclamation recognized by the WRFO to manage surface disturbance associated with energy development. Phase I interim reclamation generally begins within 24 hours from the time when surface disturbing activities have ended. Surface disturbing activities include, but are not limited to, road construction and well pad construction. Phase II generally begins when drilling on the pad has ended and the wells are ready for completion and/or production. Rights-of-way (e.g., pipelines and power lines) do not necessarily have an interim reclamation phase, but proceed immediately to Final reclamation upon completion of construction. Pipeline and power line construction should be scheduled so that seed bed preparation and seeding occurs in optimal timeframes for reclamation success.

3.1.1 Phase I Interim Reclamation

Phase I interim reclamation is designed to stabilize and protect soil resources from erosion and to properly store topsoil during periods of active well development such that it remains viable and available for redistribution during later stages of reclamation. Soil stabilization measures should include vegetation-based techniques, but may rely primarily on physical measures such as erosion fabric.

3.1.1.1 Timeframe (Phase I)

Phase I interim reclamation will be implemented immediately (i.e., within 24 hours) after surface disturbing activities have ended. Application of seed will generally be avoided between April and August, but BLM will consider exceptions on a case-by-case basis.

3.1.1.2 Success Criteria (Phase I)

The primary objective of Phase I interim reclamation is to stabilize and protect soil resources from wind and water erosion. BLM acknowledges that Phase I interim reclamation techniques may rely predominantly on physical measures such as erosion fabric. In those circumstances where vegetation establishment is used to stabilize soils, the primary determinant for evaluating reclamation success will be desirable ground cover rather than seeded vegetation composition. At a minimum, the following standards must be met in order for Phase I interim reclamation to be deemed successful:

1. All disturbed areas and the surrounding area are kept free of noxious and undesirable invasive weeds, construction debris, and trash.
2. Soil piles and all areas of surface disturbance not required for operation are protected (e.g., mulch, matting, netting, tackifiers, established re-vegetation).
3. There is no evidence of excessive erosion such as slope or soil instability, subsidence, or slumping at the site or in areas adjacent to the site (as compared to the range/ecological site description).
4. Stored topsoil is identified (e.g., signs or fencing) and protected to allow for its use in Phase II interim reclamation.
5. Livestock control measures are in place as needed.

3.1.1.3 Requirements (Phase I)

The following requirements apply to Phase I interim reclamation and are designed to help meet the success criteria for this phase of reclamation.

1. The WRFO Reclamation Coordinator will be notified via email or by phone 24 hours prior to beginning any BLM approved construction-related activities, regardless of size, that result in disturbance of surface soils.
2. The WRFO Reclamation Coordinator will be notified via email or by phone 24 hours prior to beginning reclamation activities. Reclamation activities may include, but are not limited to recontouring, seed bed preparation, seeding, or construction of livestock exclosures.
3. All equipment that may act as a vector for weeds will be cleaned before entering the WRFO. Equipment will also be cleaned when leaving and/or moving between work-sites if the pre-disturbance weed inventory indicated the presence of undesirable invasive or noxious weeds and there is a risk of transporting weed seeds or propagules.

4. Trees or shrubs that must be removed for construction or ROW preparation will be cut down or masticated to a stump height of six inches or less prior to other heavy equipment operation. Trees removed for construction that are not needed for reclamation purposes will be cut in four foot lengths (down to four inches diameter) and placed in manageable stacks immediately adjacent to a public road to facilitate removal by the public. Woody materials required for reclamation will be stockpiled and stored separately from stockpiled topsoil and may be positioned along the margins of the authorized use area. Smaller limbs and trees may be chipped and stockpiled if needed for reclamation but, unless otherwise directed by the AO, operators should avoid incorporating this debris into the topsoil. The boles and limbs of the larger trees should be retained for redistribution not to exceed 20 percent total ground cover.
5. During site construction all topsoil will be stripped from the location, handled separately from subsoil materials, and stored for reuse during Phase II interim reclamation and/or Final reclamation.
6. Balance cut and fill to the maximum extent possible in order to minimize excess spoils piles and facilitate Phase II interim reclamation.
7. Topsoil must be salvaged during road construction and respread to the greatest degree practical on cut slopes, fill slopes, and borrow ditches prior to seeding. Road shape will be built using the borrow ditch subsoil. Topsoil may be stabilized with mulch as needed.
8. Properly store topsoil to protect it from erosion and compaction, assure that it remains readably identifiable (i.e., signed), viable, and available for redistribution during later stages of reclamation. Topsoil piles that will be stored for more than one month will be seeded with an approved BLM seed mix, stabilized with certified weed free erosion fabric or mulch, and may require fencing. When topsoil will be stored for more than one year and other resource values can be accommodated, topsoil will be stored in piles with a depth of two feet or less.
9. Topsoil will only be used as a seed bed for reclamation. Under no circumstances will topsoil be used as a pipe bedding material, to fill sacks for trench breakers, or for any other use as construction material. Fines and organics will not be shaken out the effective rooting zone soils for pipeline bedding.
10. Vegetative and structural soil stabilization practices will be required on cut and fill slopes off the working surfaces and in areas near water features, e.g., streams (including ephemeral drainages, ponds, and wetlands), or in other situations where wind or water erosion may otherwise accelerate movement of sediments.

