



CLEANING UP:

THE NEED FOR COMPREHENSIVE RECLAMATION STANDARDS FOR OIL AND GAS OPERATIONS

Reclamation is cleanup. Oil and gas companies should restore affected lands and water throughout oil and gas development. Regulatory agencies should require companies to submit detailed reclamation plans for field operations and require that companies reach fair and balanced surface use agreements with landowners. Currently a hodgepodge of ineffective rules and underfunded agencies regulate the industry. Reclamation for oil and gas operations should be managed like other extractive industries, with comprehensive programs like the Surface Mining Control and Reclamation Act. Reclamation is complete when all affected areas have been returned to a similar use with a productive capacity equivalent or greater than before and no environmental, health or safety hazards remain.

Oil and Gas Development — Widespread Impact

Often, the first step in oil and gas development is geophysical explorations. 25-ton crawler trucks methodically

"Industry has been given license to destroy our property, our soil, our grass, our land, our creek, our solitude."

—Wyoming rancher Marjorie West

cross the landscape drilling shot holes. The holes (average 4 ½" across and 100' deep) are filled with

explosives and used to create a seismic wave. The crawlers listen to in order to construct a 3-D picture of the geophysical composition of the area. The explosion can destroy domestic water wells, rupture aquifers, and eliminate artesian water sources. The shot holes if not properly plugged pose a danger to humans and animals. The crawlers impact the landscape, damaging vegetation and archeological sites.

To determine if oil and gas reserves are recoverable, companies drill exploratory wells. Many of these wells will be dry holes that do not produce reserves. These holes must be properly plugged in order to ensure the future productivity of the field. Once oil and gas is discovered, companies will begin field operations. Miles of roads are constructed to move equipment and workers to drilling sites. Pipelines and power lines are strung to connect the oil and gas field. Compressor stations or other processing units are built, often the equivalent of large industrial complexes. In the case of coalbed methane development, large reservoirs or discharge areas are needed to dispose of water produced with extraction. Removal of this water can destroy aquifers.

"Now all of it is dead. We used to have alfalfa but it doesn't grow there either. The only thing that's there now is thistle."

— Laura Saint, describing the effects of methane leakage on her property

Each aspect of development disturbs acreage and segments the landscape. The net effect of any development will depend on the effort of the company to mitigate the impacts. Smart methodical planning that includes the landowner can significantly minimize the impacts.

Reclamation Requirements

Complete reclamation requires effective planning and a series of steps during the several phases of oil and gas development. Regulatory agencies in different states have vastly different reclamation requirements for oil and gas development. The table below lists requirements in five states. In states without regulations for certain aspects of development, operators rarely restore the land.

"If not properly mitigated, the environmental impacts of oil and gas development could compromise the BLM's responsibility for protecting the environment."

—2005 Government Accountability Office Report

In addition to lacking regulations, most areas do not have an adequate number of inspectors to ensure that companies follow the rules of the regulatory agency. Two reports one by the Government Accountability Office and WORC's report, Law and Order in the Oil and Gas Fields, highlight the lack of compliance inspections by regulators.

Federal reclamation rules are set out in BLM planning documents, such as Environmental Assessments and Impact Statements, as well as Resource Management Plans and Applications for a Permit to Drill. The specificity and comprehensiveness of these documents varies widely from office to office, and

even well to well. Authority to create specific regulations for reclamation rests with the field manager for each district office. Some offices have the staff and resources to ensure that oil and gas activities are sufficiently regulated, others do not.

Disturbance of a Coalbed Methane Project

- 571 Coalbed methane wells
- 315 acres of reservoirs
- 111 miles of roads
- 206 miles of Pipelines

Reclamation Considerations

Adequate reclamation must consider a number of factors, such as topography, soil types, other uses of the land and the type and extent of the development. Reclamation will look different in every field depending on the specific circumstances of the area. To ensure that reclamation keeps areas as clean as they can be during and after development:

- All topsoil must be salvaged, and properly stored for reclamation. The depth of salvage required depends on the soil type and vegetation.
- All fluids and drilling waste should be contained in closed systems and disposed of with the utmost care and concern for their impact on the environment.
- All surface disturbance should be recontoured and revegetated as soon as climatic conditions allow.
- Facilities should be placed and painted to mitigate aesthetic and environmental impacts.
- During production, interim reclamation measures should be used to minimize surface disturbances
- Wells should be drilled and plugged with the utmost care to prevent aquifer contamination.
- Noxious weeds and other invasive plants should be routinely controlled to prevent contamination.
- Seed mixes used in revegetation should be certified as weed-free and match the pre-disturbance vegetative composition of the site. Native species should be used wherever applicable.

Drilling operations often fall under the jurisdictions of several agencies. The BLM and the state oil and gas divisions often have different rules and protocol. To ensure compliance and adequate reclamation, companies must file detailed reclamation plans with all concerned agencies.

WORC and GAO Fault Federal Enforcement

GAO: Oil and Gas Development, July 2005

Increased Permitting Activity has Lessened BLM's Ability to Meet its Environmental Protection Responsibilities

- In 2004, the Buffalo WY, BLM field office achieved only 27% of its required inspection goals.
- Seven of the eight BLM field offices had a backlog of reclamation inspections.
- The eight BLM offices visited by GAO met their annual environmental inspections goals only about half of the time during the past six years.

