

## CHAPTER 9

### CONSULTATION AND COORDINATION

#### TEAM ORGANIZATION

The Wyoming State Director of the Bureau of Land Management (BLM) was assigned lead responsibility for preparation of this environmental statement (ES). Team members from the BLM, the Geological Survey (GS), and the Forest Service (FS) were selected.

BLM provided professional specialists in the fields of air quality, wildlife, cultural resources, recreation, and socioeconomics. GS provided professionals in the fields of geology, paleontology, hydrology, and mining engineering. FS provided professionals in soils, vegetation, and agriculture.

The following consultant services were secured by contract. Centaur Management Consultants, Inc., Washington, D.C., developed the rail transportation and economic sections for the regional analysis. Radian Corporation, Austin, Texas, provided the sections on climate and air quality for the regional analysis. PEDCo Environmental, Cincinnati, Ohio, developed the site-specific climate and air quality sections.

#### CONSULTATION AND COORDINATION IN THE PREPARATION OF THE ENVIRONMENTAL STATEMENT

During preparation of the draft ES, members of the team consulted personnel from the following federal, state, and local agencies:

- Advisory Council on Historic Preservation
- Bureau of Land Management
- Bureau of Mines
- Environmental Protection Agency
- Federal Aviation Authority
- Forest Service (Bighorn and Black Hills National Forests and Thunder Basin National Grasslands)
- Geological Survey
- Interstate Commerce Commission
- National Park Service
- Office of Surface Mining
- U.S. Fish and Wildlife Service
- University of Wyoming

Wyoming Department of Environmental Quality provided information about the status of existing or already approved mines in the Eastern Powder River Basin, and suggested a list of mitigating measures considered feasible for mined land reclamation.

Wyoming Department of Economic Planning and Development

Wyoming Department of Health and Social Services  
Wyoming Department of Revenue and Taxation  
Wyoming Game and Fish Department provided wildlife population data, statistics for big game and upland game harvests and numbers of hunters, and maps of big game ranges.

- Wyoming Geological Survey
- Wyoming Highway Department
- Wyoming Recreation Commission
- Wyoming State Engineer
- Wyoming State Historic Preservation Officer
- Campbell County Parks and Recreation Department
- Converse County Parks Commission
- Converse Area Planning Office
- Natrona County International Airport
- Sheridan County Planning Office
- Tri-County Planning Office
- Casper Board of Public Utilities
- City of Buffalo
- City of Casper
- City of Gillette/Campbell County Department of Planning and Development
- City of Grand Island
- City of Lusk
- City of Moorcroft
- City of Sundance
- Douglas Recreation Center
- Gillette-Campbell County Airport
- Lincoln Public Services Commission
- Representatives of the following private industries and groups provided additional information:
  - Amax Coal Company
  - Armco Steel
  - Atlantic Richfield Company
  - Burlington Northern Railroad
  - Carter Mining Company
  - Cordero Mining Company
  - Fort Fetterman Sportsmen's Association
  - Mountain Bell
  - Pacific Power and Light Company
  - Panhandle Eastern Pipe Line Company
  - Rocky Mountain Energy Company
  - Torrington Chamber of Commerce
  - Trailways Bus System
  - Union Pacific Railroad
  - Wyoming Manufactured Housing Association

## CONSULTATION AND COORDINATION

### COORDINATION IN THE REVIEW OF THE DRAFT ENVIRONMENTAL STATEMENT

Comments on the draft ES were requested from the following agencies and interested groups. Those marked with asterisks provided oral or written comments.

#### Federal

Advisory Council on Historic Preservation\*  
Department of Agriculture  
Soil Conservation Service\*  
Forest Service\*  
Department of Commerce\*  
Department of Energy  
Department of Health, Education, and Welfare\*  
Department of Housing and Urban Development  
Department of the Interior  
Bureau of Mines\*  
Bureau of Reclamation\*  
U.S. Fish and Wildlife Service\*  
Heritage Conservation and Recreation Service\*  
National Park Service\*  
Office of Surface Mining  
Department of Labor  
Mining Safety and Health Administration\*  
Occupational Safety and Health Administration  
Department of Transportation\*  
Environmental Protection Agency\*  
Federal Power Commission  
Interstate Commerce Commission  
Mountain Plains Federal Regional Council  
National Historic Preservation Council  
Office of Economic Opportunity  
Office of Management and Budget  
Water Resource Council

#### State

State of Wyoming Clearing House coordinated comments from all interested state agencies.\*

#### Local

Campbell County Commissioners  
City of Gillette-Campbell County Department of Planning and Development\*  
Converse Area Planning Office\*  
Converse County Commissioners  
Mayor, City of Douglas  
Mayor, City of Gillette\*  
Mayor, City of Glenrock

#### Nongovernment Organizations

American Institute of Mining and Metallurgical Engineers  
American Mining Congress  
American Sportsmen's Club  
Campbell County Gem and Mineral Society  
Campbell County Historical Society  
Campbell County Rod and Gun Club  
Citizens for Orderly Energy Development  
Defenders of Wildlife  
Fort Fetterman Sportsmen's Association  
Friends of the Earth\*  
Izaak Walton League  
League of Women Voters  
Members of the Casper District BLM Advisory Board  
Murie Audubon Society  
National Audubon Society  
National Council of Public Land Users  
National Energy Law and Policy Institute  
National Environmental Health Association  
National Resources and Environmental Council  
National Wildlife Federation  
Natural Resources Defense Council  
Outdoors Unlimited  
Powder River Basin Resources Council\*  
Powder River Wildlife Club  
Rocky Mountain Center of the Environment  
Shell Oil Company\*  
Sierra Club\*  
Society for Range Management  
The Wilderness Society  
Thunder Basin Grazing Association\*  
Wyoming Archeological Association  
Wyoming Association of Conservation Districts  
Wyoming Environmental Council  
Wyoming Outdoor Coordinating Council  
Wyoming Petroleum Association  
Wyoming Stock Growers Association  
Wyoming Wildlife Federation  
Wyoming Wool Growers Association

#### WHERE COPIES CAN BE INSPECTED

Copies of the final ES will be available for public review at Bureau of Land Management offices throughout Wyoming and at public libraries in Albany, Campbell, Carbon, Converse, Crook, Johnson, Natrona, Niobrara, Platte, Sheridan, and Weston counties. Single copies are also available upon request from the Bureau of Land Management in Cheyenne, Wyoming as long as supplies last.

