CHAPTER V

PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

Air Quality

The majority of the impacts on air quality resulting from development of the A.R.Co. mine property cannot be completely avoided. Some coal and soil dust created by mining 724.3 million tons of coal, disturbing a total of 6,671 acres (6,524 mined - 147 rail and access road construction) over the 40-to 74-year period will occur. About 90 surface acres will be disturbed in any one year and 300 to 400 acres may be occupied or 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 there are no effective emission controls for diesel locomotives, emissions from train operations cannot be avoided. These emissions are expected to reach a peak by 1980 and remain fairly constant thereafter. Table 1 compares projected unavoidable train emissions with the 1970 emission quantities for the Wyoming Intrastate Air Quality Control Region.

Table I

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

Type	1970 Base	1980 Increase*	Percent Increase
Particulates	26,510	26,565	.2%
Sulfur Dioxide	38,202	38,328	.3%
Nitrogen Oxides	28,647	29,467	2.9%
Carbon Monoxide	122,428	122,716	.2%
Hydrocarbons	21,635	21,843	1.0%

*Train emissions plus base

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 63 feet to a minimum of 6 feet. The average drop will be about 43 feet.

Destruction of 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 exact slope and altitude of the present topography can only be restored within practical limits.

Temporary change in the drainage channel of Little Thunder Creek and its tributaries, North Prong and Trussler cannot be avoided.

Soils

Disturbance of topsoil on a total of 7,092 acres (6,524 mined - 200 mine facilities - 230 access corridor - 138 housing) cannot be avoided. Loss from productivity of 448 acres of soil (access road - railroad bed - mine facilities - housing) is unavoidable. The disturbance of topsoil may lower to some degree the natural soil productivity of the area by compaction, mixing natural soils and causing accelerated soil erosion.

On the area to be mined, 6,524 acres, the partial alteration 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 affected. 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.

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 a nonrenewable energy resource will be depleted. Based on company plans, an estimated 724.3 million tons of coal will have been mined by 2016 or 2050 which comprises 5.8 percent of the estimated economically recoverable coal reserves thus far 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 the final pit is left as a pond 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 6,646 acres and permanently removed on 446 acres. Losses associated with mine operations, rail spur construction and increased population cannot be avoided.

Reclamation of areas disturbed by rights-of-way will be undertaken shortly after disturbance. However, success of revegetating severely disturbed mined areas 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 micro-climate have been changed and altered. Even on areas that are successfully reclaimed, a 50 percent loss in productivity is projected based on the Assumption and Analysis Guidelines contained in Chapter II, Part I.

Archeological and Paleontological Values

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

Some losses, removal of 138 acres to regional expansion, will be expected from lack of surface evidence, time, money and trained personnel to conduct regional surveys.

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 many years.

Wildlife and Fish

Loss of habitat and reduction in population will occur. The smaller wildlife (reptiles - amphibians - invertebrates - rodents - and other burrowing animals) which cannot flee will be destroyed. An estimated 50 antelope and 50 sage grouse will be displaced, and probably lost.

Destruction of 6,524 acres of existing 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 20 to 50 years (Figure 7, Chapter V, Part I). The permanent removal of 448 acres of habitat will be unavoidable.

Increased population will intensify recreational use of the area. This will adversely impact wildlife habitat. Intensified use may also adversely affect the elk herd east of the lease area. The disturbance may cause the elk herd to move to unsuitable habitat, resulting in an unavoidable loss of the entire herd. The aquatic habitat and fish life associated with the 57-acre Reno Reservoir will be unavoidably lost if comparable habitat is not provided.

Recreation

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.

Agriculture

Permanent loss of 310 acres of forage and 78 AUMs cannot be avoided. Destruction of the 424 acre-foot Reno Reservoir and two smaller reservoirs is unavoidable.

Temporary loss of forage during mining operations cannot be avoided. Reduction of an estimated 50 percent in carrying capacity for livestock after reclamation cannot be avoided. This will cause an annual overall yearly loss of 814 AUMs, assuming the entire area will be successfully revegetated.

Destruction of critical pastures (4,440 acres) and the necessity of the rancher having to provide pasture elsewhere is unavoidable. The added economic cost of the rancher having to provide new water sources for his livestock cannot be avoided. However, the company has stated that it intends to assume ahis responsibility (Letter comment to DES).

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, access road, 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 1980), the increased probability of these accidents occurring cannot be avoided.

Relocation of the oil and gas pipeline across the area will occur. Some short term disruption of service could occur and be unavoidable.

Socio-Economic Conditions

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