11. All disturbed surfaces, including cut and fill slopes and drainage ditches along roads, will be seeded with a BLM approved seed mix. On roads, topsoil will be spread where successful revegetation is likely (e.g., along appropriate cut and fill slopes or at the top edge of the borrow ditches) and where it will not be disturbed during regular road maintenance activities.
12. Livestock will generally be excluded from reclaimed areas until successful reclamation is achieved. These decisions will be made by the BLM on a case-by-case basis. Fences, cattleguards, and gates (all built to BLM specifications per BLM manual H-1741-1) will be installed, maintained, and removed by the operator upon approval by the AO. In specific and predetermined instances, livestock exclosures may be retained for extended periods to meet other resource objectives.
13. To track Phase I and Phase II interim and Final reclamation, the operator will submit Geographic Information System (GIS) data to the WRFO Reclamation Coordinator for any post construction (i.e., "as-built") polygon feature that is associated with the project. GIS data will be submitted within 30 days from when construction has completed for all geographic features associated with the project. The operator will submit updated GIS data to the WRFO for any location or orientation changes within 14 calendar days of the change. GIS data will include constructed access roads, existing roads that were upgraded, pipeline corridors, temporary work areas, well pad footprints, and ancillary facilities.
14. The operator will be required to meet with the WRFO reclamation staff in March or April of each calendar year and present a comprehensive work plan. The purpose of the plan is to provide information pertaining to reclamation activities that are expected to occur during the coming year. Operators will also provide a map that shows all sites where some form of reclamation activity is expected to occur during the coming year.
15. A Reclamation Status Report (see Section 4) for each site will be submitted electronically to the WRFO annually (due September 30th) until it is determined that reclamation of the site has met all required objectives of Phase I interim reclamation.

3.1.2 Phase II Interim Reclamation

Phase II interim reclamation will involve recontouring the site to maximize the extent of disturbance available for reclamation, leaving the minimum area necessary for routine production and maintenance activities or as necessary to accommodate BLM authorized development plans. Desired vegetation will be established on as much of the disturbance as practicable to minimize soil erosion, inhibit noxious and

undesirable invasive weed establishment, allow for the advance of successional processes, and provide specific wildlife habitat components over the productive life of the well pad or facility.

3.1.2.1 Timeframe (Phase II)

Revised Onshore Order Number 1 requires that earthwork for interim reclamation be completed within six months of the conclusion of drilling. WRFO prefers to have recontouring work either deferred or expedited so that seed can be applied to a fresh seedbed during the optimal seeding times (i.e., September through March), or as otherwise approved by the BLM. Topsoil redistribution and seedbed preparation should be accomplished immediately before seeding.

Phase II interim reclamation will be initiated when one of the following applies:

- The last well on a pad has been drilled and has undergone completion.
- There are no drilling activities expected on the pad for the next six months.
- There has been no activity on the pad within the last six months, regardless of whether or not there are outstanding approved APDs.

Deadlines for reclamation are subject to extension upon the approval of the AO based on weather, timing limitations, or other constraints on a case-by-case basis.

3.1.2.2 Success Criteria (Phase II)

At a minimum, the following standards must be met in order for Phase II interim reclamation to be deemed successful:

1. All disturbed areas including stockpiled soils are kept free of noxious and undesirable invasive weeds, construction debris, and trash.
2. There is no evidence of excessive erosion such as slope or soil instability, subsidence, or slumping at the site or in areas adjacent to the site (as compared to the range/ecological site description.
3. Livestock control measures are in place as needed.
4. Adequate desirable vegetative groundcover is established on disturbed surfaces to stabilize soils through the operational life of the project.
    a. Phase II interim reclamation would be considered successful once attaining 70 percent of the DPC's vegetation cover and composition (early seral state) as defined by the range/ecological site description or in relation to the approved seed mix. On woodland or shrub sites, this would equate to the capability of those sites in an herbaceous state. These attributes (i.e.,

cover and composition) will be assessed using quantitative methods such as those presented in BLM Technical Reference 1730-1, 1734-4, or other pre-approved methods.

b. The vegetation community established on the reclaimed site is capable of persisting without continued intervention (excluding routine weed management) and will allow plant community successional processes to progress toward advanced community states.

c. Bare ground does not exceed the range/ecological site description or if not described, bare ground will not exceed that of a representative undisturbed DPC meeting the Colorado Standards for Public Land Health.

5. Reclamation success in areas affected by cheatgrass and/or other invasive annuals will be qualified based on the condition of the project site (i.e., the relative vegetative cover) prior to disturbance.

   a. If the project site contains less than 25 percent relative cover of undesirable species, interim reclamation will be considered acceptable when the relative cover of undesirable species on the project site does not exceed 5 percent.

   b. If the project site contains 25 percent to 50 percent relative cover of undesirable species, interim reclamation will be considered acceptable when the relative cover of undesirable species on the project site does not exceed 10 percent.

   c. If the project site contains more than 50 percent relative cover of undesirable species, interim reclamation will be considered acceptable when the relative cover of undesirable species on the project site does not exceed the level defined by site-specific criteria established in the reclamation plan developed for that site.

3.1.2.3 Requirements (Phase II)

In addition to the procedures listed above for Phase I interim reclamation, the following requirements apply to Phase II interim reclamation.

1. Recontour to maximize the extent of disturbance available for reclamation. Soils must be returned to their respective positions in the predisturbance soil profile. Recontoured surfaces must be stable and have adequate surface roughness to reduce surface run-off.

   a. For well pads, place rock into cut first where it can be buried below the surface. The surface cover and size distribution of exposed rock must not exceed pre-disturbance site conditions documented in the project specific reclamation plan (except when rock is used as an approved erosion control feature).

b. After placement of subsoil, decompaction (ripping) or other preparation of subsoils must occur prior to spreading topsoil over the ground surface. Generally, all topsoil should be redistributed across all surfaces subject to Phase II interim reclamation. Topsoil will not be spread when the ground or topsoil is frozen or too wet to adequately support construction equipment. Soil is deemed "too wet" if equipment creates ruts greater than three inches.

c. All topsoil that has been stockpiled for an extended period of time (six months or greater) will be retested using the same procedure described in Section 2.1 Item 1d to determine topsoil viability before it is re-spread. Analytical results will be compared to data obtained for soil characteristics prior to disturbance. If the comparison indicates problems with soil productivity, topsoil may be treated with amendments approved by the AO to meet the physical, chemical, and biological properties necessary for successful reclamation.