#### PUBLIC COMMENTS AND RESPONSES

In early 1977, the BLM held the following public meetings for the purpose of discussing land use plans for the Eastern Powder River Basin: January 31, 1977, Federal Building, Casper, Wyoming, 1:00 p.m.; February 1,

## CONSULTATION AND COORDINATION

1977, Recreation Center, Gillette, Wyoming, 3:00 p.m. and 7:00 p.m.; February 2, 1977, St. James Parish Hall, Douglas, Wyoming, 3:00 p.m. and 7:00 p.m. A total of 285 people attended the five meetings. Oral and written comments resulting from those meetings were analyzed before the final land use plan was issued in July 1977. The rate and location of future coal development in the basin, and subsequent socioeconomic and water resources impacts, were the subjects that caused the most concern.

The draft ES was filed with the Environmental Protection Agency and made available to the public on October 25, 1978. Its availability and times and places for public hearings were announced in the *Federal Register* (October 26, 1978, page 50060) and by regional news media. The deadline for submission of written comment, originally established for December 11, 1978, was subsequently extended to December 26. The extension was announced in the *Federal Register* (December 15, 1978, page 58641) and by regional news media.

Public hearings were held on November 28 and 29, 1978, in Gillette and Casper, Wyoming. They were preceded by news media reminders. Hearings attendance is summarized in Table R9-1. Copies of the hearings transcripts are available for public review at BLM offices in Casper and Cheyenne.

Written comments and oral testimony from the hearings were analyzed. Those comments which presented new data, questioned facts and/or analyses, and raised questions or issues bearing directly upon the draft ES were carefully considered in preparing the final ES. Although comments pertaining to federal policy, format of the ES, and environmental analysis procedures were not responded to in the final ES, these will be made available for consideration as appropriate in the decision-making process.

The remainder of Chapter 9 is divided into three portions: (1) those oral comments derived from the hearings transcripts which were *not* duplicated in subsequent written comments from that witness, and responses; (2) written comments received on or before the December 26th deadline, and responses; and (3) written comments received after the deadline, and responses there was time to prepare. Those comments received too late for response in the final ES will be answered individually by mail.

TABLE R9-1

SUMMARY OF PUBLIC HEARINGS ON THE DRAFT ENVIRONMENTAL STATEMENT

<u>Date</u>	<u>Time</u>	<u>Location</u>	<u>Attendance</u>	<u>Number Testifying</u>
November 28, 1978	1:30 p.m.	Gillette, WY	26	1
November 28, 1978	7:30 p.m.	Gillette, WY	29	4
November 29, 1978	1:30 p.m.	Casper, WY	9	1
November 29, 1978	7:30 p.m.	Casper, WY	<u>4</u>	<u>2</u>
TOTAL			68	8

INDEX TO COMMENTS

TRANSCRIPT

Excerpts from testimony of  
Neal J. Isto, Shell Oil Company  
Joe Racine, City of Gillette/Campbell County Department of Planning  
and Development  
Reed Zars, Powder River Basin Resource Council  
Ed Swartz, Rancher  
Wally Wolfe, Human Services Confederation, Douglas  
James Resick, Powder River Basin Resource Council

WRITTEN COMMENTS

<u>Agency, Organization, or Individual</u>	<u>Letter No.</u>
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Advisory Council on Historic Preservation	32
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Department of the Interior	
Bureau of Mines	8
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TRANSCRIPT COMMENTS AND RESPONSES

Neal J. Isto, Shell Oil Company

1. We have been working closely with the Gillette/Campbell County planning commission on the housing situation. We have supplied them with our projected employment levels. We are also aware of Gillette's temporary housing needs, and we intend to arrange for facilities to house construction workers near the mine site.

Response. This information has been incorporated in Chapter 1 of the site-specific analysis.

Joe Racine, City of Gillette/Campbell County Department of Planning and Development

2. I believe the impact statement oversimplifies the housing problem. It talks about the ability of the Buckskin Mine employees to afford single family housing. It does not get into sufficient details in the difficulties of providing for construction of houses, nor does it recognize the fact that most of the Buckskin employees will probably tend to be young people who do not have sufficient downpayment monies to get into a single family house early on.

Response. The housing section in Chapter 3 of the site-specific analysis quantifies the number of households desiring but unable to afford single-family housing. The problems and costs of housing construction in Gillette are discussed in Chapter 2 of the site-specific analysis. We have no information about the ages or economic circumstances of prospective Buckskin employees.

3. I do also request that if local information is not being used, that the reference on page R9-1 relative to consultation with my department in particular, be stricken from the book, if the information we have available is not used.

Response. Socioeconomic information, particularly population figures, were revised in the final ES on the basis of information provided by the City of Gillette/Campbell County Department of Planning and Development, the Converse Area Planning Office, and the City of Casper. Hence, the references in Chapter 9 have been retained.

Reed Zars, Powder River Basin Resource Council

4. It seems as though this statement was built upon the mines who had submitted their environmental information for a draft environmental statement, and then all existing mines--personally I know of several others that are planning on coming in, and some of these are already submitted for their land quality permits, . . . . I am familiar with several expansions of mines that didn't seem to be discussed, . . . .

Response. Our most probable production scenario was based upon our best judgement after consideration of all relevant and available information.

Other mines for which mining and reclamation plans have been submitted recently or which are expected in the near future are included in the high-level scenario; a site-specific environmental analysis will be prepared for each new mine.

