

TREES FOR TOMORROW¹

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Abstract.--As coal production increases, forestry will become an increasingly important land use both before and after mining activity. New studies are needed to determine the long-range effect of mining in forested areas and to maximize the production of wood products on reclaimed areas.

INTRODUCTION

Chairman Kenes Bowling, fellow foresters, and reclamation specialists. I feel honored to be asked to speak here today. I have especially wanted an invitation to meet with you, so the invitation from Willie Curtis and Director Thorud struck a very responsive note. The reason is quite simple. It's because I believe that industry foresters, State foresters, and State Directors of Reclamation have a significant role to play in surface coal mining and reclamation.

I think the record of foresters associated with surface mining and reclamation proves that. More than 50 years ago, foresters were one of the first groups to undertake prompt revegetation of disturbed areas. I know that many of the State reclamation agencies originated in the forestry agencies and few people realize that through the leadership of the State Directors of Reclamation there now exists in States with commercial forest land regulatory language comparable to the California Forest Practices and similar Acts in Washington and Oregon. This is success with a capital "S". So you see, the forestry profession was leading, not following.

I don't need to tell you foresters about the many tree and shrub seedlings you plant or the direct seeding you do every year on reclamation operations on abandoned mine lands,

¹Paper presented at the symposium "Trees for Reclamation in the Eastern U.S.", October 27-29, 1980, Lexington, Kentucky; sponsored by the Interstate Mining Compact Commission and the U.S. Department of Agriculture, Forest Service.

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or tell you about tree nursery production, or your work in forest-fire prevention around mined areas. You who are doing all this work already know about those things.

Instead, I want to tell you that I predict this meeting will stand out as one of your most remembered meetings, and here are some reasons why I think so.

Here is one reason: For the first time since passage of the Surface Mining Control and Reclamation Act of 1977 (P.L. 95-87) foresters in industry, States, and the Federal regulatory agencies are meeting to discuss their common interests. Just by meeting here, and reporting on this meeting, people will be made more conscious of the shorter term role of forestry in the reclamation of disturbed lands and the longer term opportunities for postmining land use in providing trees for tomorrow.

Here is another reason: For 2 days we can join in dialog on how we can help one another to implement Public Law 95-87 and the regulations under the Act. I do not know of a better place and time to discuss technically the broad area of forestry, whether as part of a State program, Federal program, Federal lands program, Indian lands program, or Abandoned Mine Lands program.

And another: Organization of this meeting by coal province and region enables industry, States, and Federal agencies to join in bringing an appreciation to the emerging opportunities, problems, and research needs for each of the coal provinces and regions.

And a fourth reason: There will be time at this meeting to discuss the process by which any person may petition to initiate a proceeding for the issuance, amendment, or repeal of any regulation under the Act.

It is 19 years since I helped launch the Berea, Ky., reclamation research program. The growth of this project and the research results have a very warm spot in my heart. So being here in Kentucky is like coming home.

ROLE OF FORESTRY IN SURFACE COAL MINING

Today, it is clear that there is an especially prominent role for foresters in postmining land use. But combining forestry and surface mining is a real challenge. "The past is prologue" is a statement in stone at the National Archives. Past success in planned and properly managed forests on some surface-mined sites is my greatest source of optimism for the future. And I am confident we are going to face the challenges in a realistic way, not with a torrent of words, but with teamwork in all our coal provinces. The importance of forestry becomes even more noteworthy with the inventory of land uses in surface-mined areas: 70-90 percent of the mining sites in States of the Appalachian coal province are in forest or reverting to forest, 35-55 percent of the mining sites in States of the Interior coal province are in a forest type. Thus, forest land is a concern of important proportions.

Projections of an average 4.6-percent growth rate in national coal production over the next 2 decades, pushing annual production from 700 million to almost 2 billion tons, suggest there is some hard work ahead for all of us. We cannot afford to think only in terms of total forested acres, we must focus our attention on productivity of forested areas.

And we cannot consider the role of forestry in surface coal mining and reclamation in a vacuum, as something separate and apart from other land uses. If forestry is to keep up with hayland, pastureland, and wildlife habitat as a land use, we must take steps as long as those of other uses. Let's evaluate past progress and present effort in terms of future needs and programs under the mandate of P. L. 95-87. It will be a new ball game for industry and the States once the States have achieved primacy under the Surface Mining Act.

