

Mineral Resources

Introduction

Forest Plan direction identifies goals and objectives for the management of mineral resources on the Monongahela National Forest:

Goal MG01 - Make minerals available for exploration, development and production consistent with other appropriate uses and protection of the environment. Emphasize energy-producing minerals. Facilitate orderly and environmentally sound exploration, development, and production of mineral resources through standardized inspection, monitoring, and reporting requirements.

Goal MG02 - Emphasize appropriate mitigation and reclamation of environmental disturbance for all mineral exploration and development proposals. Reduce environmental effects from past mineral-related activity. Restore disturbed land to a productive condition.

Goal MG03 - Provide for reasonable access to and use of National Forest System (NFS) land surface for mineral activities. Allow for and support reasonable use of NFS land for the exercise of reserved and outstanding mineral rights consistent with deed terms and law.

Goal MG04 - Integrate mineral and geology project planning and implementation in a manner that is consistent with other resource management direction. Include collection and analysis of the appropriate geologic information as a part of Forest project planning and decision-making.

Objective MG05 - Inventory abandoned mines and prepare restoration plans to address biological and physical resource concerns, chemical stability, and human health and safety.

Objective MG 06 - Keep 70 to 80 percent of federally owned oil and gas available for exploration, development and production.

We track progress toward the achievement of Forest Plan goals and objectives by monitoring. For example, the Forest Plan (Chapter IV) contains direction for monitoring minerals to determine whether mineral exploration, development, and production mitigation measures are being followed and are effective in reducing impacts. The Monongahela National Forest may not be the entity that issues all permits for mineral development on National Forest System (NFS) land, but we do have the responsibility to help ensure that the development activities do not result in unacceptable adverse effects to the land and other Forest resources. We accomplish this through a combination of identifying appropriate lease conditions, operating plan review and approval, and on-site inspections. With on-going mineral activity on the Forest, annual monitoring and evaluation for these effects allows the Forest to make adjustments more quickly to reduce unacceptable effects if present. This monitoring tracks progress toward achieving goals MG01, MG02 and MG04.

2007 Accomplishments

The Minerals Program accomplishments for Fiscal Year (FY) 2007 included:

- Budget and work planning, including out-year planning.
- Reviewing and providing conditions that will govern the operation of four potential oil and gas leases.
- Reviewing and providing recommendations and approval for a natural gas well operating plan.
- Providing input, analysis, and review for various Forest projects.
- Inspecting 61 active mineral operations.
- Monitoring and evaluation efforts as described below.

Monitoring and Evaluation

FOREST PLAN MONITORING FOR MINERAL RESOURCES

The 2006 Forest Plan currently has one monitoring question for Mineral Resources.

Monitoring Question 20. Are mineral exploration, development and production mitigation measures being followed and are they effective in reducing impacts?

Forest Plan minerals monitoring included conducting inspection and field-checks of 61 active mineral operations to determine whether Forest Plan standards and mitigating measures identified in mineral operations decisions have been applied, and to look for resource conditions of concern associated with the mineral operation.

There were 72 active mineral operations on National Forest System lands in FY 2007. Forest Service mineral staff administered 85 percent of the active mineral operations in FY 2007 to a standard that ensures compliance with the approved operating plans (see Inspection Reports within each mineral operation on file with the Forest Geologist in the Forest Supervisor's Office). The mineral operations monitored were associated with natural gas exploration, development and production, as well as natural gas storage operations and maintenance.

Monitoring Question 20. Evaluation, Conclusions, and Recommendations

Forest staff inspections of active mineral operations found most operations in compliance with operating plans. Operations that were out of compliance were so in ways that did not create substantial adverse environmental effects. For example, road maintenance was needed on an access road; extraneous material and litter had accumulated on a couple of sites and needed to be removed; gas equipment, in a couple of cases, was showing rust and needed paint or replacement; rodent occupancy was evident at several small, unsecured buildings on well sites. Some operations inspected in FY 2006 that had similar kinds of maintenance needs showed

improvement by the 2007 inspection, and other sites developed undesirable conditions. One particular gas field containing three wells presented the most sites with gas equipment that appeared to need maintenance. This gas field was in transition to a new owner during 2007, and we will follow-up in 2008 with the new owner to bring the operations up to standard. One gas field in transition to a new owner in 2006 with similar monitoring findings showed improvement in 2007.