2. After topsoil has been redistributed, all disturbed areas will be seeded using a BLM approved seed mix. Seeding will occur between the beginning of September and the end of March (depending on elevation) or as otherwise approved by BLM (See Table 4).

3. Once the disturbance has been recontoured and the seedbed has been prepared and seeded, stockpiled woody material will be scattered across the reclaimed area where the material originated. Chipped material will be scattered across reclaimed areas in a manner that avoids the development of a mulch layer that suppresses growth or reproduction of desirable vegetation. Redistribution of large woody debris will not exceed 20 percent ground cover and excess material will be removed from the site. Large woody material will be distributed in a manner that helps deter vehicle use. Materials would be distributed in such a way to avoid concentrations of heavy fuels that constitute a fire hazard or suppress adequate vegetation growth.

4. Disturbed and reclaimed areas will be managed to control dust and must be kept free of State of Colorado A and B listed noxious weeds.

5. Ensure that weed treatments are conducted in an effective manner that is compatible with approved seed mixes. To reduce the need for repeated bare ground herbicide treatments around facilities, alternative methods such as gravel, weed barrier fabric, or low-growing, disturbance-tolerant herbaceous vegetation may be used as authorized for a specific site by the BLM.

6. To track interim reclamation, the operator will submit Geographic Information System (GIS) data to the WRFO Reclamation Coordinator for all seed application areas. GIS data will be submitted within 14 calendar days from the time when seed has been applied.

7. A Reclamation Status Report for each reclamation site will be submitted electronically to the WRFO annually (due September 30th) until reclamation at that site is deemed successful (see Section 4).

3.2 Final Reclamation

Final reclamation will be applied once pipelines and power lines are installed, wells are plugged and abandoned, or after the operational life of the facilities has ended. Desired vegetation will be established on the entire reclaimed disturbance to minimize soil erosion, inhibit noxious and undesirable invasive weed establishment, allow for the advance of successional processes, and provide specified wildlife and/or special status plant habitat components. Operators may be required to update their reclamation plan to incorporate current reclamation practices at the time of abandonment or reauthorization.

3.2.1 Timeframe (Final)

Final reclamation on pipelines will be initiated immediately after installation and seeding should occur during recommended periods. Revised Onshore Order Number 1 requires that earthwork for Final reclamation be completed within six months of well plugging. WRFO prefers to have final recontouring work either deferred or expedited so that seed can be applied to a fresh seedbed during the optimal seeding times (i.e., September through March), or as otherwise approved by the BLM. Topsoil redistribution and seedbed preparation should be accomplished immediately before seeding.

Final reclamation will be initiated when one of the following conditions exist:

- The operator encounters a “dry hole” and no further exploration or production is planned at the location.
- The final well on a pad has been plugged and abandoned.
- Facilities or infrastructure are no longer used in operations.
- The facilities that an access road serves have ceased operations and the road will be obliterated.

3.2.2 Success Criteria (Final)

At a minimum, the following standards must be met in order for Final reclamation to be deemed successful:

1. All reclaimed areas are kept free of noxious and undesirable invasive weeds, construction debris and trash.

2. There is no evidence of excessive erosion such as slope or soil instability, subsidence, or slumping at the site or in areas adjacent to the site (as compared to the range/ecological site description.
3. Storm water management structures and drainage features (e.g., culverts and ditches) installed by the operator have been removed and reclaimed.
4. The site has been recontoured to its pre-disturbance contour or a contour that blends with the surrounding landform.
5. The surface cover and size distribution of exposed rock must not exceed pre-disturbance site conditions documented in the project specific reclamation plan (except when rock is used as an approved erosion control feature).
6. Roads built for and no longer supporting oil and gas development have been recontoured, obliterated, revegetated, and are no longer distinguishable as a means of vehicle travel (i.e., no ruts or two-tracks).
7. All signs, fences, gates, and cattleguards associated with livestock exclosures have been removed from the site, unless in specific predetermined instances the AO directs that livestock exclosures be retained for extended periods to meet other resource objectives.
8. Final reclamation is considered successful when the entire reclamation site (including obliterated roads) has attained 70 percent of the DPC's vegetation cover and composition (early seral state) as defined by the range/ecological site description or in relation to the approved seed mix. On woodland or shrub sites, this would equate to the capability of those sites in an herbaceous state. These attributes (i.e., cover and composition) will be assessed using quantitative methods such as those presented in BLM Technical Reference 1730-1, 1734-4, or other preapproved methods.
9. The vegetation community established on the reclaimed site stabilizes soils, is capable of persisting without continued intervention (excluding routine weed management), and will allow plant community successional processes to progress toward advanced community states.
10. Bare ground does not exceed the range/ecological site description or if not described, bare ground does not exceed that of a representative undisturbed DPC meeting the Colorado Standards for Public Land Health.
11. Reclamation success in areas affected by cheatgrass and/or other invasive annuals will be qualified based on the condition of the project site (i.e., the relative vegetative cover) prior to disturbance.

a. If the project site contains less than 25 percent relative cover of undesirable species, Final reclamation will be considered acceptable when the relative cover of undesirable species on the project site does not exceed 5 percent.

b. If the project site contains 25 percent to 50 percent relative cover of undesirable species, Final reclamation will be considered acceptable when the relative cover of undesirable species on the project site does not exceed 10 percent.

c. If the project site contains more than 50 percent relative cover of undesirable species, Final reclamation will be considered acceptable when the relative cover of undesirable species on the project site does not exceed the level defined by site-specific criteria established in the reclamation plan developed for that site.

3.2.3 Reclamation Requirements (Final)

In addition to all applicable Phase I and Phase II interim reclamation requirements listed above, the following additional requirements apply to Final reclamation.

