

TRUE CONSERVATION

by **Thomas A. Gwynn**, Knife River Coal Mining Co., Bismarck, N.D.

The mining industry finds itself in this year, 1968, caught in the interesting dilemma of meeting increased demands for energy fuels while at the same time trying to satisfy an aroused public interest in that loosely used term "conservation." In this short article I cannot solve the problems of conservation nor of reclamation for this industry, particularly in Canada, but I can present a few thoughts to help keep our thinking straight on the subject as well as a few reflections on what is being done in areas of the United States.

In a questionnaire passed out to a cross-section of citizens in the eastern United States it became apparent that many people do not understand the need for or the real use of lignite or other low grade coals in our modern civilization. So many today are taking for granted, and even demanding, the increased comforts and conveniences of low cost power available at the flick of a switch, never stopping to realize that this convenience is largely dependent on our huge deposits of low grade fuels. So many today glibly cry for "conservation" when pointing at areas that have been mined, without realizing that this word is in actuality a two-edged sword, and must apply not only to conservation of the land, air, water and soil during and after mining, but also conservation of the mineral resources underlying the surface.

And so, before delving into the problem of conserving or reclaiming the surface, we must recognize that any law requiring reclamation which proves burdensome to the point where deposits of lignite or coal can no longer be economically mined results in waste of a valuable resource and is in itself defeating the purpose of conservation. Thus we become faced with a difficult and delicate job of balancing values, mineral deposits as compared to the value of the surface. Thus conservation on our mined lands

must be approached with great care and objectiveness, devoid of emotionalism and bias.

Certainly we have been blessed with a beautiful land in North America and it is the desire of all thinking persons to maintain the cleanliness of our air as well as the beauty of our forests, lakes, and farmlands. But these resources have been given to man for his wise use. Any thinking person or company necessarily must look to the future and attempt to conserve the values of these lands. Many of the states in the United States, contrary to the emotional cries of the uninformed or malicious, can boast that up to 80% or 90% of the mined lands have been reclaimed. Methods of reclamation have varied with improved technology over the years and in accordance with the highest potential use of the lands. In some areas adjacent to the population centres where land prices are high, mined areas have become extremely valuable suburban country club and housing developments with rolling home sites resting on the edge of blue, fish-filled waterways. Or they have become valuable industrial sites. Elsewhere mined lands have been reclaimed to highly productive orchards, farmlands and pastures. Heavy forests with timber as an economic product have resulted from the reclamation of other mined areas. And not to be overlooked in the reclamation of such areas is the resource being sought after more with each succeeding generation — recreation.

I have travelled through mined areas in Pennsylvania, West Virginia, Ohio, Indiana, Illinois, North Dakota, South Dakota, Montana, Wyoming, Saskatchewan, and Alberta and have seen all extremes of mining problems and reclamation problems. I have travelled from areas of long growing seasons with plentiful moisture to the arid lands of Wyoming and eastern



Water-filled spoil bank depression surrounded by yellow clover, grasses and weeds in strip mining area in North Dakota.

Montana. I have observed high toxic conditions in some of the eastern states, a condition that is virtually unknown in the high plains of the Dakotas and Canada, and the conclusion obviously reached is that each area must be considered in accordance with its own individual problems as to climate, soil condition, land value and economics. For this reason it would be presumptuous for me or any other person to blueprint a reclamation program for Saskatchewan without first spending considerable time in studying its conditions.

Suffice it to say that a thinking industry concerned with the welfare of the community and province will look for an answer. We feel that in North Dakota, an area not too different from Saskatchewan, we have found some good answers. Reclamation efforts have varied from company to company with varying results but it has been demonstrated clearly that given time the mined areas can be made to produce. When dealing with a low cost fuel like lignite it has proven unrealistic to think in terms of complete leveling of the "spoils" in most areas and, where the soil is heavy clay, this has even been found to be detrimental. Partial leveling is however warranted in some cases and in

the low population areas with low land values these mined lands are being turned into grazing lands, game management areas and recreation centres.

With our light rainfall and short growing season reclamation takes years to accomplish. The tremendous length of time which we know it takes to develop an inch of topsoil indicates the patience that is needed for any type of reclamation. The Illinois reclamation law is perhaps the most progressive of any state in the United States; there the mining operators are required to present a plan of reclamation to the state, which plan is subsequently approved, with the mining company being then responsible for carrying it out. The law calls for no leveling, partial leveling, or complete leveling, depending on the highest potential use of the land and what can be accomplished by it. This law does not impose upon the operator the expense of leveling lands that cannot be productive if they are in an area where there is low population or low land value. On the other hand, where conditions warrant, complete restoration of the land may be required. And, of course, regardless of the ultimate use of the lands, toxic and waste materials must be buried.