Invasive plant presence has been monitored to an extent on gas well sites. In a report titled "Evaluating the Effects of Gas Well Development on the Resources of National Forest Lands" prepared in 2007 by Northern Research Station scientist Mary Beth Adams (unpublished, February 1, 2007), invasive species were not found at many of the existing well sites on the Forest. Just under one-half of the well sites on the Monongahela were sampled, and vegetative data collected. Of the 45 well sites examined, multiflora rose and thistle were found on 4 of the sites, and autumn olive found on 7 sites. No tree-of-heaven, garlic mustard or Japanese stiltgrass were observed in the gas well site openings or the reference areas located adjacent to the gas well sites.

Inspection reports note that an invasive thistle continues to grow on several well sites, although not abundant on any of the sites. The Forest has told the operators to remove the thistle by cutting it prior to flowering. This appears to be keeping the thistle from becoming abundant on the affected well sites, but it is not eliminating the thistle. Since thistle needs well-lighted conditions to thrive, it is not likely that the thistle will spread very far into the adjacent woods from the affected well sites.

Recommendations: Continue monitoring for invasive species at gas well sites and associated roads and pipelines, so that appropriate actions may be taken to thwart the proliferation and spread of invasive species at natural gas facilities.

RECOMMENDED NEW MONITORING FOR MINERAL RESOURCES

Several Forest Plan minerals and geology goals and objectives are not addressed or are only partially addressed by Monitoring Question 20 (Forest Plan, Chapter IV). The questions shown below are recommended for monitoring in order to track progress toward achievement of Forest Plan mineral and geologic resource goals.

Monitoring Question for Minerals Land Disturbance: How close are projected estimates of National Forest System land that could be impacted by natural gas development to actual amounts?

Periodically comparing our predictions on the amount of NFS land impacted by mineral activity to actual amounts provides a way to check whether mineral activity could be producing effects outside of anticipated ranges. Such monitoring would provide additional information on progress toward achieving goals MG01, MG02 and MG04. In particular, MG01, MG02 and MG04 refer to mineral operations being conducted consistent with other uses and protection of

the environment, in ways that appropriately mitigate and reclaim mineral-related environmental disturbance, and in a manner that is consistent with other resource management direction.

Monitoring Question for Minerals Land Disturbance: Evaluation, Conclusions, and Recommendations

The Forest Plan revision process provided the opportunity to determine if the earth disturbance from gas development has been occurring as predicted. A comparison of predicted versus actual natural gas development on the Forest indicated substantially less development has occurred between 1991 and June 2006 than predicted for the period 1991 through 2009. Recognizing that some additional gas developments could occur between 2006 and 2009, the comparison at this point shows about 20 percent of the projected number of wells have been drilled, and 5 to 6 percent of the anticipated acres of surface disturbance, 8 percent of the anticipated road miles, and 30 percent of the anticipated gas pipeline miles have been proposed and authorized (Final Environmental Impact Statement for Forest Plan Revision, September 2006, page 3-368). No new surfacing disturbing gas exploration, development, or production operations were authorized in FY 2007. Therefore, overall earth disturbance from gas development has been and continues to occur at levels considerably less than predicted.

At a site-specific scale, gas well site disturbed area and opening size were examined to determine how their size compared to acreage estimates used to generate earth disturbance projections. The Forest Plan revision effects analysis used an earth disturbance estimate of 2 acres per well site. Findings of the report "Evaluating the Effects of Gas Well Development on the Resources of National Forest Lands" prepared in 2007 by Northern Research Station scientist Mary Beth Adams (unpublished, February 1, 2007) indicate that gas well sites range in size from approximately 0.4 acres to 2.5 acres, with an average size of about 1.25 acres. With this finding that earth disturbance from well sites is less than estimates used, we note another indication that earth disturbance from gas development is occurring at levels less than predicted.