1. Soils directly beneath facilities must be sampled to assure compliance with State of Colorado Total Petroleum Hydrocarbons (TPH) and Salinity quality standards prior to being incorporated into the reclaimed surface. Laboratory analytical results, actions taken by the operator, and GPS coordinates of tested locations must be submitted via Sundry Notice to the AO prior to submitting a Request for Final Abandonment.
2. Roads that existed prior to development have been returned to their original state unless otherwise directed by the AO. Roads left at the end of Final reclamation should be designed at an appropriate standard, no higher than necessary to accommodate their intended function.
3. Unless authorized, there will be no vehicle access, including OHVs, on linear rights-of-way (e.g., pipelines and power lines). Physical barriers (e.g., fences, rocks, etc.) may be necessary to prevent travel on reclaimed surfaces. Woody materials would be distributed in such a way to avoid large concentrations of heavy fuels.
4. Where needed, signs and/or deterrents to limit public use of reclaimed surfaces must be installed. These items must also be removed upon approval of Final Abandonment by the WRFO BLM.
5. The BLM WRFO AO will be informed when Final reclamation has been successfully completed (based on results of vegetation monitoring data) and the site is ready for final inspection.

Table 1: Timeline for Reclamation Activities

Phase	Actions
Predisturbance	1) A Reclamation Plan is submitted as part of the Surface Use Plan (SUP) with an Application for Permit to Drill (APD), Form 3160-3, or as part of a Right-of-Way Application, or when there is a change in action (see Section 2). *Prior to beginning construction, monitoring protocols, site specific surveys, and pre-disturbance evaluations are completed as described in site specific reclamation plan.*
	2) BLM reviews or prepares an environmental assessment to analyze potential impacts of the proposed action. Identified impacts are mitigated with BLM Conditions of Approval (COAs). The approved Reclamation Plan and applied COAs specify procedures and techniques to be used at each stage of reclamation.
Phase I Interim Reclamation	3) Phase I interim reclamation is implemented immediately (within 24 hours) after surface disturbing activities (e.g., construction of access road and pad) have ended. The goals of Phase I interim reclamation to stabilize, protect, and preserve soils during construction and drilling (see Section 3.1.1.1). Rights-of-way (e.g., pipelines, power lines) proceed immediately to Final reclamation of the surface (see Section 3.2.1).
	4) Phase I interim reclamation (see Section 3.1.1.3) typically involves the following activities: • Install approved BMPs and stabilization measures for slopes and stockpiled soils • Begin/continue weed control measures
Phase II Interim Reclamation	5) Earthwork for Phase II recontouring must begin within six months (weather permitting) of drill rig leaving the location, (see Section 3.1.2.1). The goal of Phase II interim reclamation is to recontour and reclaim the maximum extent of the disturbance as possible while leaving the minimum area necessary for routine production and maintenance activities. Phase II interim reclamation helps to establish desirable vegetation to minimize soil erosion, inhibit weed establishment, allow for the advancement of successional processes, and provide specific wildlife habitat components over the productive life of the well pad or facility (see Section 3.1.2).
	6) Maintenance activities such as weed control and stormwater control described in the approved Reclamation Plan continues throughout Phase II (see Section 3.1.2.3).
	7) The completion of earthwork for Phase II should coincide with optimal seeding times (i.e. September through March), or as otherwise approved by the BLM. After recontouring is complete, stored topsoil is re-spread, and if approved, soil amendments are added. Following topsoil placement, seed is applied, stabilization measures are installed, and woody debris is spread on reclaimed areas. Following seeding, fencing (if not already in place) is installed. Phase II interim reclamation remains in place through the life of the well or facility (see Section 3.1.2.3).
Final Reclamation	8) Earthwork for Final reclamation must be completed within six months of well plugging (see Section 3.2.1). The goal of Final reclamation is to return the site to as close as possible to its original contour and its predisturbed condition with desirable, self sustaining vegetation to minimize soil erosion, inhibit weed establishment, allow for the advancement of successional processes, and provide specific wildlife habitat components (see Section 3.2).
	9) Disturbed areas (e.g., pads, roads, linear facilities, facility sites) must be reclaimed to a satisfactorily revegetated, safe, and stable condition. Earthwork and soil preparation should be timed to be completed immediately prior to optimal seeding times (i.e., September through March), or as otherwise approved by the BLM (see Section 3.2.1).
	10) When Final reclamation efforts are successful the operator submits a Final Abandonment Notice (FAN) to the BLM. Final abandonment will not be approved until the surface reclamation work has been completed and seeded vegetation has established to the satisfaction of the BLM (see Section 3.2.2).

CHAPTER 4
RECLAMATION STATUS REPORTS

Reclamation status reports will be submitted annually in order to monitor progress at all disturbed sites across the WRFO. In addition to determining whether success criteria have been met at a particular site, the reclamation status report will provide a clear record of the techniques used.

Internal and external review of the WRFO reclamation status report and the processes used to acquire necessary information will be conducted annually and new information or changes in the reporting process will be incorporated into the report.

4.1 Timeframe for Reclamation Status Report Submission

A reclamation status report for each site will be submitted electronically to the WRFO annually (due September 30th) until it is determined that reclamation of the site has met all required objectives of that particular reclamation phase.

The reclamation status report will be submitted electronically via email and as a hard copy to the WRFO Reclamation Coordinator. Mail the hardcopy to: BLM, White River Field Office, 220 East Market Street, Meeker, CO 81641, Attn: Reclamation Status Report/WRFO Reclamation Coordinator.