5. I have worked with a lot of people down in Southern Campbell County, where the majority of this impact is being felt, and there is a 230 KV line that is going through, and that is discussed in the impact statement, of course, but 69 KV line, all the feeders that have to go to these mines, and have to link up to the 230 KV lines and with the existing 69 KV lines, don't appear to be discussed. Now, that is a fairly significant impact. Again, you have between 15 and 18 acres per mile of right-of-way that is needed for power lines in that area.

Response. The amount of acreage disturbed by 69-kv feeder lines for the coal mines is included in cumulative regional surface disturbance. See Tables R1-3, R1-4, and R1-5.

6. Also slurry lines, I would like to have some indication of where they might be, and I know that a slurry line is being proposed in this area, and what mines it might be going to and what acreage implication that will bring about. I think we should get into that a little more.

Response. Please see response 29-9.

7. I have some major problems all of the air quality data that was put out in this statement. They predict, or somebody predicted, that in 1990, the total emissions from the mines would be 41,513 tons. I have been fairly familiar in working with these air quality permits that PEDCO study indicated, and my figures come out to 296,000 tons per year in 1990. I would state that this is a 700 percent underestimation of the air quality impact in this area. Also, some people will argue that this fugitive dust problem isn't really anything to worry about, but if we take the 296,000 tons per year, which I estimate would be pumped out of these mines into the air in 1990, 44,000 tons of that will be respirable. That means it is less than 10 microns, and can be inhaled into your lungs and cannot be coughed out. And that particulate matter tends to stay in the air for quite a long period, and is very damaging, not only to people, but to livestock.

Response. The estimate of total emissions given in the ES was based on the information available at the time the analysis was performed. The difference between the emissions figures given in the ES and the figure given in the comment could be due to one or more of the following reasons:

1) The figures presented in the comment were based on more mines than were analyzed in the ES.

2) In the comment, a figure of 1,750 tons per year per million tons of coal mined was used to derive the emissions figures. The ES analysis used a figure of 1.2 pounds per year per ton of coal or 600 tons per million tons of coal mined. The figure used in the ES analysis was based on the PEDCO (1978) study.

3) The calculation of the figures given in the comment may not have included the decrease in emissions associated with the mitigating measures outlined in the mining and reclamation plans submitted by the coal companies and the decrease associated with the use of best available control technology. Both of these factors were used in the ES analysis.

It is not clear how the determination of the quantity of dust in the respirable range (stated in the comment as below 10 microns; it is, in fact, in the .2 to 2 micron range) was made. It is normally necessary to establish the particle size distribution for a given aerosol to make this determination. None was made in connection with the ES analysis and none was presented or referenced in the comment.

8. I think it is interesting to note that the annual 24-hour standard will be violated in Gillette in 1990. I don't understand how significant that will be or for what term, but I think Gillette ought to really start looking at what air quality impact these mines are going to bring.

Response. The ES states that Wyoming annual and 24-hour standards for total suspended particulates may occur (Chapter 4 of the regional analysis) or would occur (Chapter 8, high-level scenario) in Gillette by 1990. However, it is further stated that with application of EPA's 43 CFR 118 regulations, no violations of standards would likely occur.

Significance of these changes in air quality cannot be expressed in human terms rather than numerical ones; effects on the human environment are dependent on particle size and chemical composition which are impossible to predict. A deterioration in air quality in Gillette would last for the life of the mines close to Gillette.

9. Also it is discussed in the impact statement that the exemption of fugitive dust exemption by the EPA this year means that there won't be any violation. I hope the Panel here and other people understand that is only an interim regulation, and hasn't been formally adopted by the EPA.

Response. The EPA regulations regarding fugitive dust (43 CFR 118) are interim, but were formally adopted after hearings and public comment procedures.

10. I think there are some glaring deficiencies also in the regional assessment of air quality in that all vehicle emissions were ignored. I think that is a very large mistake. The vehicle emissions on these dry county roads are very considerable, and the exhaust emissions here in town are getting to be pretty heavy too.

Response. The emissions from vehicles were not ignored. Exhaust emissions in cities are included in the projected levels of total suspended particulates and gaseous pollutants in urban areas. Exhaust emissions in rural areas and dust stirred up by vehicles on unpaved roads were considered in the impact analysis and probably contribute to baseline TSP and gaseous pollutant concentrations (see Chapter 2 of the regional analysis, Air Quality). Because vehicle-related fugitive dust and exhaust emissions come from intermittent sources, they were not included in air quality projections. The text has been amended to make these points clearer. See Chapter 4 of the regional analysis.

11. I would also like to make a short comment. It says construction impacts are not significant.

Response. The ES states that effects of construction on air quality would be temporary and would affect small areas. The impacts are therefore considered minor, not insignificant.

12. Also, I think the figures themselves are suspect and low because they did not consider car kills, wanton shooting, which is getting more and more prevalent and harassment by dogs, which are just another process that is also killing quite a bit of wildlife in the area. I think you ought to take into account all those other impacts.

Response. Figures for projected increases in game violations (including wanton shooting) and vehicle kills are available and have been added to the final ES. Figures for increased game losses due to harassment by domestic pets and train collisions are unquantifiable.

13. Fire, as discussed, this impact statement says, that the loss of vegetation due to fire will increase by 50 percent in 1990, and again you have to recognize that this is a grassland area, and most of the agriculture that is ongoing in the area depends on that grass, and to have a lot of fire, people throwing cigarettes out of their cars or hotboxes on railroad cars, you are going to then cut into agricultural productivity and ability of people to maintain sort of an ongoing agricultural process, which is really the one long term industry that is capable of maintaining itself here.

Response. As pointed out in the ES, the potential for fires would increase due to increased development. On the other hand, the ability to control fire would improve through better access, more people to discover, report, and fight fire, and more equipment. Fire could well have a significant short-term impact on agriculture, especially for the rancher who suffers a severe fire loss. Past experience indicates the ranges do recover from wildfire and are occasionally enhanced by fire.

14. Another big issue, water, as far as I can see, I think the consumption was grossly underestimated for coal mining in this area. . . . It doesn't mention the fact that approximately 217 acre-feet is inherent in each million tons of coal . . . and we are desiccating this land by mining all of that coal, which holds an incredible amount of water.

