

## CHAPTER V

### PROBABLE ADVERSE ENVIRONMENTAL EFFECTS WHICH CANNOT BE AVOIDED

#### Air Quality

Adverse impacts on air quality resulting from development of the Wyodak mine property cannot be avoided. Some coal and soil dust created by mining 165.4 million tons of coal, disturbing a total of 2,482 acres (1,470 mined - 1,012 powerline construction), over the 38-year period will occur. About 36 surface acres will be disturbed in any one year and 100 acres may be bare at any one time.

Even with proper controls, emissions from vehicles and equipment, and pollution from accidental fires will occur, causing a reduction in air quality on the lease site and downwind.

Construction and operation of the new 330-MW power plant (plus conversion of unit 5) will add some additional particulates, sulfur dioxide, and nitrogen oxides to the atmosphere. However, operation of the new plant in 1977 with proposed emission controls will reduce present particulate emissions by over 2,300 tons per year (Table 1). With construction of the 450-MW plant by 1985, emissions will increase, but particulate emissions will remain below the 1974 amount for Neil Simpson. Table 1 gives potential cumulative emissions for 1985 that would be unavoidable.

Stack emissions of pollutants, including trace elements, cannot be completely eliminated with existing technology so some adverse effects on air quality will be unavoidable. However, with planned controls, ambient air quality standards are proposed to be met. Table 2 compares the projected unavoidable stack emissions with the 1970 quantities for the Wyoming Intrastate Air Quality Control Region.

Table 1

Predicted Emissions for Power Plants at Wyodak

Plant	<u>Estimated Emissions - tons/year</u>		
	Particulates	Sulfur Dioxide	Nitrogen Oxides
Existing 30 MW* (in 1974)	3,929**	2,177**	1,888**
New 330-MW plus Unit 5 (in 1977)	1,600**	15,700**	12,400**
New 450-MW*** (in 1982)	<u>2,100</u>	<u>19,000</u>	<u>14,500</u>
Totals by 1985	3,700	34,700	26,900

\*Units 1, 3, and 4 to be retired when new 1977 plant is activated; current emissions based on 100% load.

\*\*Source of data - Environmental Report dated May 1973, Black Hills and Pacific Power and Light Companies.

\*\*\*Emissions estimates based on maximums permitted under compliance with NSPS and Wyoming Air Quality Emission Standards.

Table 2

Predicted 1985 Emissions Versus 1970 Total Emissions  
for Wyoming Intrastate Air Quality Region  
(tons/year)

Type	<u>1970</u>	Total*	<u>1985</u>
	Base		Percent Increase
Particulates	26,510	26,281	- 0.9%
Sulfur Dioxide	38,202	70,725	+85.1%
Nitrogen Oxides	38,647	63,659	+64.7%

\*Base plus Wyodak stack 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 79 feet to a minimum of 58 feet. Average drop will be about 66 feet.

Destruction of some natural features of the landscape is unavoidable. Even though the general topography of the area can be restored at a lower level, cliffs and abrupt breaks, presently a part of the topographic scene, cannot be restored. The exact slope and altitude of the present topography is only restorable within practical limits.

Change in the drainage channel of Donkey Creek cannot be avoided.

## Soils

Disturbance of topsoil on a total of 2,597 acres (1,470 mined - 60 power plant - 1,012 transmission corridor - 55 housing) cannot be avoided. Loss from productivity of 1,125 acres of soil (transmission line - power plant facilities - housing - lake) is unavoidable. 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 area to be mined, 1,470 acres, complete destruction of all soil horizons, parent material, and soil characteristics which have developed over long periods of geologic time cannot be avoided. 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, 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. Thus, to the limit of coal removed 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 be depleted. Based on company plans, an estimated 165.4 million tons of coal will have been mined by 2012 which comprises 1.3 percent of the estimated economically recoverable strippable 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.

Leaving the final pit as a lake 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 disturbed or destroyed on 1,470 acres and permanently removed on 1,125 acres. These losses associated with mine operations, transmission line construction, increased population, and power plant construction 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 55 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 responsibility for preservation will be hampered by the lack of educational information.

### Aesthetics

The added structures, power plants, 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, rodents and other burrowing animals) which cannot flee will be destroyed. An estimated 25 antelope and some sage grouse will be displaced and probably lost.

Destruction of 1,470 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 1,125 acres of habitat will be unavoidable.

Increased population will intensify recreational use of the area. This will adversely impact additional wildlife habitat.

### Recreation

Loss of an estimated 100 hunter days of use per year on the site and a potential of 200 hunter days of use around the 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.

## Agriculture

Permanent loss of 1,125 acres of forage and 304 AUMs cannot be avoided. Destruction of four reservoirs and one well is unavoidable. Reduction of livestock water will result in a loss of grazing capacity. The well may be replaced after completion of mining. The creation of a lake would mitigate loss of the reservoirs.

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 77 AUMs, assuming the entire area will be successfully revegetated.

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.

### 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 transmission lines are unavoidable. These impacts will be minor and occur only over a short time span.

## Socio-Economic Conditions

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