

CHAPTER V

PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Air Quality

Adverse impacts on air quality resulting from development of the carter mine property cannot be avoided. Some coal and soil dust created by mining 677.3 million tons of coal, disturbing a total of 5,241 acres (4,740 mined and facilities - 252 rail and access road construction - 42 highway relocation - 207 powerline construction) over the 57-year period will occur. About 88 surface acres will be disturbed in any one year and 300 to 500 acres may be bare at any one time.

Even with proper emission controls, emissions from vehicles, equipment and accidental fires will occur, causing a reduction in air quality on the lease site and downwind. As no effective emission controls exist for diesel locomotives, emissions from train operations cannot be avoided. These emissions are expected to reach a peak by 1985 and remain fairly constant thereafter. Table 1 compares the projected unavoidable train emissions with the 1970 quantities for the Wyoming Intrastate Air Quality Control Region.

Table 1

Unavoidable Train Emissions Versus 1970 Total Emission for
Wyoming Intrastate Air Quality Region
(tons/year)

Type	1970	1980		1985	
	Base	Increase*	% Increase	Increase*	% Increase
Particulates	26,510	26,514	0.01%	26,521	0.04%
Sulfur Dioxide	38,202	38,212	0.03%	38,228	0.07%
Nitrogen Oxides	28,647	28,714	0.20%	28,814	0.60%
Carbon Monoxide	122,428	122,452	0.02%	122,487	0.05%
Hydrocarbons	21,635	21,651	0.07%	21,677	0.20%

*Base plus train emissions

Topography

A reduction in altitude caused by mining thick beds of coal with thin overburden cannot be avoided. The decrease in altitude over the lease area will range from a maximum of 105 feet to a minimum of a few feet. The average drop will be about 62 feet.

Alteration of some natural features of the landscape is unavoidable. Even though the general topography of the area can be restored at a lower altitude, cliffs and abrupt breaks, presently a part of the topographic scene, cannot be restored. The slope and angle of the present topography are only partially restorable.

Temporary change in the drainage channel of Little Rawhide Creek and its tributaries cannot be avoided.

Soils

Disturbance of topsoil on a total of 5,241 acres (4,640 mined - 100 mine facilities - 252 rail and access road - 42 highway relocation - 207 power-line construction) cannot be avoided. Loss from productivity of 345 acres of soil (access road - railroad bed - mine facilities - housing) and of 500 acres from inundation by a lake is unavoidable. The disturbance of topsoil will lower to some degree the natural soil productivity of the area by compaction, mixing natural soils, and causing accelerated soil erosion.

On the 4,640 acres to be mined, complete destruction of all soil horizons, parent material and soil characteristics which have developed over long periods of geologic time cannot be avoided. The present soil biota and soil forming processes will be terminated. Once mining is completed and the area reclaimed, soil development will have to start again. As an end result, new soils will be formed with characteristics totally unlike the ones existing prior to mining.

Reduction of soil productivity and permeability and infiltration rates is unavoidable. Increase in erosion and sedimentation rates will occur, but amount of soil loss through time cannot be determined.

Mineral resources

The mining and removal of coal cannot be avoided under present plans and proposals. The proposed mining activity will have an unavoidable adverse effect on the coalbeds, coal resources, and coal reserves in that deposits of a nonrenewable mineral commodity will have been mined. By 2033 this comprises 5.1 percent of the estimated economically recoverable strippable coal reserves identified in Campbell and Converse Counties. Loss of minor amounts of coal in mining, loading, and transportation operations is unavoidable.

Water Resources

The amount of water consumed in mine operations will be unavoidably lost. The amount cannot be quantified. Aquifers removed by mining will be permanently lost. However, the effect of this loss will be of local extent.

If a lake is left as has been projected, it may deplete streamflows and will add to evaporational loss of water which then is not available for other uses (agriculture - stream habitat).

A reduction in water quality from increased erosion and sedimentation will occur to some degree. The amount or degree cannot be estimated.

Vegetation

Vegetation will be temporarily destroyed on 5,241 acres and permanently removed on 845 acres. These losses associated with mine operations, rail spur construction and increased population and creation of a lake cannot be avoided.

Reclamation of areas disturbed by rights-of-way will occur shortly after disturbance. However, success of revegetating the severely disturbed mined area is unknown at this time.