WORC: Law and Order in the Oil and Gas Fields, February 2005

Reviewed Inspection and Enforcement Programs in Five Western States

- The number of inspections conducted by the BLM has not increased significantly, even in the current boom of oil and gas development.
- Based on 2003 staffing and inspection levels, state agencies can inspect active wells once every 1 to 3 years on average. BLM field offices can inspect active wells once every 2 to 10 years on average, and inspect active wells for environmental compliance once every 4 to 59 years.
- Of the 22 state and federal agencies and bureaus surveyed, only two tracked citizen complaints and agency responses to those complaints.

State Reclamation Laws

	Colorado	Montana	New Mexico	North Dakota	Wyoming
Well Plugging Requirements	Wells must be plugged.	Wells must be plugged.	Wells must be plugged.	Wells must be plugged.	Wells must be plugged.
Surface Reclamation Requirements	Requires compaction alleviation. The site must be leveled to its original grade and contour.	All disturbed lands should be reclaimed to their previous grade and productive capacity.	The location must be leveled and the site restored to a safe and clean condition.	Topsoil must be distributed over the site, revegetated, and all junk should be removed.	Meet the reasonable request of the landowner and/or the vegetation and contour of adjoining lands.
Interim Reclamation	Required within 3 months for all debris and waste material and all disturbed areas, except areas reasonably needed for production.	Not required.	No regulations.	Unused portion of well site should be reclaimed within a year.	No regulations.
Reclamation Timeline	Completed within 3 months on crop land and 12 months on non-crop land.	Site reclamation required within one year of well plugging.	No time line.	Should begin within a reasonable time but no longer than a year after plugging the well.	Initiated within 1 year of permanent abandonment and completed in a timely manner as climatic conditions allow
Top Soil Salvage Specifications	Soil horizons A, B and C must be separated on crop lands and protected from erosion. On non-crop lands only the A horizon or top 6 inches.	May be specified on drilling permit.	No specifications.	Required for all drill sites, access roads, and all associated facilities. At most only 8" must be salvaged.	Required where practical.
Drill Pits Procedure and Specifications	All drilling fluids should be disposed of in accordance with the rules. The pit should be leveled and revegetated. Fluids are not to be absorbed with fill.	Reclaimed to previous grade and productive capacity within a year of well plugging.	Drill pits must be leveled and the site must be safe and clean.	All pit water and oil must be removed. Drilling waste should be encapsulated in the pit and covered with at least four feet of backfill and topsoil. Should be reclaimed within 1 year after well completion.	Reclamation should be completed within a year of last use. Fluids are not be absorbed with fill.
Associated Facilities	Must be closed, graded and recontoured, and reclaimed as a surface disturbance.	Reclamation required if defined by the regulator as part of the well site.	No regulations.	Reclaimed as closely as practical to the original condition.	Not specifically required but all related facilities should be reclaimed.
Access Road Reclamation	Closed, graded and recontoured, and reclaimed as a surface disturbance.	Not required.	Not required.	Must be reshaped to the original contour.	Not specifically required but all disturbed areas should be reseeded.
Flow lines and Pipelines	All risers should be removed.	Should be removed from the surface.	No requirements.	Flow lines shall be purged in a manner approved by the director. Flow lines shall be removed if buried less than three feet below final contour.	No requirements.
Surface Revegetation Requirements	Based on pre-disturbance vegetation. Seed mixes should be derived from local conservation commissions.	Reclaimed to previous productive capacity.	Not required.	The site should be revegetated with native species or to the wishes of the surface owner.	Required based on approximate pre-disturbance vegetation, guidelines provided.
Noxious Weeds	All disturbed areas should be kept free of noxious weeds.	No requirements.	No requirements.	No requirements.	No requirements.

Recommendations

In order to ensure that reclamation by oil and gas companies returns affected areas to a similar use with a productive capacity equivalent or greater than before development, and that no environmental, health or safety hazards exist as a result of the extraction:

1. Regulatory agencies should require site-specific reclamation plans for each development that identify all impacts to surface lands and other resources. These plans should be rigorously enforced and updated yearly.
2. Regulatory agencies should develop general specifications and reclamation practices for similar environments where oil and gas development is extensive.
3. Companies must ensure that the surface owners and affected surface users participate in the drafting of development and reclamation plans.
4. Companies must minimize disturbance through the use of interim reclamation.
5. Regulatory agencies should require financial assurance, estimated by a professional engineer, which covers the cost of performing all reclamation tasks. See WORCs fact sheet on financial assurance (<http://www.worc.org/pdfs/bonding.pdf>)

"We once ran 600 cows, today we can barely keep 100 cows. Grass and shrubs are now roads, drill pads or scars left by pipeline paths. We have trouble keeping our few cows alive because they get run over by trucks servicing oil wells each day, or they get poisoned when they lap up the sweet anti-freeze leaking out of unfenced compressor engines."

– Tweeti Blancett New Mexico Rancher

Resources

- ❑ Filling the Gaps: How to Improve Oil and Gas Reclamation and Reduce Taxpayer Liability (www.worc.org/energy/bonding/report.htm)
- ❑ Law and Order in the Oil & Gas Fields (<http://www.worc.org/pdfs/Law%20and%20Order.pdf>)
- ❑ Oil and Gas Development: Increased Permitting has Lessened BLM's Ability to Meet its Environmental Obligations (<http://www.gao.gov/new.items/d05418.pdf>)
- ❑ Oil and Gas at Your Door? A Landowner's Guide to Oil and Gas Development (http://www.ogap.org/resources/oil_and_gas_at_your_door.cover.htm)



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