4.2 Status Report Components

The reclamation status report will include (at a minimum) the following components to sufficiently and accurately characterize progress and status of reclamation:

- The original National Environmental Policy Act (NEPA) document number and, if applicable, realty case file number or the well number and American Petroleum Institute (API) number.
- Project feature (e.g., well pad, pipeline, travel or power-line corridor, ancillary facilities, etc.)
- The date of the inspection.
- Legal description and UTM coordinates for each discrete point feature associated with the report.
- A reclamation diagram will be included in the report and submitted for each project feature. The reclamation diagram will clearly show the area(s) where reclamation activities have occurred and will also include each point, polygon, or polyline feature that is associated with the report.
- Range/ecological site description.
- Reclamation status (e.g., “Phase I interim”, “Phase II interim”, or “Final”).

- Re-vegetation and/or re-contouring status.
- Date(s) seeded, an estimate of the total area seeded (in acres), seed mixture applied, and seeding method (e.g., broadcast, drilled, hydro-mulched, etc.), if applicable.
- Contact information for the person responsible for developing the report.
- Additional notes pertaining to the overall condition of the site.
- If plans for weed management are scheduled, include this information as well.
- Permanent photo points identified and noted on the reclamation diagram. Photos will be taken at each photo point, and the date the photo was taken will be noted on each photo. (Refer to BLM Technical Reference 1730-1 for specific guidance regarding establishing photo points.)
- Species composition and cover for seeded surfaces. (Refer to BLM Technical Reference 1730-1 for guidance regarding quantitatively assessing vegetative species composition and cover.)

CHAPTER 5
SEED MIXES

BLM approved seed mixes are designed to promote long term establishment of native species, minimize erosion, compete with noxious and undesirable invasive weeds, and provide the foundation for further successional development of vegetation (particularly shrubs and trees) derived from adjacent native communities as habitat for wildlife. Seed mixes are developed according to plant community types and wildlife needs.

If the use of non-native species is desired, justification and documentation of the need is required for BLM to consider its approved use. Examples of this situation could be sites with soils that demonstrate repeated resistance to seedling establishment despite amendment or areas at high risk of reclamation failure due to noxious or invasive weeds. Seed mixes including annual cereal grasses or sterile hybrid crops will generally not be approved for use in the WRFO resource area. BLM may consider exceptions to this policy if research or well-founded empirical information indicates that benefits of a nurse crop outweigh competitive interactions on desired perennial vegetation. All seed placed on BLM and split-estate lands will comply with United States Department of Agriculture (USDA) state noxious weed seed requirements. Any seed lot with test results showing presence of State of Colorado A or B list species will be rejected in its entirety and a new tested lot will be used for reclamation.

5.1 Seed Mix Selection, Application Methods, and Rates

Most range sites within the WRFO have been assigned a seed mix (Table 2). These seed mixes have been designed by considering soil types, ranges sites, and the composition of native species likely to occur in the potential native plant community. Some of the range sites or soil units within the WRFO have not been assigned a seed mix. For sites with specialized characteristics (e.g., riparian floodplains, shale barrens, community variations within the ecological site) or those difficult to reclaim (e.g., rocky, shallow soils or steep slopes) a seed mix will be determined by the BLM on a case-by-case basis.

Drill seeding is the preferred method of seed application (but see Section 6 below). If slopes are too steep or otherwise unsuitable for drilling, seed will be broadcast at double the rate specified. Broadcast seed should be covered by harrowing or raking to ensure germination and establishment. Hydromulching after seed application will generally be required on steeper slopes.

Where appropriate, the AO may require (or consider proposals to employ) seeding and seedbed preparation techniques that favor germination and seedling establishment of forb and shrub seeds in conjunction with, or as a supplement to, conventional drill-seeding applications. These techniques are

intended to avoid problems associated with applying or mixing seeds that differ from grass seed in size or density.

Seed mixes in Table 3 were designed to average 50 seeds per square foot with the assumption that there would not be a substantial viable seed bank remaining in topsoil piles that had been stored for greater than six months. At the discretion of the BLM, it may be appropriate to reduce the seeding rates (i.e., adjusted to 20-30 seeds per square foot) in circumstances where a substantial viable seed bank persists in the topsoil (e.g., pipelines in which the topsoil is removed and replaced in the same growing season).

The composition of Phase I interim reclamation seed mixes may be different from those used during Phase II interim reclamation and Final reclamation since the BLM would not generally require the use of forb or shrub seed during Phase I interim reclamation.

Table 2. Seed Mixes Tied to Range Sites within the WRFO

Seed Mix	Range Sites
1	Alkali Flat, Alkaline Slopes, Clayey Foothills, Clayey Slopes
2	Deep Loam, Loamy Slopes, Loamy, Loamy 10-14 in PPT, Loamy Bottom, Loamy Breaks, Loamy Slopes, Rolling Loam
3	Desert Clay, Foothills Juniper, Mountain Pinyon, Pinyon Juniper Woodlands, Sandy Juniper, Stoney Foothills, Soil Unit 206mcs
4	Sandhills, Sandy Foothills
5 or 10*	Foothill Swale, Swale Meadow
6	Aspen, Brushy Loam, Deep Clay Loam, Douglas-Fir Woodland, Lodgepole Pine Woodland, Mountain Loam, Mountain Meadow, Mountain Shallow Loam, Mountain Swale, Spruce-Fir Woodland
7	Dry Exposure, Dry Mountain Loam, Stoney Loam
8 or 9*	Clayey Loam, Clayey Saltdesert, Desert Shallow Clay, Loamy Cold Desert, Loamy Saltdesert, Salt Meadow, Saltdesert Breaks, Saltdesert Overflow, Sandy, Sandy Saltdesert, Semidesert Clay Loam, Semidesert Gravelly Loam, Semidesert Loam, Semidesert Sandy Loam, Semidesert Shallow Loam, Silty Saltdesert, Upland Shallow Loam, Upland Stony Loam, and Soil Units 196mcs and 204mcs

