

# PEABODY COAL COMPANY: ABIDING BY CHANGING LAWS

The technology of reclaiming surface-mined land has changed greatly in the last 15 years, primarily because laws have mandated what the technology will be and the laws have changed. In 1977, Congress passed the Surface Mining Control and Reclamation Act and the Office of Surface Mining, Reclamation, and Enforcement was created within the U.S. Department of the Interior. Although final regulations are not complete, anticipation of what they will be has created a surge of interest in reclamation of surface-mined land.

One company that has done an admirable job of adjusting to both state and Federal laws is Peabody Coal Co. of St. Louis, Mo. WEEDS TREES & TURF visited Peabody's Broken Aro mine in east central Ohio for a look at the changes of the past 15 years and the reaction to upcoming Federal requirements.

Reclamation supervisor Earl Murphy, a forester by training who joined Peabody from the Ohio Park Service in 1973, described the latest revegetation work performed at Broken Aro, one of two surface

mines owned by Peabody in Ohio.

The difference between revegetation work performed during three separate periods was striking. Reclamation performed prior to 1965 consisted of many small tree-covered hills, many bodies of water and visible high walls. The dense vegetation and craggy terrain offered protection for wildlife inside.

The next method of reclamation, from 1965 to 1972, consisted of striking the tops of spoil piles and planting trees, 900 per acre, and some grass. The most common tree for reclamation has been the black locust.

The third type of reclamation, performed after 1972, consists of gentle rolling hills of grasses and legumes with networks of drainage ditches leading to silt basins. The company that Peabody leases the land from has asked that it be reconstructed to serve as grazing land.

The three-year permit which Peabody has from the state allows mining of approximately 300 acres per year. The mining procedure goes as follows:

- silt basins are constructed
- top foot of soil is removed and stockpiled



**Workers** for the Ohio Mining and Reclamation Association prepare to mulch newly seeded area nearby (top). A silt basin (below) is a vital part of mine reclamation and is usually the first step of the reclamation process. Reclaimed soils can absorb limited quantities of rainfall. Therefore, increased runoff must be handled through special ditches and silt basins.



—bulldozers cut benches in the sides of hills.

—workmen drill down from the benches, explosives are placed in the holes, and set off to loosen the soil above the coal

—dragline removes spoils, then coal  
—spoils are pushed back into the cut by large, double-width blade bulldozers

—spoils are contoured

—topsoil is replaced

—drainage ditches are cut across hillside which feed into large ditches which lead to the silt basins

—lime and fertilizer are applied.

—seed is either drilled or hydraulically sprayed

—straw mulch is applied with straw thrower

—crimper goes over straw to bind it to the topsoil

According to Ohio law reclamation efforts must be current. This is defined as within 500 ft. of the digging site. Therefore, reclamation is a continuation of the mining process which is not complete until vegetation is back in place.

Murphy devised a system to provide hay and straw for mulching from the grasses planted during

reclamation. Although a number of grasses are used, the most common are Kentucky 31 fescue, sweet clover, lespedeza, orchardgrass, and annual and perennial rye. Applying 2½ tons per acre of straw mulch, Murphy hopes to produce most of the 750 tons of straw needed each year.

Lime and fertilizer are applied each spring and fall to the reclaimed areas. Lime is applied originally at six tons per acre. Extra applications may be made based on soil tests taken regularly. The soil is extremely sandy at Broken Aro and mixed with chunks of sandstone. New laws may require all stones larger than six in. be picked up.

Although Murphy doesn't plant many trees on the latest section of Broken Aro, he uses many trees on Simco Mine, Peabody's other surface mine under his supervision.

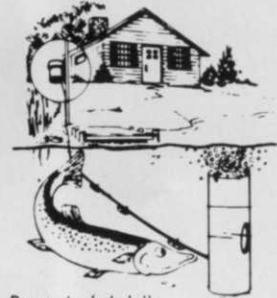
**An example** of reclamation from 1965 to 1972 in Ohio. Highwalls were topped, trees were planted at 900 per acre, and grass was seeded at 12 lbs./acre mainly by plane. Note the area that failed to accept the vegetation.

The types of trees he uses are sweetgum, cottonwood, white pine, black locust, European black alder, and autumn olive. Most of the trees are purchased from state nurseries in vast quantities. Murphy mentioned that river birch showed great promise as a tree in reclaimed areas, but the Indiana nursery stopped producing them. Murphy pointed to healthy patches of grass at the base of nitrogen fixing trees. Some mines are considering harvesting trees on reclaimed land to market as pulpwood.

Perhaps the most unique aspect about reclamation at Broken Aro is that the workers doing the planting are employed by the Ohio Mining and Reclamation Association of Columbus. Peabody is one of approximately 100 members of the association which owns the revegetation equipment, hires the man-



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power, and offers advice. For this service, Peabody pays OMRA an annual dues based upon tonnage of coal produced and an hourly charge for the workers. The revegetation staff of six stays at Broken Aro year-round as does a complete inventory of equipment. Included in the inventory is a Bowie hydraulic seeder, a Finn straw blower, a Brillion seed drill, numerous trucks and tractors.

OMRA is also providing its members with legal assistance on Federal and state reclamation, and is currently lobbying to have air pollution standards adjusted in the state so that Ohio business can burn the high-sulfur coal mined in the state. OMRA works closely with the Ohio Department of Natural Resources which will administer the Federal program when in force. OMRA offers soil and water testing services as well.

Reclamation laws are not perfect, Murphy points out. The requirements discourage removal of

coal left in some older mines, since the older reclamation would have to be redone under current standards if part of the older area was re-affected. Prime farm land is the area facing strictest reclamation standards. Complete return of productivity is required within five years of mining. Nevertheless, Murphy remarked, "If you say current, you practically eliminate erosion and productivity problems."

Like many other surface mines, there are occasionally patches where revegetation didn't work. These patches are the greatest challenge of reclamation today. People like Murphy certainly want to understand why such bald areas occur.

Another lingering question is the upward migration of salts from the spoils. Does it occur often? Why? How can it be prevented?

The mystery about revegetation of surface mines should continue until these questions are fully answered. **WTT**

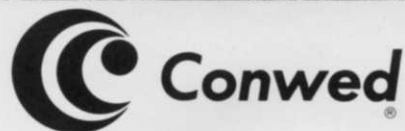
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