The success of the Illinois law is evidenced by the high percentage of lands in that state that have been reclaimed to new uses, and the Illinois law has been used as a pattern by other states.

In 1968 the coal companies surface mining in North Dakota submitted to the legislature a bill dealing with reclamation of lignite spoils banks in the state. Essentially this was the Illinois bill which was modified slightly to fit the needs of North Dakota. In this modification, treatment of gob piles, slurry and acid wastes were eliminated because these problems are non-existent in North Dakota. The bill requires a company to post a bond and obtain a licence from the state before mining an area. The bond is held to pay for reclamation work if the company defaults its responsibilities. Only after mining and satisfactory reclamation of the area has been completed is this bond released. In any event all land within 660 feet of any public road must be graded to a rolling topography having

no more than a 25% grade. The tops must be "struck" from non-graded land and access roads must be built approximately every 2,000 feet. A reclamation plan acceptable to the Department must be submitted the first year after the permit term. This plan is based on the advice of people knowledgeable in reclamation, such as foresters and agronomists. The ultimate aim is to return land to the highest potential future use.

The lignite industry is growing and will continue to grow in the years to come. At our present rate of growth those of us alive 30 years from now will see a population density approximately double that of today. The increased housing, industry, power requirements, and other needs of such a burgeoning society demand that our conception of conservation consider the need for all of our rich mineral resources, including the valuable lignite and sub-bituminous coal deposits on the high plains of North Dakota and Saskatchewan. Consumption of coal for production of power



General view of older North Dakota strip mining reclaimed spoil banks with cover of clover, deltoid poplar and ponderosa pine.

is expected to double in North America during the next 15 years. And now the industry is looking to our low grade coal deposits as a potential source of our oil needs of tomorrow.

It becomes evident when we contemplate these facts that the time is here now for an increasing awareness by the coal industry and by the citizens of North America concerning our respective needs and problems. We can no longer live in an isolated world of our own concerned on the one hand about how much coal can be mined or concerned on the other hand about maintaining the pristine nature of our countryside. We must recognize that the ecology of the particular locality we live in demands intelligent consideration. Emotional and unrealistic thinking must give way to careful

planning by groups including experts in all related fields as well as the mining industry in order to establish a sensible approach to reclamation with full recognition of relative values and economics. Certainly the reclamation of mined lands must in the future be considered a cost-sharing program with not only the mining company, but all others who benefit from this resource, sharing in the cost of reclamation.

Only by such an intelligent and cooperative approach will the problem of reclamation of mined lands to their highest potential use be solved, and the mining company permitted at the same time to recover the ever-increasing tonnage of coal needed to maintain the benefits you and I demand in our modern society.

POLLUTION AND THE NORTH SASKATCHEWAN RIVER

by **Beattie Martin**, CBC, Regina

EDITOR'S NOTE: So little information is available to the public about the extent of water pollution in our rivers, and what is being done to control it, that we thought our readers would be interested in this broadcast given by Mr. Martin on Sports Week, a CBC western regional radio programme, October 21, 1968. We should ask ourselves whether public agencies are actually doing enough to control pollution.

"Growing pollution of our waterways is a threat not only to our fish and wildlife, but to all outdoor recreation involving water and, indeed, to the very health and welfare of neighboring communities."

This is a quote from a Remington Newsletter statement made by Mr. Bud Goodwin representing the Lions of Michigan. They had every reason to be concerned because pollution has reached the critical level in the Great Lakes area, and is becoming a problem along our oceanic shoreline. We on the prairies have been fortunate in that water pollution hasn't been a serious problem here. We can benefit from the unfortunate experiences of other communities. We are not an industrial area, thus we don't produce

effluents which would pollute the water or air on a large scale. I'm sure there has been some pollution but it hasn't been of major concern, at least the public hasn't been aware of it. It is interesting to note that the North Saskatchewan has been used for sewage for many years by cities along the river. The new pulp mill at Prince Albert must first purify the water from the river before running it through its plant. The entire operation depends on the quality of the water.

The development of the Prince Albert Pulp Mill has caused concern because of the threat of pollution. There is the possibility that effluents from the mill could pollute the river, and based on the production potential of the mill, these effluents, if not controlled, could affect a large area along the North Saskatchewan River. It has been estimated that 72 miles of the river could be affected, an area which produces pike, pickerel, goldeye and sturgeon for sport and commercial