NEED FOR RESEARCH

Forestry associated with surface coal mining provides a challenge for forestry research. Many forestry problems for surface-disturbed lands can be solved or lessened by applying knowledge and methods from the great body of technology developed for traditional

forestry over the past 70 years. In other cases, disturbed-land's unique problems will require specially directed, new research efforts. Some areas where I believe research must be strengthened include:

- Techniques for promptly establishing and growing, tending, and harvesting trees or shrubs on disturbed sites and in harsh environments, including more efficient and faster planting practices
- Patterns of tree and shrub plantings for most efficiently obtaining diversity of species
- Methods to reclaim the wood fiber on areas to be surface mined
- Selection and breeding of superior species and varieties of trees or shrubs that are well adapted to living in the range of environments created by surface mining
- Macro and micro site requirements, growth and root characteristics, and nutrients to provide the basis for more intensive forest practices
- Increasing the production of high-quality seed, and better methods of harvesting, storing, processing, and certifying seeds, with emphasis on native species
- Developing improved measurement techniques and inventory procedures that are rapid, accurate, and readily adaptable for administrative use in measuring plant, root, and soil responses to surface mining

CONSIDERATIONS FOR THE FUTURE

What is immediately ahead as we enter the 80's? Increasingly, we will be challenged to truly consider all forest values, and to do something positive to enhance them. Have you ever considered the extent to which forest practices are oriented exclusively to timber production?

All too frequently, we pay little attention to lesser vegetation, to flowering trees, to shrubs, and to browse. Shouldn't our reclamation practices consider more of this? Won't we have to, as we move into the permanent regulatory programs under the Surface Mining Act.

It is my feeling that the State Foresters need to be involved in even greater measure in decision making involving the reclamation of forest sites. What does this involve? I visualize it basically as a joint State Forester and regulatory authority decision-making process based on programs, people, and funding.

On programs, I visualize for forest and related lands joint policy-making direction and thrust such as review and approval of reclamation manuals and supplements, operating procedures, and joint agreement on, and input to, experimental-practice studies.

On people, I would like to see a greater emphasis on what kind, where, and how many forestry specialists should be available for service to Directors of Reclamation. In particular, let's try to foster an interchange of forestry as well as reclamation personnel under the Intergovernmental Personnel Act procedures. I'm convinced that an employee with this experience is better qualified when he or she returns. Kipling said: "He knows not England who only England knows." We must communicate freely, exchanging views and sharing research findings. It is my earnest hope that in our discussions during the next 2 days we will be practical, and will explore a broader spectrum than usually occurs when professionals talk with fellow professionals about surface coal mining and reclamation for forest areas.

Let us consider wood production for a moment. We foresters have been indoctrinated in the merits of planting trees to grow more timber and a forest cover for watershed protection. Only of late has our thinking turned to shaping the landscape and microclimate and to improving mine-soil properties in order to maximize or optimize wood production and economic returns. As a practical matter, what are the criteria for such a forested site? In what manner and to what degree will this possibility for surface-mined areas affect priorities for postmining land use? This is the kind of problem that poses a challenge to the ingenuity of researchers and to those of us in regulatory agencies involved in rule drafting and permit, mine-plan, and reclamation approval. It should shake us foresters out of our classic patterns of thinking.

The foregoing can be equally applied to the development of wildlife habitat, range land, pastureland, or hayland.

To those of us who serve the public, there is another challenge. We have to deal with about 10,000 coal mine permits.

In the Appalachians, three quarters of the surface coal mining occurs on forest land and on small holdings, many under 30 acres in extent. Kentucky alone has over 2,000 permits with an area of less than 30 acres.

State Foresters recognize the small tract as unfavorable to the practice of forestry. What, if anything, should and can be done to overcome problems associated with small tracts in the forestry information required for permit applications, reclamation plans, and monitoring, inspection, and enforcement programs?

EFFECT OF THE SURFACE MINING ACT

So far, I have talked of problems that we share as foresters. I think you will agree we will need to get more specific. Now let us get into the details for some of the State programs and rules under P.L. 95-87 which all of us -- industry, State, Federal, and university representatives -- may be discussing during the next 2 days. Let's quickly indicate the size of the subject we are talking about. I'm going to use a broad brush in painting this picture by using portions of 30 CFR Chapter VII of the Federal rules as a guide.

