



United States Department of the Interior



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Instruction Memorandum No. WY-2012-032
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To: District Managers and Deputy State Directors
From: Associate State Director
Subject: Wyoming Bureau of Land Management (BLM) Reclamation Policy

Program Areas: All Surface Disturbing Activities.

Purpose: Implement the Wyoming Reclamation Policy

Policy/Action: In order to ensure a consistent and science-based approach to reclamation, this Instruction Memorandum (IM) identifies ten reclamation requirements (see Attachments) that must be addressed when developing reclamation proposals for all surface disturbing activities. Addressing these ten requirements will help achieve both short and long-term reclamation success for site stabilization and eventual ecosystem reconstruction. The Wyoming Reclamation Policy was previously issued under IM No. WY-2009-022 which expired on September 30, 2010. This IM replaces IM No. WY-2009-022.

Background: Successful reclamation efforts are critical in maintaining an effective multiple-use land management program. Nearly all authorizations for surface disturbing actions are based upon the assumption that an area can and ultimately will be successfully reclaimed. Those seeking approval to conduct surface disturbing activities on Public Lands must include reclamation planning as part of their permit process and the BLM must make this requirement clear early in the permitting process. This IM applies to all BLM authorized actions including those initiated by the BLM.

Timeframe: Effective immediately.

Budget Impact: Savings to Project funds in the long-term.

Manual/Handbook Sections Affected: This IM will be supported with more detailed guidance including new reclamation bond standards and a statewide monitoring and reporting strategy.

Specific reclamation information, sample templates for both reclamation and weed management plans, and other technical guidance is posted on the Wyoming Reclamation web site (<http://www.blm.gov/wy/st/en/programs/reclamation.html>).

Coordination: The coordination and review of the Wyoming Reclamation Policy has been completed with the WY BLM Reclamation Team: Brenda Neuman, Mining Engineer, WSO; Ken Henke, Natural Resource Specialist, WSO; Adrienne Pilmanis, Botanist, WSO; Travis Bargsten, Physical Scientist, WSO; and Merry Gamper, Physical Scientist, WSO Lead. Other non-Wyoming BLM specialists, WO-310, the Wyoming Governor's Office (for review by all appropriate State Agencies), the University of Wyoming, some local Governments, and numerous interested reclamation professionals in private industry statewide.

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Signed By:
Ruth Welch
Associate State Director

Authenticated By:
Sherry Dixon
Secretary

2 Attachments

- 1 - Wyoming BLM Reclamation Policy (6 pp)
- 2 - Wyoming BLM Oil and Gas Reclamation Plan Template (4 pp)

Distribution

Director (200), Rm. 5644, MIB 1	1 (w/o atch)
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Wyoming Reclamation Policy

The Wyoming Reclamation Policy is guidance for the modification, preparation and/or review of all reclamation plans. It applies to all Federal actions authorized, conducted, or funded by the BLM that disturb vegetation and/or the mineral/soil resources. This policy is intended to be support all BLM program objectives.

A reclamation plan shall be developed for all surface disturbing activities and will become part of the proposed action in the NEPA document. The level of detail for the reclamation plan shall reflect: the complexity of the project, the environmental concerns, the reclamation potential for the site, and the re-vegetation strategy. These plans shall also incorporate any program or regulatory specific requirements for reclamation. The reclamation plan shall address short term stabilization to facilitate long term reclamation. The reclamation plan is considered complete when all the reclamation requirements described below have been addressed, the techniques to meet the reclamation requirements are described in detail, and the BLM concurs with the reclamation plan.

Many landscapes can be reclaimed using established conventional reclamation methods. However, some areas have unique characteristics that make achieving all the reclamation requirements described in this policy unrealistic. Innovative techniques beyond conventional practices must be considered and applied to reclaim these more challenging areas. Areas posing the most extreme reclamation challenges will be identified as having Limited Reclamation Potential (LRP). These areas are often characterized by highly sensitive and/or erosive soils, highly sensitive vegetation types, soils with severe physical or chemical limitations, extremely steep slopes, etc. These LRP areas may require site-specific reclamation measures not specifically addressed in the Wyoming Reclamation Policy. Each Field Office shall develop a unique set of reclamation success requirements for those areas within the framework of the attached Policy. The additional difficulty of reclaiming these LRP areas should be considered in the Resource Management Plan and evaluated when planning surface-disturbing activities. During the NEPA process, alternatives to approving development activities in LRP areas should be carefully analyzed. Alternatives considered should include: avoidance and/or unconventional site specific reclamation requirements. Resource development activities approved in these areas may require additional bonding.