**Two seed mixes are presented as options in areas that are known to be especially harsh sites to reclaim. The second seed mix listed is a mix of native and introduced species.*

Table 3. Standard Seed Mixes (50 seeds per square foot application rate)

Seed Mix	Cultivar	Species	Scientific Name	Application Rate (lbs PLS/acre)
1	Rosana	Western Wheatgrass	*Pascopyrum smithii*	4.5
	Critana	Thickspike Wheatgrass	*Elymus lanceolatus ssp. lanceolatus*	3.5
	Toe Jam Creek	Bottlebrush Squirreltail	*Elymus elymoides*	3
		Scarlet Globemallow	*Sphaeralcea coccinea*	0.5
		Sulphur Flower	*Eriogonum umbellatum*	1.5
		Winterfat	*Krascheninnikovia lanata*	1
	Alternates:*			
	Sodar	Streambank Wheatgrass	*Elymus lanceolatus ssp. psammophilus*	3.5
		Annual Sunflower	*Helianthus annus*	3
		Mat Saltbush	*Atriplex corrugata*	2
2	Arriba	Western Wheatgrass	*Pascopyrum smithii*	4
	Rimrock	Indian Ricegrass	*Achnatherum hymenoides*	3.5
	Whitmar	Bluebunch Wheatgrass	*Pseudoroegneria spicata ssp. inermis*	4
	Lodorm	Green Needlegrass	*Nassella viridula*	2.5
	Timp	Northern Sweetvetch	*Hedysarum boreale*	3
		Sulphur Flower	*Eriogonum umbellatum*	1.5
	Alternates:*			
	Critana	Needle and Thread	*Elymus lanceolatus ssp. lanceolatus*	3
		Scarlet Globemallow	*Sphaeralcea coccinea*	0.5
3	Rosanna	Western Wheatgrass	*Pascopyrum smithii*	4
	Whitmar	Bluebunch Wheatgrass	*Pseudoroegneria spicata ssp. inermis*	3.5
	Rimrock	Indian Ricegrass	*Achnatherum hymenoides*	3
		Needle and Thread Grass	*Hesperostipa comata ssp. comata*	2.5
	Maple Grove	Lewis Flax	*Linum lewisii*	1
		Scarlet Globemallow	*Sphaeralcea coccinea*	0.5
	Alternates:*			
	Critana	Thickspike Wheatgrass	*Elymus lanceolatus ssp. lanceolatus*	3
		Sulphur Flower	*Eriogonum umbellatum*	1.5

Table 3, continued. Standard Seed Mixes (50 seeds per square foot application rate)

Seed Mix	Cultivar	Species	Scientific Name	Application Rate (lbs PLS/acre)
4	Rosanna	Western Wheatgrass	*Pascopyrum smithii*	3.5
	Critana	Thickspike Wheatgrass	*Elymus lanceolatus ssp. lanceolatus*	2.5
	Rimrock	Indian Ricegrass	*Achnatherum hymenoides*	3
		Needle and Thread Grass	*Hesperostipa comata ssp. comata*	2.5
		Northern Sweetvetch	*Hedysarum boreale*	3
		Sulphur buckwheat	*Eriogonum Umbellatum*	1
	Alternates:*			
	Toe Jam Creek	Bottlebrush Squirreltail	*Elymus elymoides*	2
		Scarlet Globemallow	*Sphaeralcea coccinea*	0.5
5	Magnar	Basin Wildrye	*Leymus cinereus*	3.5
	Rosanna	Western Wheatgrass	*Pascopyrum smithii*	3.5
	San Luis	Slender Wheatgrass	*Elymus trachycaulus ssp. trachycaulus*	3
	Critana	Thickspike Wheatgrass	*Elymus lanceolatus ssp. lanceolatus*	3
	Timp	Northern Sweetvetch	*Hedysarum boreale*	4.5
	Maple Grove	Lewis Flax	*Linum lewisii*	1
	Alternates:*			
	Sodar	Streambank Wheatgrass	*Elymus lanceolatus ssp. psammophilus*	3
		Scarlet Globemallow	*Sphaeralcea coccinea*	0.5
6	UP Plateau	Sandberg bluegrass	*Poa secunda ssp. sandbergii*	0.5
	San Luis	Slender Wheatgrass	*Elymus trachycaulus ssp. trachycaulus*	2
	Sherman	Big Bluegrass	*Poa secunda ssp. ampla*	1
	Bromar	Mountain Brome	*Bromus marginatus*	2
	Maple Grove	Lewis Flax	*Linum lewisii*	1
	Bandera	Rocky Mountain Penstemon	*Penstemon strictus*	0.5
	Alternates:*			
	Canbar	Canby Bluegrass	*Poa secunda ssp. canbyi*	0.5
		Arrowleaf Balsamroot	*Balsamorhiza sagittata*	3

Table 3, continued. Standard Seed Mixes (50 seeds per square foot application rate)