Summary of regulations

Subchapter A of the permanent regulatory program contains the definitions generally applicable to the programs and persons covered by the Act. The procedure for petitioning to initiate a proceeding for the issuance, amendment, or repeal of a regulation under Section 201(g) (1) of the Act is also described.

Subchapter C covers applications for, and decisions on, permanent State programs, and describes implementation of a Federal program in a State such as Georgia, which did not apply for primacy.

Subchapter D covers operations on Federal lands as opposed to State and private lands. Federal lands include federally-owned surface and privately-owned coal, as is likely to occur in a National Forest.

Subchapter F contains criteria for designating areas as unsuitable for all or certain types of surface coal mining operations and for identifying forest lands on which surface coal mining operations are restricted under Section 522(e)(2) of the Act to those that are technologically and economically feasible for reclamation.

Subchapter G covers requirements for permits and coal exploration under State programs, along with small-operator assistance. Michigan, Massachusetts, and Rhode Island are Eastern States where there is new activity in exploration.

Subchapter J contains criteria for bonding and liability insurance, including release of performance bonds on reclaimed forest lands.

Subchapter K covers the permanent program performance standards.

Subchapter R contains requirements for the Abandoned Mined Land program.

Lastly, Subchapter S covers the Mining and Mineral Resource and Research Institute program.

Permits

With that much background, let's get to the topic at hand, starting with permits (Chapter G). You are all aware that there are various court actions dealing with the permit regulations. Therefore, let's focus our attention on the Act rather than the rules. Section 507 of the Act, with its 23 subsections, contains a comprehensive tabulation of information that an applicant must assemble and submit to State or Federal regulatory authorities. Keep in mind the proportion of land that is in a forest setting.

I predict that Directors of Reclamation will be turning more frequently to State Foresters and asking what controlling watershed factors are needed to approve the site-specific permit applications. Section 507(b) (1) calls for "an assessment of the probable cumulative impacts of all anticipated mining in the area upon the hydrology of the area and particularly upon water availability." It's a new ball game for forest hydrologists. I am looking forward to hearing your views on this requirement, and the role of forestry.

Reclamation plans

Now, what about the reclamation plan requirements, Section 508 of the Act? It is my firm conviction that forestry needs to be more involved in planning for reclamation. The Act is very specific in requiring a statement on the condition of the forest land and productivity of the land prior to mining, the postmining land use, and plans to comply with the environmental protection performance standards of Section 515. Even though our knowledge of site-specific watershed behavior and the influence that mine soil and plant

management have on waterflow characteristics is far from complete, we can still do much on the basis of present knowledge to increase mine-soil productivity and to make full use of mined-land resources while maintaining an optimum supply of usable water. Because so much of our forested land that is surface mined for coal is in small private ownership, with various management objectives and ownership purposes, it is a real challenge to bring these factors together successfully. The job ahead need not dismay us, for it is really a form of forest watershed reclamation, rehabilitation, or restoration planning that has been successful for decades.

Coal exploration

Coal exploration on forest lands has increased with the growth in energy needs. In many ways, we are still only at the beginning in exploration. The big job is still ahead in meeting the predicted growth rate in national coal production. Section 512 of the Act includes a requirement for an exploration permit when removing more than 250 tons. Roads are a prominent part of exploration. State Foresters should have an interest in this area because the ability to apply intensive timber-management practices, particularly timber-stand improvement, is closely correlated with access roads. Although not required in the rules, there is an opportunity for closer coordination of forestry and mine exploration in planning access-road systems.

Performance standards

Subchapter K, the permanent program performance standards, includes surface mining and reclamation operations for contour mining; area, box cut, open pit, and auger mining; mountaintop removal; and removal of coal from waste piles. I predict that as the various State programs become operational, the technical factors in this Subchapter will be reassessed from time to time by State Foresters, Directors of Reclamation, and State and Federal personnel.

In our discussions on this Subchapter let's stress what will it take to get the job done on the ground. Some of the factors which will affect trees for tomorrow are, as I see them:

- Topsoil
- Hydrologic balance
- Disposal of excess spoil
- Backfilling and grading

- Revegetation
- Postmining land use
- Protection of fish and wildlife.

The purpose of this list is to have a common point of reference to consider in some of the discussions that we are to have over the next 2 days. Time permitting, we may take revegetation, for example, and could have discussions on such topics as:

- Site evaluation
- Site preparation
- Seeding and planting techniques for trees and shrubs or nurse crop of grass
- Species selection
- Woody-plant seed laws which require seed certification and testing
- Topsoil substitution and supplements
- Monitoring
- Evaluation.