A. RECLAMATION GOALS

1. Short term goal: immediately stabilize disturbed areas and provide conditions necessary to achieve the long term goal.
2. Long term goal: facilitate eventual native plant community and ecosystem reconstruction to maintain a safe and stable landscape and meet the desired outcomes of the land use plan.

B. RECLAMATION REQUIREMENTS

The following Reclamation Requirements apply to all surface disturbing activities, including BLM initiated activities, and must be addressed in each reclamation plan. These requirements also must be met prior to release of the bond and/or the reclamation liability. Where these Reclamation Requirements differ from other applicable Federal laws, rules, and regulations, those requirements supersede this policy. State and/or local statutes or regulations may also apply.

1. **Manage all waste materials:**

- a. Segregate, treat, and/or bio-remediate contaminated soil material.
- b. Bury only authorized waste materials on site. Buried material must be covered with a minimum of three feet of suitable material or meet other program standards.
- c. Ensure all waste materials moved off-site are transported to an authorized disposal facility.

2. **Ensure subsurface integrity, and eliminate sources of ground and surface water contamination.**

- a. Properly plug all drill holes and other subsurface openings (mine shafts, adits etc.).
- b. Stabilize, properly back fill, cap, and/or restrict from entry all open shafts, underground workings, and other openings.
- c. Control sources of contamination and implement best management practices to protect surface and ground water quality.

3. **Re-establish slope stability, surface stability, and desired topographic diversity.**

- a. Reconstruct the landscape to the approximate original contour or consistent with the land use plan.
- b. Maximize geomorphic stability and topographic diversity of the reclaimed topography.
- c. Eliminate highwalls, cut slopes, and/or topographic depressions on site, unless otherwise approved.
- d. Minimize sheet and rill erosion on/or adjacent to the reclaimed area. There shall be no evidence of mass wasting, head cutting, large rills or gullies, down cutting in drainages, or overall slope instability on/or adjacent to the reclaimed area.

4. **Reconstruct and stabilize water courses and drainage features.**
 - a. Reconstruct drainage basins and reclaim impoundments to maintain the drainage pattern, profile, and dimension to approximate the natural features found in nearby naturally functioning basins.
 - b. Reconstruct and stabilize stream channels, drainages, and impoundments to exhibit similar hydrologic characteristics found in stable naturally functioning systems.
5. **Maintain the biological, chemical, and physical integrity of the topsoil and subsoil** (where appropriate).
 - a. Identify, delineate, and segregate all salvaged topsoil and subsoil based on a site specific soil evaluation, including depth, chemical, and physical characteristics.
 - b. Protect all stored soil material from erosion, degradation, and contamination.
 - c. Incorporate stored soil material into the disturbed landscape.
 - d. Soil storage piles to be stored beyond one growing season, should be seeded with appropriate vegetation (native or sterile non-native species).
 - e. Identify stockpiles with appropriate signage.
6. **Prepare site for revegetation.**
 - a. Redistribute soil materials in a manner similar to the original vertical profile.
 - b. Reduce compaction to an appropriate depth (generally below the root zone) prior to redistribution of topsoil, to accommodate desired plant species.
 - c. Provide suitable surface and subsurface physical, chemical, and biological properties to support the long term establishment and viability of the desired plant community.
 - d. Protect seed and seedling establishment (e.g. erosion control matting, mulching, hydro-seeding, surface roughening, fencing, etc.)
7. **Establish desired self-perpetuating native plant community.**
 - a. Establish species composition, diversity, structure, and total ground cover appropriate for the desired plant community.

- b. Enhance critical resource values (e.g. wildlife, range, recreation, biodiversity, etc.), where appropriate, by augmenting or accelerating restoration of plant community composition, diversity, and/or structure.
 - c. Select genetically appropriate and locally adapted native plant materials (e.g. locally sourced or cultivars recommended for seed zone) based on the site characteristics and ecological setting.
 - d. Use locally sourced and/or collected seeds to the extent possible (local collection and logistics should be included in the Reclamation Plan).
 - e. Select non-native plants only as an approved short term and non-persistent (i.e. sterile) alternative to native plant materials. Ensure the non-natives will not hybridize, displace, or offer long-term competition to the endemic plants, and are designed to aid in the re-establishment of native plant communities.
8. **Reestablish a complementary visual composition**
- a. Ensure the reclaimed landscape features blend into the adjacent area and conform to the land use plan decisions.
 - b. Ensure the reclaimed landscape does not result in a long term change to the scenic quality of the area.
9. **Manage Invasive Plants**
- a. Assess for invasive plants before initiating surface disturbing activities.
 - b. Develop an invasive plant management plan.
 - c. Control invasive plants utilizing an integrated pest management approach.
 - d. Monitor invasive plant treatments.
10. **Develop and implement a reclamation monitoring and reporting strategy.**
- a. Conduct compliance and effectiveness monitoring in accordance with a BLM (or other surface management agency) approved monitoring protocol.
 - b. Evaluate monitoring data for compliance with the reclamation plan.
 - c. Document and report monitoring data and recommend revised reclamation strategies.
 - d. Implement revised reclamation strategies as needed.