Response. Water in the coal that constitutes the moisture analysis is not available to either wells or plants. This is analogous to a soil which may have 15% moisture content but not have moisture available to plants. If this soil lost all its moisture, moisture to 15% plus of the volume would have to be added before any moisture was available to the plants. Removal of the coal does not constitute an impact to available regional water resources.

15. I had hoped this statement might look into the loads that are placed on existing power suppliers in the area. I have worked with this a little bit. I have got some figures I could throw out and maybe get the people in gear. I figured something around 1,000 kilowatts are demanded

per million tons of coal that entered-- let's see, I had better start again. One thousand kilowatts of energy by my figures are demanded for each additional million tons of coal that are mined in this area. Also, I think we ought to look into consumption of electricity consumed per ton of coal. I have on the average two to three kilowatt hours consumed per ton of coal mined. I would like the people here to check into see what that does in increasing electrical usage in the region and what that might do to original users in the area, and their rates. Are they having to subsidize this increase?

Response. The figures Mr. Zars cites agree with those of the Tri-County Electric Association, Inc. (Ecology Consultants 1976), which means power usage by coal mines would be about 272.5 million kwh, 421.5 million kwh, and 433.2 million kwh 1980, 1985, and 1990, respectively. The 230-kv line, to be constructed as discussed in Chapter 1 of the regional analysis, is designed to supply power demands of future mineral development so that power shortages do not occur. Pacific Power and Light Company (PP&L) operates on a cost recovery basis. They base rates on a given cost plus a certain amount of return. PP&L is regulated by the Public Service Commission of Wyoming (PSC), and PP&L cannot change any rate structures unless approved by the PSC. In recent years, as there is an increase in use of electricity, there is a cost increase to all customers. This is due mainly to the increased cost of resources used to generate and transport electricity.

16. All right, I will swing into the maps. I guess I only have one there, and that is what is called a "Regional Activity Map", is that correct? I think that on that map we ought to have all of the state leases put on there. By my reckoning, I think every state lease in Campbell and Converse County has been leased. Maybe one or two is left. I am not sure. But that is coming out to around 400 square miles of area, and I think we ought to get that on the map, and also discuss that as to what affect that will have on the impact of the area. I think people are considering mining those state leases along with federal.

Response. As of 1976, 493.4 square miles (or nearly all) of state land containing economically recoverable coal were under lease in the region (Glass 1976b). Most of these coal lands occur in scattered sections and are not economically minable without adjoining federal leases and/or fee coal, so the impact on regional development of the state leases alone is not considered significant. Map 3 in Appendix A shows mineral ownership, and this is adequate for the purposes of this ES.

17. I think there is a new Gillette citizen poll that came out in 1978. I think the 1977 one is referenced in there. You might be interested in picking that up and getting a little update.

Response. Information from the most recent poll has been incorporated in the final ES.

18. One thing I want to interject is, that a lot of the ranchers and farmers who live just west of the major coal outcrops of the major mines are being run through with a lot of transmission lines, and no one wants to put any of that facility on mineable coal, so they go over here and run their rail lines and car lines and everything else off of that coal, but

then on to the ranchers, and they are really having a lot of their land tied up by easements, and you can't build your shed or windbreak or anything of that order on it, and it really starts tying your land up, and we are having telephone lines and power lines pipelines and really getting to be a big right-of-way problem in this concentrated area, and it is a hard thing to handle, and it is a very significant impact once it is built upon.

Response. Response 20-1 explains that the Bureau of Land Management does have a policy regarding construction of transmission lines, but this policy is applicable only to rights-of-way on federal surface. More than 75% of the land surface in the region is privately owned, where locations of new powerlines could be controlled by state or county policy. Whether landowners grant permission for easements or the utility companies use condemnation procedures, the landowners are compensated to some degree for the use of their land. The visual impacts of powerline construction are discussed in Chapter 4 of the regional analysis as are impacts on agricultural operations.

Ed Swartz, Rancher

19. One thing that has never been clarified in my mind is, there are many of these prospecting permits still outstanding. I don't know whether those are under the control of the people who are going to make the decision of whether to issue any new leases in the Powder River Basin. If those are under the status of when they were originally issued, if they find some minable coal, they can go ahead and obtain a lease without any type of competitive bid or anything like that. This, to me, is a rip off to the people, and it is going to put a lot more coal land out, and is going to add a lot of impact.

Response. The Bureau of Land Management by written decision has rejected all coal prospecting permits in Wyoming. However, some of these decisions have been appealed and are presently in litigation.

Wally Wolfe, Human Services Confederation, Douglas

20. (The report) is not addressing, it seems to me, the human problems that occur because of energy development . . . For instance, the child abuse rate, . . . the (need for) rehabilitation of handicapped or disabled individuals . . . the need for foster or group home placements.

Response. The problems and statistics presented in this comment have been incorporated in the text. See Chapter 4 of the regional analysis.

James Resick, Powder River Basin Resource Council

21. I feel that the numbers do not reflect individual open pit solution and deep mine projects which are expected to be constructed in the very near future, nor those planned by companies for long range construction.

Response. We have updated much of our uranium data according to information provided by Wyoming Department of Economic Planning and Development (see response 26-1). As stated in Chapter 1 of the regional analysis, each uranium operation may consist of several open pit, solution, or

underground mines, developed concurrently or consecutively, depending on the distribution of ore bodies.

22. I bring this up, because I feel two conclusions can be made. First of all, there has been no real long term assessment of the amount of uranium mining that will take place.

The second conclusion that I come to, and in looking at this chart is, that it might be better from the format perspective to display the number of open pit and deep mines and solution mines which are projected for the Basin.

Response. The subject of this ES is the impacts of possible coal development in the region. The impacts of projected uranium development are included in the cumulative regional impact assessment. See also transcript response #21 and response 26-6.

23. Based on information available from the Wyoming Industrial Siting Administration, I believe that the annual water requirement for coal fired power plants has been projected too low.