Seed Mix	Cultivar	Species	Scientific Name	Application Rate (lbs PLS/acre)
7		Letterman needlegrass	*Elymus lanceolatus ssp. lanceolatus*	3
	San Luis	Slender Wheatgrass	*Elymus trachycaulus ssp. trachycaulus*	2
	Whitmar	Bluebunch Wheatgrass	*Pseudoroegneria spicata ssp. inermis*	4
	Sodar	Streambank Wheatgrass	*Elymus lanceolatus ssp. psammophilus*	3
		Scarlet Globemallow	*Sphaeralcea coccinea*	0.5
		Sulfur Flower Buckwheat	*Eriogonum umbellatum*	1
	Alternates:*			
	UP Plateau	Sandberg Bluegrass	*Poa secunda ssp. sandbergii*	0.5
		Northern Sweetvetch	*Hedysarum boreale*	3
8	Viva Florets	Galleta Grass	*Pleuraphis jamesii*	3
	Rimrock	Indian Ricegrass	*Achnatherum hymenoides*	3
	Toe Jam Creek	Bottlebrush Squirreltail	*Elymus elymoides*	2.5
	Rosanna	Western Wheatgrass	*Pascopyrum smithii*	4
		Scarlet Globemallow	*Sphaeralcea coccinea*	0.25
		Annual Sunflower	*Helianthus annus*	2.5
		Mat Saltbush	*Atriplex corrugata*	2
	Alternates:*			
	UP Plateau	Sandberg Bluegrass	*Poa secunda ssp. sandbergii*	0.5
		Fernleaf Biscuitroot	*Lomatium dissectum*	3
		Shadscale	*Atriplex confertifolia*	2
9	Rosanna	Western Wheatgrass	*Pascopyrum smithii*	5
	Bozoisky-Select	Russian Wildrye	*Psathyrostachys juncea*	3
	Hycrest	Crested Wheatgrass	*Agropyron cristatum*	3
		Annual Sunflower	*Helianthus annus*	5
	Alternates:*			
	P27	Siberian Wheatgrass	*Agropyron fragile*	3.5
		Scarlet Globemallow	*Sphaeralcea coccinea*	1

Table 3, continued. Standard Seed Mixes (50 seeds per square foot application rate).

Seed Mix	Cultivar	Species	Scientific Name	Application Rate (lbs PLS/acre)
10	Magnar	Basin Wildrye	*Leymus cinereus*	3.5
	Rosanna	Western Wheatgrass	*Pascopyrum smithii*	4
	Luna	Pubescent Wheatgrass	*Elytrigia intermedia*	4
	Paiute	Orchardgrass	*Dactylis glomerata*	1
	Ladak	Alfalfa	*Medicago sativa*	1.5
	Wytana	Fourwing Saltbush	*Atriplex canescens*	2
	Alternates:*			
	Hycrest	Crested Wheatgrass	*Agropyron cristatum*	1.5
		Scarlet Globemallow	*Sphaeralcea coccinea*	0.5

**Decisions regarding the use of alternates will be made by the BLM. It is expected that seeds for other native species will become commercially available in the future. The BLM will consider the use of native species not listed in the seed mixes so long as they are adapted to the site (i.e., the cultivar is compatible with local conditions) and they are native to the site (e.g., listed as a component of the potential native plant community within the range/ecological site description or were present at the site prior to initial disturbance).*

5.2 Acceptable Seeding Dates

Seeding shall occur between September 1 and March 31, depending on elevation and vegetation community, or as otherwise approved by the BLM. General guidelines for dominant vegetation communities within the White River Field Office resource area are provided in the table below.

Table 4. Acceptable Seeding Dates Based on Vegetation Community

Vegetation Community	Seeding Dates
Desert Shrub	September 1 - February 29
Low Elevation Sagebrush (below 5,500 ft)	September 1 - February 29
Mid-elevation Sagebrush (5,500 - 7,200 ft)	September 1 - March 15
High Elevation Sagebrush (above 7,200 ft)	September 1 - March 31
Low Elevation Pinyon-Juniper (below 5,500 ft)	September 1 - February 29
Mid-elevation Pinyon-Juniper (5,500 - 7,200 ft)	September 1 - March 15
High Elevation Pinyon-Juniper (above 7,200 ft)	September 1 - March 31
Mixed Mountain Shrub	September 1 - March 31
Aspen Forest	September 1 - March 31
Douglas-Fir Forest	September 1 - March 31

CHAPTER 6
MODIFICATIONS OF STANDARD RECLAMATION SUCCESS CRITERIA AND SEED MIXES

BLM may require special reclamation procedures or seed mixes to be augmented with special components to meet specific and pre-defined resource objectives.

6.1 Greater Sage-Grouse Habitat

Within the overall range of greater sage-grouse, the following conditions may be imposed:

- Reclamation success criteria on sage-grouse habitats would generally be contingent, where prescribed, on evidence of successful establishment of desired forbs and sagebrush. Disturbed acreage would be expected to progress without further intervention to a state that meets sage-grouse cover and forage needs based on site capability and seasonal habitat use as per Appendix A, "Structural Habitat Guidelines" from the *Colorado Greater Sage-grouse Conservation Plan.*
- Consistent with existing land use decisions, adapted forms of forbs with recognized utility as sage-grouse forage or cover would be included in Phase II interim and Final reclamation seed mixes applied to surface disturbances in suitable sage-grouse nesting, early brood rearing, and late brood habitats. Native forms would be used as a general rule, but where unavailable or considered beneficial and consistent with existing land use decisions, non-native species with established value to sage-grouse that have no demonstrated tendency to persist more than ten years or disperse beyond the treatment area could be used where approved by BLM.
- When prescribed as a reclamation seed component, local accessions of sagebrush (i.e., material collected on site or seed propagated from "local" collections) would be used where appropriate and as specified by BLM to accelerate the redevelopment of sagebrush where canopies have been removed or adversely modified.

6.2 Habitat for Special Status Plant Species

Reclamation of special status plant species habitats may require additional conditions to prevent topsoil from mixing into or percolating through large diameter spoils. Examples may include but are not limited to: topsoil and subsoil separation by protective covering and/or fencing during excavation, spoil crushing and/or compacting prior to topsoil and subsoil replacement, adhesion fabrics or mulch on steep slopes, and restrictions on topsoil storage timeframes.

6.3 Areas of Critical Environmental Concern (ACEC) and Remnant Vegetation Associations (RVA)

Within RVAs and identified ACECs (i.e., those containing special status plant species), the following additional conditions apply:

- In order to maintain genetic integrity, native seed must be collected prior to construction operations or disturbance. Native seed will be collected utilizing established standards put forth and provided by the Association of Official Seed Certifying Agencies (www.AOSCA.org).
- If native seed production is insufficient to allow collection of an adequate quantity of seed after three consecutive growing seasons, then the operator may request authorization to use an alternate seed mix that resembles the desired native plant community as closely as possible. Any alternate seed mix must be approved, in writing, by the AO after appropriate environmental analysis is conducted.