Recommendation: Add a Forest Plan monitoring item that would indicate whether or not estimates of earth disturbance associated with gas development, which provide the basis for effects analysis related to a variety of national Forest resources, are exceeding predicted amounts.

Monitoring Question for Minerals Availability: Are minerals, especially energy-producing minerals, available for exploration, development, and production at predicted levels?

Progress toward achieving Goals MG01 and MG03, and Objective MG06, can be determined by examining whether there have been changes to Forest management direction, standards and guidelines, or the application of standards that would change the amount of federally owned energy-producing minerals available for exploration, development and production. Since these types of changes are not routine, evaluation may not be needed on an annual basis. Rather, examining each year and reporting every five years or when triggered by a change in Forest Plan management direction or standards would indicate progress in the achievement of these Forest Plan goals and objective for minerals.

Monitoring Question for Minerals Availability: Evaluation, Conclusions, and Recommendations

The 2006 Forest Plan identifies goals and an objective related to ensuring that minerals are available for exploration and development, with emphasis on energy producing minerals (MG01, MG03, and MG06). The goals are to make minerals available for exploration, development, and production consistent with other appropriate uses and protection of the environment, emphasizing energy minerals (MG01), and provide for reasonable access to and use of National Forest System land for mineral activities (MG03). The objective (MG06) is to keep 70 to 80 percent of federally owned oil and gas available for exploration, development and production. The 2006 Forest Plan EIS estimated that 74 percent of the federally owned natural gas is considered available for exploration, development, and production (Final Environmental Impact Statement for Forest Plan Revision, September 2006, page 3-375). There have not been any measurable changes in FY 2007, and thus the 74 percent figure is still valid.

Recommendation: Add a Forest Plan monitoring item that assesses whether the amount of federally owned oil and gas available for exploration, development, and production is still falling between 70 and 80 percent.

Monitoring Question for Abandoned Mine Land: What progress has been made in restoring abandoned coal mine lands on the Monongahela National Forest?

Reporting on work accomplished on Forest abandoned mine lands documents progress toward achieving 2006 Forest Plan Objective MG05: Inventory abandoned mines and prepare restoration plans to address biological and physical resource concerns, chemical stability, and human health and safety.

During 1998 and 1999, an abandoned coal mine land inventory was conducted on the Monongahela National Forest. Since then, it has been updated by the addition of previously unreported unknown or undocumented mines. The inventory contains information on approximately 80 abandoned or inactive coal mines. Information obtained through the inventory and analysis of the inventory findings, indicated most sites were reclaimed or at least mostly re-vegetated. However, some sites possessed characteristics that were of concern. For example, some abandoned underground coal mines had openings through which the public could enter into the abandoned underground workings. Other abandoned coal mines (strip and underground) have overland water flow in drainage patterns that present risk of soil erosion and sedimentation. A relatively small portion of the mines are discharging acid mine drainage (pH less than 6), and most of those discharges are small volume (less than 10 gallons per minute).

Monitoring Question for Abandoned Mine Land: Evaluation, Conclusions, and Recommendations

The Forest has acted and continues to take action to address abandoned mine land issues based on the risk to national forest resources and availability of funding. For example, to address a concern for public safety at or within underground mines, the Forest has physically closed all known openings to underground coal mines to public entry. Some closures included bat-friendly

barricades; others involved installing mine seals and backfilling. Mines with larger volumes of acid mine drainage have been or are in the process of being evaluated further than the initial inventory to examine options for passive water treatment. Abandoned coal mines are also identified and targeted for treatment when present within watersheds undergoing watershed assessments on the Forest.

Fiscal Year 2007 did not produce any abandoned mine land accomplishments. No new abandoned mine sites were reported for addition to the inventory.

Recommendation: Report accomplishments regarding abandoned mine lands in the annual monitoring report when they occur.