Response. See response 15-1.

24. Looking also now at uranium operations, the water requirements as estimated for uranium operations . . . does not reflect . . . the amount of acre-feet which they intend to take from deep aquifers . . . and put it into the water courses.

Response. All water pumped from deep aquifers cannot be considered consumed. Consumed, as used in reference to water, usually refers to loss by evaporation or transpiration. In irrigation, for example, water that returns to the stream or the groundwater is not considered consumed. Some water pumped from deep uranium mines into formerly dry stream beds would evaporate, some would be taken up by plants, and some would flow into larger streams or return to the groundwater. Flowing water in a formerly dry stream bed can be considered beneficial for vegetation, livestock, and wildlife, if the water is of good quality.

See transcript responses #21 and #22 for an explanation of the depth of uranium mining impact analysis.

25. I guess the upshot of what I am pointing out with regards to uranium development in the Basin. I feel the environmental statement should assess more completely the probable levels of uranium production as well as concomitant impacts on water quantity and water quality. I think the cumulative affect on water supplies may be, much different then what has been assessed or estimated in the project during the environmental statement. I feel also that the high and low levels scenarios under the alternative selection under the environmental statement should assess in addition to the coal production in low and high level scenarios, it should also address high and low levels estimates for uranium production.

Response. See transcript responses #21 and #22 and response 26-6.

The following are written comments received on or before the December 26, 1978, deadline, and their responses.



State Conservation Commission

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WAYNE A. EDERTON CONSERVATION COMMISSION STATE EXECUTIVE
TIMOTHY J. KAUTZA DISTRICT PROGRAM CONSULTANT
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COMMISSION MEMBERS:
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PETER ARBE, AREA I DIRECTOR
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U.S. DEPARTMENT OF LABOR
MINE SAFETY AND HEALTH ADMINISTRATION
4015 Wilson Boulevard
Arlington, Virginia 22203



NOV 7 1978

November 1, 1978

MEMORANDUM

TO: Wyoming State Bureau of Land Management
FROM: Wyoming State Conservation Commission
SUBJECT: DRAFT ENVIRONMENTAL STATEMENT: PROPOSED DEVELOPMENT OF COAL RESOURCES IN THE EASTERN POWDER RIVER BASIN OF WYOMING (BUCKSKIN MINE)

I have reviewed the above named subject and offer the following comments for your consideration.

The descriptive soils information appears adequate for both the regional and site specific statements. However, I bring to your attention some possibly misleading information concerning topsoil handling and postmining use of the land.

'Topsoil Handling (30 CFR 715.16)' (page BU4-17) states, 'If a greater depth of topsoil material were replaced, such as 30 inches, along with the appropriate soil amendments, the long-term productivity of the site should equal or exceed the premining productivity.' On what study or data was this prediction based?

'Postmining Use of Land (30 CFR 715.13)' (page BU4-1) states, 'Long term soil productivity (and hence vegetative productivity) would eventually stabilize at 87% of premining levels on the Buckskin site, unless some modification of the reclamation plan raises the productivity.' The methodology used to calculate the productivity is taken from 'Potential Soil Capability Classification for Reclamation' by Rounsaville. Restoration of disturbed lands should require total consideration of soil, water, and site. Evidence is not provided to show that all necessary factors were considered when calculating future productivity of the reclaimed lands. The Rounsaville method has not been verified on mined lands, so why is it used to estimate anticipated soil productivity, when research has and is being done on mine sites?

PROTECT OUR HERITAGE through the Conservation of Wyoming's Natural Resources

Bureau of Land Management
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The publication, Soil, Water, Air and Sciences Research Annual Report, by the Science and Education Administration, supplies a list of publications concerning reclamation of mined land and also provides examples of recent progress made in the field.

TJK:mnn
cc: Don Daise, Assistant Commissioner of Agriculture

Letter 1 Responses

- 1. This prediction was based on the same document on which the remainder of the soils analysis of the Buckskin mining and reclamation plan was based, that is, Soil Investigation Specifications for Mining and Reclamation Proposals by Hayden Rounsaville, USDA--Forest Service, which, in turn, was based on the land capability and range site system of the USDA--Soil Conservation Service.
2. The proper name of the document used is Soil Investigation Specifications for Mining and Reclamation Proposals by Hayden Rounsaville, USDA--Forest Service. The text has been corrected. This document considers both physical and chemical properties of the soils present on each site and plant management systems as related to the climatic conditions of northeastern Wyoming. Abundant evidence shows that the soils resource available is the most important factor in successful reclamation, and this document provides the most consistent means for evaluating the soils resource in mining and reclamation proposals to date. This document concerns itself with the long-term capability (productivity) of the reclaimed site. Examples of apparent success in recent reclamation efforts would be meaningless in the long-term sense (more than 50 years), since the reclamation effort (with native species) on the northern plains is a method used only recently.

Team Leader
Bureau of Land Management
Coal ES Team
951 Union Boulevard
Casper, Wyoming 82601

Dear Sir:

In response to your undated letter (Reference 1792 (920)), we have only a few comments concerning your draft environmental statement for the Eastern Powder River Coal Region of Wyoming.

The information and analyses provided by the statement seem adequate and detailed in scope. None of the described environmental or socio-economic factors would have any effect on our program other than to require additional inspection and enforcement activities when new mines are eventually opened.

We thank you for the opportunity to provide these comments.

Sincerely,

Robert B. Lagather
Robert B. Lagather
Assistant Secretary for
Mine Safety and Health

Letter 2

No response required.

Scott M. Matheson
Governor



Kent Briggs
State Planning Coordinator

STATE OF UTAH
Office of the
STATE PLANNING COORDINATOR
118 State Capitol
Salt Lake City, Utah 84114
(801) 533-5245

November 22, 1978

Team Leader
Coal ES Team
951 Union Blvd.
Casper, WY 82601

Dear Sir:

The Utah State Environmental Coordinating Committee has reviewed the Draft Environmental Impact Statement for the Eastern Powder River Coal, Cheyenne, Wyoming. The Committee offers no comment.