CHAPTER 7
SUPPLEMENTAL INFORMATION

7.1 Acronyms

AO: Authorized Officer

API: American Petroleum Institute

APD: Application for Permit to Drill

BLM: Bureau of Land Management

BMP: Best Management Practice

CDPHE: Colorado Department of Health and Environment

COA: Condition of Approval

DPC: Desired Plant Community

FLPMA: Federal Lands Policy and Management Act of 1976

GIS: Global Information System

NEPA: National Environmental Policy Act

NRCS: Natural Resources Conservation Service (USDA Federal Agency)

OHV: Off-highway vehicle

RMP: Resource Management Plan

RMPA: Resource Management Plan Amendment

SUP: Surface Use Plan

USDA: United States Department of Agriculture

WRFO: White River Field Office

7.2 Contact Information

All inquiries should be sent to the WRFO Reclamation Coordinator:

BLM, White River Field Office
220 East Market Street
Meeker, Colorado 81641
Attn: Reclamation Coordinator
Phone: (970) 878-3800

7.3 Citations

Colorado Greater Sage-grouse Steering Committee. 2008. *Colorado Greater Sage-grouse Conservation Plan.* Colorado Division of Wildlife, Denver, Colorado.

7.4 Definitions

Best Management Practice (BMP): BMPs are state-of-the-art mitigation measures designed to provide for safe and efficient operations while minimizing undesirable impacts to the environment.

Desired Plant Community (DPC): DPCs are plant community types that may occupy a range/ecological site to meet management objectives and provide at least the minimum quality criteria for the soil, water, air, plant, and animal resources.

Drilling: A drill rig is present and in the act of drilling for placement of surface casing and or production casing.

Ecological Site: A distinctive kind of land with specific physical characteristics that differs from other kinds of land in its ability to produce a distinctive kind and amount of vegetation.

Ecological Site Description: Describes physiographic features, climate features, influencing water features, representative soil features, and plant communities (including information about state and transition of plant communities) for the ecological site. Information common for plant communities can include community narratives, annual production, species composition, growth curves, cover and structure, and photos. This system describes what is possible for a particular reclamation site and also allows for the updating of the site descriptions as new information becomes available.

Effective Rooting Zone: Effective rooting depth is the rooting zone or depth where plants obtain most of their water and nutrients. Approximately 80 percent of a given plant's root system is found within this zone. The depth of the effective rooting zone varies by plant species, soil type and local depths to bedrock.

Final Reclamation: Reclamation of an area (not planned for further disturbance) including recontouring, stabilization of soils, and establishment of vegetation representative of the DPC in a healthy early seral state that will allow progression toward the climax community.

Growing Season: Growing season is the portion of the year when temperatures and moisture permit plant growth. The growing season for the WRFO is defined as the period between the last frost of spring

and the first frost of autumn, which varies with elevation. In the WRFO this period generally begins in April and may continue into September depending on elevation.

Interim Reclamation (Phase I/II): Reclamation of an area (likely to be redisturbed in the future) including partial recontouring, soil stabilization, and revegetation. This includes sites where final recontouring will be needed at the end of the project and sites where periodic disturbance may occur due to on-going operation and maintenance activities. Phase I interim reclamation generally begins within 24 hours from the time when surface disturbing activities have ended.

On-Site Evaluation: A preplanning meeting to evaluate the site of proposed disturbance, usually attended by the operator, surface owner, BLM, and interested parties.

Reclamation: The result of activities implemented to provide: surface and subsurface stability and a functioning plant community of desirable perennial vegetative cover that is capable of persisting and is compatible with or complements BLM established land management objectives. Vegetation will be representative of the Range/ecological site description or Desired Plant Community and allow for successional processes that allow progression toward the climax vegetative community expected for that range/ecological site.

Reclamation Plan: A plan submitted by the operator as outlined in the revised Onshore Order Number 1 effective May 7, 2007. The plan is a dynamic document that defines and explains the extent and timing of actions taken to contribute to the eventual restoration of the disturbed site to its natural undisturbed potential.

Restoration: Implementation of a set of actions that promotes plant community diversity and structure that allows plant communities to be more resilient to disturbance and invasive species over the long term.

Revegetation: Establishing or re-establishing desirable plants in areas where desirable plants are absent or of inadequate density, by natural revegetation or by seeding or transplanting (artificial revegetation).

Soil Productivity: Soil productivity is defined as the capacity of a soil for producing a specified plant or sequence of plants under a specified system of management. For reclamation, soil productivity is the effectiveness of the seed bed to propagate the reclamation seed mix.

Surface Disturbing Activities: An action that alters the vegetation, surface/near surface soil resources, and/or surface geologic features, beyond natural site conditions and on a scale that affects other Public Land values. Examples of surface disturbing activities may include: operation of heavy equipment to construct well pads, roads, pits and reservoirs, installation of pipelines and power lines, or vegetation treatments (e.g., prescribed fire, etc.). Surface disturbing activities may be either authorized or

prohibited. *Wyoming Information Bulletin 2007-029, Guidance for Use of Standardized Surface Use Definitions.*

Surrounding Area: The variable area of influence (generally within 200 feet) associated with a disturbance that, if infested by noxious or undesirable invasive weeds, could serve as a seed source to infest or re-infest the disturbed area.

Topsoil: Surface soil, usually corresponding with the O and A, and sometimes B horizons; depths will vary by location. It is distinguished from subsoil as the most favorable material for establishment of seeded species and plant growth. It is used to top-dress areas of previous disturbance.