All plant succession is unavoidably destroyed at the time of disturbance. Fifty years or more of plant succession will be required for these areas to return to their present state as existing soil structure and microclimate have been changed and altered.

Even on areas that are successfully reclaimed, a 50 percent loss in productivity has been projected.

Archeological and Paleontological Values

Subsurface material and sites will be damaged or destroyed under the most responsible mining program, with much more lost to indifference from surface activities of population expansion.

Some losses, removal of 104 acres to regional expansion, will be expected from lack of surface evidence, time, money, and trained personnel to conduct regional surveys.

An appreciation for archeological values and a sense of responsibility for preservation will be hampered by a lack of educational information.

Aesthetics

The added structures, roads, rail lines, and powerlines will be discordant intrusions added to the natural landscape. The natural landscape (shape - texture - color) will be changed unavoidably. To some, this will be an adverse alteration of the natural landscape.

Even after reclamation, the disturbed areas will be discernible for a long period of time.

Wildlife and Fish

Loss of habitat and reduction in population will occur. The smaller wildlife (reptiles, amphibians, invertebrates, and other burrowing animals) which cannot flee will be destroyed. An estimated 50 to 60 antelope, 17 mule deer, 40 sage grouse, and 20 sharp-tailed grouse will be displaced and probably lost.

Destruction of 5,241 acres of habitat will reduce the carrying capacity of wildlife habitat in this area. Successful return of wildlife habitat for most animals will require a period of from 20 to 50 years (Figure 7, Chapter V, Part I). The permanent removal of 845 acres of terrestrial habitat will be unavoidable.

Increased population will intensify recreational use of the area. This will adversely impact a larger area of wildlife habitat than that actually disturbed by mine activities. As much of this area is critical antelope habitat, the overall unavoidable impact may be loss of a larger number of antelope than projected.

The aquatic habitat and fish life associated with Little Rawhide Creek will be unavoidably lost.

Recreation

Loss of an estimated 100 hunter days of use on the site and 900 hunter days per year in the immediate area cannot be avoided.

Reduction of wildlife habitat, population, and quality will lessen hunter opportunities. Increased population will intensify recreational use, which could cause adverse reduction of recreation quality and deterioration of facilities. Loss of recreation land base in close proximity to the Town of Gillette is unavoidable. This loss will span the 57-year life of the mine.

Agriculture

Livestock forage

Permanent loss of 740 acres of forage and 185 AUMs cannot be avoided. Destruction of four wells, one spring, and six small reservoirs is unavoidable. However, the wells will be replaced at other locations. Reduction of livestock water will result in a loss of grazing capacity.

Temporary loss of forage during mining operations cannot be avoided. Reduction of an estimated 50 percent in carrying capacity after reclamation cannot be avoided. This will cause an annual overall yearly loss of 518 AUMs, assuming the entire area will be successfully revegetated.

Destruction of critical pastures (4,120 acres) and the necessity of the rancher having to provide pasture elsewhere is unavoidable. Added economic cost of the rancher having to provide new water sources for his livestock cannot be avoided.

Farming

Serious doubt exists about the success of rehabilitating the mined lands for crop production. It is very probable that crops will not be able to be grown on the rehabilitated surface. This will result in the permanent loss of the use of 355 acres for cropping.

Hay production will be 65 tons less, and approximately 6,160 bushels of small grain will not be produced annually. Since much of this production was sold as a cash crop, farmers will not realize the net cash gain realized from these crops. In instances where the crops were used for livestock feed, it will now be necessary to replace them through purchase.

Transportation Networks

Increased traffic on all existing facilities cannot be avoided. The increase will begin in 1975. Road maintenance costs and frequency will increase and these costs cannot be avoided.

Temporary inconvenience and poor travel conditions caused during construction of such facilities as the rail line, relocation of highway 59, and transmission line are unavoidable. These impacts will be minor and occur only over a short time span. It is impossible to predict the possible increase in train/car accidents. With the number of trains required per day (6 by 1985), the increased probability of these accidents occurring cannot be avoided.

Socio-Economic Conditions

Unavoidable adverse effects of this mine cannot be quantified at this level. The cumulative impacts are analyzed in Chapter VII, Part I.