Thank you for the opportunity to comment.

Sincerely,

Lorayne Tempest
Lorayne Tempest
Assistant State Planning Coordinator

LT/jb F-1

Letter 3

No response required.



**CITY OF GILLETTE — CAMPBELL COUNTY**  
**Department of Planning and Development**

P.O. BOX 3003 GILLETTE, WYOMING 82716 PHONE (307) 684-1222

November 28, 1978

Ms. Julie Elfving  
 U.S. Department of Interior  
 Bureau of Land Management  
 Casper, Wyoming 82601

Re: Draft Environmental Statement, Eastern Powder River Coal, Public Hearing, Gillette, Wyoming - November 28, 1978

Dear Ms. Elfving,

Mr. Al Strassle, Director of the Converse Area Planning Office, will be unable to attend the public hearing in Gillette on November 28th. He has, however, asked that I present the attached material on his behalf relative to the draft environmental statement - Eastern Powder River Coal. I will present his concerns along with my testimony at the public hearing on November 28th.

I hope this information will be considered in the preparation of the final environmental statement. Both Al and I encourage you to consult with us in the preparation of the final statement.

Very truly yours,

Joseph A. Racine  
 Director

JAR/1gv  
 Attachment  
 cc/ Al Strassle

Converse County  
 Municipal and County  
 Joint Powers Board

Glenrock--Douglas--Converse County

Converse County Courthouse  
 Box 1303  
 Douglas, Wyoming 82633

(307) 358-4066

**CONVERSE AREA PLANNING OFFICE**

November 24, 1978

Joe Racine  
 Dept. of Planning and Development  
 Box 3003  
 Gillette, Wyo 82716

Re: Draft Environmental Statement - Eastern Powder River Coal

Dear Joe,

Pursuant to our telephone conversation this afternoon, I have reviewed portions of the Draft Environmental Impact Statement. I feel some of the comments that relate to Douglas and Converse County are equally applicable to your local governments. While I have other obligations and cannot be at the hearing, I will furnish you with my concerns and will send a copy to the Bureau of Land Management.

Population Estimates - It would appear that we have a recurring problem with population estimates for our counties. Our office has done population estimates and projections for Douglas, Glenrock, and Converse County. Comparing those to Table R4-13 on Page R4-45 of the Environmental Impact Statement, I question the validity of those population projections in the Impact Statement. The estimated population in the Impact Statement for Douglas, for example, is what we estimated our population to be in 1974. That is four years ago. The Table in the Environmental Impact Statement makes some reference to the University of Wyoming in 1978, and in checking the bibliography, there does not appear to be a more definitive in that reference source. Not knowing the methodology used in the population projections in the Environmental Impact Statement, I can only state the methodology used by this office. That being that an inventory of the Assessor's records was made on all dwelling units in Converse County of single-family residence, multi-family or apartment, and those records updated with building permits issued in the towns of Glenrock and Douglas; the HUD reporting forms were furnished us by the Building Inspectors of the two towns. These estimates were cross-checked with the franchised utilities in the towns, and with the towns' water usage and water meters.

Using the above method, we feel we have a valid base from which to project our population. Once this base was established, employment figures from the major employees within the County were given us, and these figures plugged into the basic service multipliers and the projections given over the next six years.

Joe Racine  
 November 24, 1978  
 Page two

I personally feel, especially in the case of Converse County and its towns, that the accumulative population projections in the Environmental Impact Statement are invalid due to the simple fact that the 1980 estimated population is approximately 3,000 people less, in the case of Douglas, than the population now being served in the Town of Douglas by municipal services and the other utilities. A copy of our office's population projections are enclosed. The copy will further explain the method by which population is projected within this county.

The next area of concern I have is in Housing. On Page R4-51, Table R4-16, Projected Cumulative Housing Demand. The 1977 Housing Stock for Douglas and Glenrock are obviously taken from the Land Use and Housing Plan of Converse County prepared in December of 1977 by this office. Unless the same methods were used for the other cities on the chart, it would be difficult to compare figures between the various towns. Before the above referenced Table could be considered usable, I believe the source for the 1977 Housing Stock information should be noted and a check made for consistency between the various municipalities to see if the figures are comparable. Also in presentation of the information on the chart, it is difficult to understand what is taking place where 1977 Housing Stock information is given. Then, there is another column noted, "The Additional Demand for Housing Units", and it gives the 1977-1990 total number of units. Not knowing whether those are additional units above the 1977 Housing Stock and the various categories for the cumulative number of units with the additional being added to the 1977 stock, i.e., in the case of Gillette. Total housing units 3,845 were the 1977-1990 total number of units, 4,093. Is that 4,093 additional units, or is that 148 housing units in addition to those existing in 1977? The chart is confusing on this point.

I would hope that you would be able to review my comments in light of the situation in the City of Gillette and Campbell County. If my criticism seems appropriate, please present it for the two of us on the date of the hearing.

If you have any questions concerning this, feel free to contact me at your convenience.

Sincerely,

A. R. Strassle, Director  
 Converse Area Planning Office

cc: PRBRC  
 BLM

Enclosures

Letter 4 Responses

1. Thank you for the revised population data. We have used information provided by the Converse Area Planning Office, the City of Casper, and the City of Gillette/Campbell County Department of Planning and Development to revise population base and projection figures in the ES. See particularly Chapters 2, 4, and 8 of the regional analysis.
2. It is acknowledged that municipalities may differ in their estimating procedures. However, the table is not used to make comparisons among municipalities. Rather, the current housing inventory in each community--in terms of number and types of dwelling units--is compared with projected trends in housing demand for that community. The heading on the table has been altered to eliminate confusion, and a source line has been added.

WILLIAM E. GREER 5  
Box #13  
Gileadee, Wyoming  
82316  
Nov. 28, 1978

In relation to the hearing held in Sillitoe Nov. 28, I am writing to make a comment or two.