- e. Repeat the process of monitoring, evaluating, documenting/reporting, and implementing, until reclamation goals are achieved.

GLOSSARY

Contamination - The presence of man-made chemicals or other alterations in the natural soil or water environment (pesticides, hazardous substances, petroleum, salts).

Adapted from various sources

Desired Outcome: Specific goal/objectives and allowed uses outlined in land use plans. Desired outcomes should be identified for and pertain to resources (such as natural, biological, and cultural), resource uses, (such as energy and livestock grazing), and other factors (such as social and economic conditions).

BLM Handbook H-1601-1

Ecosystem - Includes all the organisms of an area, their environment, and the linkages or interactions among all of them; all parts of an ecosystem are interrelated. The fundamental unit in ecology, containing both organisms and abiotic environments, each influencing the properties of the other and both necessary for the maintenance of life.

Vegetation Treatments Using Herbicides in 17 Western States, Programmatic Environmental Impact Statement (BLM 2007)

Federal Action - Approval of specific projects, such as construction or management activities located in a defined geographic area. Projects include actions approved by permit or other regulatory decision as well as federal and federally assisted activities.

National Environmental Policy Act (NEPA) [42 U.S.C. 4321 et seq.]

Invasive Plant - A species that is not native (or is alien) to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health. Plants listed on the State of Wyoming, Designated Noxious Weed List, would be included under this definition.

Executive Order 13112, Invasive Species (1999)

Limited Reclamation Potential (LRP) - Areas possessing unique landscape characteristics (e.g., sensitive geologic formations, extremely limiting soil conditions, biological soil crusts, badlands, rock-outcrops, etc.) often make reclamation success impractical and/or unrealistic due to physical, biological, and/or chemical challenges. When disturbed, these areas may require unconventional reclamation strategies to address the ten requirements established by this Policy.

Adapted from various sources

Locally-sourced native plant materials - seeds, seedlings, transplants, and/or inocula obtained and/or increased from collection at the project location or from nearby similar sites.

Adapted from various sources including the Integrated Vegetation Management Handbook 1740-2, Ch. 8, and Johnson et al 2010 "What Are The Best Seed Sources For Ecosystem Restoration on BLM and USFS Lands?", Native Plants, 11:2:117-131

Reclamation Plan – The Reclamation Plan is a written document that addresses the reconstruction of disturbed ecosystems by returning the land to a stable and productive condition compatible with the land use plan. The Plan must address all ten requirements included in this Policy.

Adapted from various sources

Scenic Quality – The overall impression of a landscape retained after driving or walking through, or flying over an area. The Scenic Quality of an area is rated as Class A (outstanding visual characteristics), Class B (combination of outstanding and common visual characteristics), and Class C (common visual characteristics). See BLM Handbook H-8410 Visual Resource Inventory and BLM Handbook H-8431 Visual Resource Contrast Rating.

Soil – A natural, three-dimensional body at the earth's surface. It is capable of supporting plants and has properties resulting from the integrated effect of climate and living matter acting on earthy parent material, as conditioned by relief over periods of time.

Glossary of Soil Science Terms

Subsoil – Technically, the subsoil includes the B horizon. This is roughly, the part of the solum below the organic topsoil and above the rocky parent material of the C horizon. When suitable, the subsoil may be salvaged to supplement the topsoil for plant establishment.

Adapted from various sources

Soil Material – Includes the topsoil and/or the topsoil and a portion of the subsoil salvaged and separated to be used to provide a growth medium for plant establishment.

Adapted from various sources

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; and the conduct of several types of 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*

Surface Management Agency – Any Federal or State agency having jurisdiction over the surface estate. *Adapted from Onshore Oil and Gas Order No. 1*

Topsoil – The biologically active, upper part of the soil profile, being the most favorable material for plant growth.