Another point in Subchapter K is that it provides for granting exemption from compliance with the performance standards of Sections 515 and 516 of the Act, on an experimental basis. One purpose is to encourage advances in mining and reclamation technologies as long as they conform with certain criteria: (1) the area used must not be larger than necessary to determine the effectiveness of the experimental practice, (2) the experiment must not reduce the protection afforded to public health and safety by the performance standards, and (3) the experiment must be at least as environmentally protective as the standard procedures would be during and after mining.

Bonding and insurance

Let's look at Subchapter J, bonding and insurance requirements. This Subchapter describes the amount of bond required to assure that the site is brought into compliance with the Act. The amount of bond must be adequate for the regulatory authority to complete backfilling, grading, topsoiling, and revegetation if an operator is unable to. The liability period for reclamation operations is required by the Act. An important concept is that while the filing and release of bond liability may be incremental, the bond liability applicable to a

permit extends to the entire permit area. The amount of bond is calculated on the basis of reclamation costs and not directly on acreage. The criteria for bond release on forest sites are also included in the performance standards.

Areas unsuitable for mining

Another point is Subchapter F, areas unsuitable for mining. There are many technical and legal ramifications to these rules, which derive from Section 522 of the Act. It will be challenging to foresters to meet these requirements by developing practical local criteria for designating forest watershed sites as being so hazardous that there should not be any surface mining or land disturbance.

We should not lose sight of the fact that a substantial portion of the 20 million acres of forested U.S. Government lands was acquired by purchase under the Weeks Law of 1911 to protect watersheds and the Nation's navigable waters. In checking the justification for purchase, the U.S. Geological Survey has signed off on a substantial percentage of the land transactions as being made for watershed protection purposes. Since private lands are intermingled with many of these sites, I foresee as another challenge to the forest hydrologist, as to whether mining would be a hazard and would impact on the Nation's navigable waters.

Federal programs for States

Subchapter C involves the implementation of a Federal program on non-Federal and non-Indian lands within a State. Georgia is one State that will have such a program. Forestry will have a prominent role in the four coal-producing counties where much of the surface mining occurs on forested sites.

Abandoned mine lands

The role of trees in the abandoned mine land program is a particularly timely topic at this meeting. Subchapter R includes sources and uses of money for the abandoned mine land reclamation programs; procedures for the acquisition, management, and disposition of eligible land; reclamation on private lands; State reclamation plans and work; and the responsibility of the Secretary of Agriculture to carry out the Rural Lands Reclamation Program.

Keep in mind the U.S. Department of the Interior's Regional and Nationwide Survey under P.L. 89-5, in 1965, which reported that over 90 percent of the surface coal mining at that time was occurring on upstream sites in a forest or on land reverting to forest. Much of this area is part of the 2 million acres identified by USDA as needing land treatment. Trees have a definite, unique role in controlling runoff where it originates in headwaters and where mining was a temporary land use. Basically, the forestry measures essential to put these headwater lands in shape can only be bought, or ordered, or obtained by persuasion. One thing appears to be clear for these smaller forest areas -- persuasion alone is not getting the land-treatment job done fast enough. What, if anything, should and can be done to overcome the problem of the small size of these potential forest tracts?

SUMMARY

Part of my reason for being here is to express my appreciation to the State Directors of Reclamation and State Foresters for their interest in improving communications between our various fields of interest. We need more frequent technical meetings in the other land uses so we can better understand the problems

of surface mining and reclamation, and what should be done about them. We who make reclamation our full-time, lifetime business do not know all the answers. So I'm trying to say that you get into the act from two sides: Helping to promote widespread knowledge and understanding of why surface mining and reclamation is vital, and helping to find practical answers.

You foresters and specialists in surface coal mining and reclamation are truly builders of a new landscape; your approach to your work is in the spirit of improving the forest environment, rather than merely continuing business as usual. May your plans be as wise as they are imaginative, and may your labors be your reaffirmation of the joint destiny of forestry and surface coal mining reclamation.

I am reminded of a statement attributed to Thomas Jefferson -- "It's a good thing a medal has two sides." He implied that while one side of the medal is for building up the ego of the recipient, the other side is there to remind the person of his or her responsibility.

How you use that responsibility is going to have a profound effect on trees for tomorrow.

Again, thank you for the opportunity to meet with you today.