Living just 1/2 to 3 miles North of the Carter Caballo and AMAX mines South of Sillitoe, we have experienced about all the impact problems (traffic, trespassers, poaching, trash dumping, housing developments, etc) and are constantly threatened with Power Lines and Railroads cutting up our duded and leased lands. I don't know how much "progress" we can stand.

However, the main thing I would like to tell you about is a more urgent problem. We have 2 wells that have recently dropped down to barely pumping

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- 2 -

but, for years, have pumped 9-14 gallon per minute. The water level has just continued to fall this past year. Also one permanent spring has quit flowing completely.

Of course, we can not prove it, but I firmly believe the vast amounts of water they are pumping out at the coal mine areas are affecting our water supplies.

In spite of what the coal companies say, I think they are indirectly destroying our land, our way of life and are not concerned about the rancher.

Respectfully yours,  
Bill Greer

Letter 5 Responses

1. Chapter 4 of the regional analysis recognizes the potential for mining operations to adversely affect water supplies. The section on laws and regulations in Chapter 3 of the regional analysis has been expanded to include a section on water rights.

6



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE  
Billings Area Office  
Federal Building, Room 3035  
316 North 26th Street  
Billings, Montana 59101

IN REPLY REFER TO:  
ES--EC #78/49

November 30, 1978

MEMORANDUM

TO : Team Leader, Coal ES Team, Bureau of Land Management, 951 Union Blvd., Casper, WY 82601

FROM : Area Manager, Billings, MT (ES)

SUBJECT: Review of Draft EIS for Eastern Powder River Coal Region of Wyoming (EC 78/49)

We have reviewed the parts of the subject EIS that are pertinent to our expertise. We have only minimal comments. These follow:

We are concerned, but realize that interim regulations are so written, that reclamation must include plant species valuable to wildlife only if wildlife is to be a post-mining land use. However, we believe the regulations will permit, and we much prefer, to see plants species beneficial to wildlife become part of any reclamation seeding program regardless of the post-mining land use designation.

Several times in the draft EIS the wildlife mitigation alternative recommends that wildlife habitat be restored using "all possible means and regardless of cost." We strongly support the concept of wildlife mitigation and habitat restoration. However, we feel that caution should be exercised in the wording of such recommendations. We suggest the referred to language be reworded to reflect the idea that, "all reasonable means" should always be employed, but without suggesting that cost should never be considered in determining what is "reasonable."

On page R3-6, under Vegetative Wildlife, it is stated that the Bald Eagle Act prohibits mining where it would disturb eagles. This is not entirely correct. The Act does prohibit molestation of eagles and their nests. However, it does not mention specific activities such as mining in connection with the provision. In this regard, it should be mentioned that recent amendments in the Act authorize the Secretary of the Interior to promulgate regulations to permit "the taking of golden eagle nests which interfere with resource developments or recovery operations." The regulations have not yet been formulated.

3 | In general, we believe this statement is one of the better ones we have reviewed. It might be more understandable if mitigation measures could be better identified with and related to associated impacts.

*Bryce Barker*

cc: Regional Director, USFWS, Denver, CO (BNV)  
FWS/EC/ES, Washington D.C.

Letter 7 Responses

1. The text has been revised to indicate that there are scattered stands of sawtimber-size trees. See Chapter 2 of the regional analysis, Forest Resources.
2. The text says "considered" (not "considerably") more important. It is true that the main form of recreational use is hunting; however, picnicking and camping have been observed in these forests. The text has been revised to indicate that the main form of recreational use is hunting. See Chapter 2 of the regional analysis, Forest Resources.

Letter 6 Responses

1. The text has been changed to incorporate these suggestions.
2. The text has been revised to incorporate these statements.
3. Mitigating measures for the site-specific analysis are identified with impacts in Table BU4-1.



December 1, 1978

Team Leader  
Coal ES Team  
951 Union Blvd.  
Casper, WY 82601

Dear Sir:

We would like to thank you for the opportunity to comment on the draft environmental statement for Eastern Powder River Coal. As the draft statement mentions, there is very little commercial timber land in this area.

On page R2-71 under "Forest Resources" in the paragraph two, you address sawtimber primarily. In paragraph three you mention post, poles, cones, fuel wood, etc. Then in the fourth paragraph you are talking about wood fiber. We cannot disagree with the generalized statement, but it gives a false impression. There are good stands of timber in the northern part of Campbell County, but they are small in acreage. Even with all the timber in the area, the reason for the lack of timber industry development is primarily based on the scattered nature of the good stands of timber along with the poor quality and stocking of the remaining timber. There is enough wood fiber in the area to support some type of timber industry, but the transportation costs do not make it economical at the present time.

In the concluding paragraph (paragraph four), you state "... ponderosa pine forests are considerably more important for wildlife habitat and recreation than for wood fiber." We question the importance of the area for recreation except possibly hunting. There is little water or other recreational uses in this area.

*Bryce Barker*  
Bryce Barker, President  
Wyoming Timber Industry Association

cc:Bryce Lundell

BB/je

OFFICE OF THE DIRECTOR



United States Department of the Interior

BUREAU OF MINES  
2401 E. STREET, NW.  
WASHINGTON, D.C. 20241

December 5, 1978

Memorandum

To: Team Leader, Coal ES Team, Casper, Wyoming  
From: Director, Bureau of Mines  
Subject: Eastern Powder River Regional Coal Environmental Statement

This environmental statement covers an area that will probably be a major source of coal production for many years. The statement in general is well done, and we offer the following comments to strengthen and improve the mineral resources discussion.

1 | The statement notes that minable coal underlies 90 percent of the area and represents 50 percent of Wyoming's coal and 84 percent of its stripplable coal, but more should be said about the national importance and unique character of the unusually large resource of stripplable, low-sulfur, thick-bedded coal that occurs here.

2 | An important relationship illustrated on the maps of appendix A that should be more thoroughly discussed in the text is the extensive private surface ownership (75 percent is a number used) but the high Federal mineral ownership. The cooperation required between private surface owners and the Federal mineral managers to effect efficient development of the mineral resource is a consideration in determining a Federal course of action and should be addressed more specifically.