Adapted from U.S.D.A., Natural Resources Conservation Service

Waste materials – Any discarded or abandoned material that can interfere with successful reclamation, safety, and long term stability of a site (contaminated soil or water, drilling mud, solid waste). *Adapted from various sources*

Wyoming-BLM Reclamation Policy Suggested Reclamation Plan Template for Oil and Gas Operations

I. Reclamation – Baseline Information

Site Description

Climate/Precipitation/Ecological Site Description (ESD)

Orientation/Aspect

Existing land use(s)

Surface and groundwater hydrology

Topography/Relief

Soils Description

Soil features

Soil stripping and stockpiling (length of time and storage configuration)

Soil map (optional, but highly recommended on large locations or those exhibiting different micro-communities)

Viability management

Soil inhibiting factors

Management prescriptions/recommendations

Pre-Disturbance Vegetation Composition

Photo log with locational information

Species with density

Map (optional, but highly recommended on large locations or those exhibiting different micro-communities)

Known weed infestations

Proposed treatment

II. 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.

III. Reclamation Performance Standards

The following reclamation performance standards will be met:

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.

Describe “Success” Criteria

Final Reclamation – Includes disturbed areas where the original landform and a natural vegetative community have been restored.

Describe “Success” Criteria

IV. Reclamation Plan Requirements

1) Operator Contact/Responsible Official

Project Title and Responsible Party

Include existing leases/wells (for geographic field plan only)

2) Construction Control Actions (actions that will be taken to minimize erosion until Reclamation can begin):

Stormwater and erosion control

Slope stabilization

Topsoil viability management

Monitoring

3) Management of Invasive, Noxious, and Non-Native Species (Policy Section B9)

Pre-disturbance presence/Treatment

Invasive plant management plan

Monitoring

4) Interim Reclamation

a) Production-held Surfaces (Policy Sections B1, B2 and B3) (layout diagram)

Stormwater and Erosion control

Facility installation

Housekeeping/Monitoring

b) Pipelines located on-lease (Policy Sections B2 thru B8)

Pressure testing and disposal (if applicable)

Seeding Methods/Mix and Source

Erosion Control measures

Risers (location, work areas, safety barricades)

c) Roads (Policy Sections B2 thru B9)

Production running surface width

Drainage/Erosion controls remaining

Seeding methods/mix

d) Pit Closure (Policy Sections B1, B2 and B3)

Known contents

Length of time pit has been/will be open

Current pit problems (torn pit liner, non-RCRA materials, etc)

Closure methodology

Closure testing plan

Closure sample results submittal

e) Ancillary facilities closure (i.e. water wells, monitor wells, powerlines, fences, etc)

f) Site Preparation (i.e. Recontouring) (Policy Sections B2, B3, B4, B5 and B6)

- Equipment
- Methods
- Suitable soil redistribution
- Final recontour layout diagram

f) Establish desired self-perpetuating native plant community (Policy Section B7):

Application of Topsoil & Revegetation:

Seeding:

- Methods
- Schedule
- Seed Mix

Example Seed Mix Table

Species of Seed (Cultivar)	Seed Source (genetic source; distributor)	App. Rate PLS (lbs/ac)
		Total:

g) Visual Resources Mitigation (Policy Section B8)

- Actions
- Final goal description

h) SME Notification Procedure

i) Reclamation Monitoring (Policy Section B10)

- Methods and Reporting
- Erosion control

j) Invasive Weeds (Policy Section B9)

k) Additional Measures proposed to enhance “success” (ie irrigation, fertilization, fencing, etc)

5) Final Reclamation Procedures – Additional (Policy Sections B1-B10)

a) Facility Removal

Facilities to be removed
Site assessment clearance (spills, trash)

b) Roads

Road proposed to remain? (two track, fully constructed, none)
Removal of surface materials
Road bed preparation
Seeding methods, timing, and mix

c) Pipeline Decommissioning

Pipeline abandonment procedure
Seeding methods, timing, and mix (if necessary)

d) Ancillary facilities decommissioning (water wells, powerlines, monitoring wells, fences, etc.)

e) Additional Site Prep (pad, road, pipeline)

Source of soil materials (if necessary)
Additional dirt work/Recontouring
Final recontour layout diagram
Final surface drainage
Seeding methods, timing and mix

f) Reclamation Monitoring (pad, road, pipeline)

Methods and reporting
Erosion control

g) Invasive weed management

h) Final abandonment approval timeline