3 | An important conservation and cost factor that deserves discussion in the chapter on alternatives is the fact that the thick coalbeds found in the Eastern Powder River area permit a large volume of coal to be produced per unit of surface area disturbed with less coal resource loss.

4 | On page BU3-31 in the section on mineral resources, the "... consumption and loss of coal resources." is stated as an impact. We do not believe that utilization of a resource should be equated with a "loss" of that resource and suggest deleting the word. It is not used in this context elsewhere in the statement.



U A map identifying mines and other resource locations would be appropriate in chapter 1, Description of Regional Development. There are a number of good maps in chapter 2 and map R8-10 in chapter 3 that would be more helpful in chapter 1.

Results of surveys on local attitudes toward development, given in the description of the present regional environment, are more extensive than seen elsewhere and present interesting insight into that side of the mine development proposal.

As was done in the southeast Wyoming regional coal environmental statement, the transposition of the subject matter in chapters 3 and 4 from their normal order seems to make sense by avoiding setting up potential impacts, which then are routinely disposed of by application of existing laws and regulations. This helps focus in on the real potential problems.

Overall, we consider this to be an exceptionally well done environmental statement, and we appreciate the opportunity to review it.

Adel Director

Letter 8 Responses

1. The text has been revised. See Chapter 2 of the regional analysis, Mineral Resources.
2. Chapter 3 of the regional analysis, Institutional Relationships, Relationship with Private Interests, discusses the relationship of federal (and state) mineral managers and private surface owners. The percentages of federal, state, and private surface and mineral ownerships have been added.
3. The draft ES on the Federal Coal Management Program (December 15, 1978) discusses this and other matters which involve national rather than regional consideration.
4. The text has been revised. See Chapter 3 of the site-specific analysis, Mineral Resources.
5. Map 1 in Appendix A shows the regional developments discussed in Chapter 1. Figure R8-10 shows locations of possible future coal development under the high-level scenario; it is not relevant to Chapter 1.

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2. Shaping of Overburden. No consideration given to leaving highwalls for raptor nesting sites; etc. - south and east aspects would be best.

3. General Comments.

- a. Map 5 is inaccurate, especially in location of riparian areas as on Sand Creek in Converse County.
- b. Mis-identification of Antelope Creek below Junction with Porcupine Creek as the South Fork Cheyenne River.

C. Soils Portion of the Proposed Buckskin Mine

It seems as though the 87 percent vegetation and soil productivity figure is a liberal interpretation. Considering the post-mining contours, there may be as much as 100 acres around the perimeter where slopes exceed 30 percent. Approximately one-half of these slopes will be on south or west aspects. A considerable amount of water can be expected to be lost as runoff or increased evapotranspiration from these areas. Landforms with these properties will act as shallow loamy range sites, as previously postulated. This would reduce average productivity from 1200 to 900 pounds per acre on about 100 acres, and would decrease overall productivity to less than 85 percent of original, further degrading reclamation potential.

The regraded highwalls may prove very difficult to reclaim. One experience has shown that overburden dumps with 3:1 side-slopes exhibited severe hill and gully erosion during this Spring's precipitation. This problem could occur along Spring Draw on the north side of the proposed Buckskin Mine site. Regraded spoils piles should be taken to a 5:1 slope in every case to mitigate the above comments.

It should be noted that on the Buckskin Mine site, two soils are present where there may be excess suitable material outside the range of the standard soil survey. The Haverson and Olney series may have suitable material below a depth of 50 or 60 inches that is normally not considered in mapping the surface soils. Another noteworthy item is the fact that the

UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
Thunder Basin National Grassland  
809 South 9th Street  
Douglas, Wyoming 82633

2820  
December 4, 1978



Team Leader  
Coal ES Team  
951 Union Blvd.  
Casper, Wyoming 82601

Dear Sir:

The following are the comments and points I feel should be considered in the preparation of the final Eastern Powder River Coal Environmental Statement:

A. Chapter 2, Regional Analysis

1. Page R2-44: Endangered and/or Threatened Species. The Bald Eagle is a winter resident, especially along the Cheyenne River Forks, Antelope Creek, Porcupine Creek and the North Platte River.
2. Appendix A, Map #7 - Black tailed prairie dogs. Thirty-nine towns have been identified on Thunder Basin National Grassland compared with fourteen shown by your map.
3. Chapter 3, Page R3-9 - U.S. Forest Service Planning. The overall objectives on the Grasslands emanate from the Multiple-Use Sustained Yield Act of 1960, the Forest and Rangeland Resources Planning Act of 1974 (RPA) and the National Forest Management Act of 1976.

B. Proposed Buckskin Mine

1. Chapter 1, Page BU-17 - Present and Future Land Use. It seems to me that only token consideration is given to reclaiming the area for wildlife habitat. How many wildlife areas will there be? Why not reintroduce big sagebrush in suitable areas or at least replace the shrub component.

heavy clay loam and clay subsoils of the Renohill Soil Series may be suitable for subsoil replacement material, capped with a loamier more friable material for a plant growth medium. This would require segregation during stripping operations and close supervision to avoid undesirable mixing of the materials; however, the end result, combined with the suitable material below the 50 or 60 inch depth in the series mentioned above, could result in 100 plus percent of pre-mining productivity if all suitable material was recovered.

Thank you for the chance to comment.

Sincerely,

JACK D. CAMERON  
District Ranger

Letter 9 Responses

1. The text has been changed to include this new information. See Chapter 2 of the regional analysis.
2. Map 7 has been revised to show many more prairie dog towns throughout the region. The Forest Service and the Thunder Basin Grazing Association provided new data for the Thunder Basin National Grasslands.
3. The text has been corrected. See Chapter 3 of the regional analysis.
4. Wildlife areas, as proposed by Shell Oil Company, would include the cooler, north-facing slopes and the drainages. Wild rose and fourwing saltbush would be used as the shrub species in these areas. The number of these areas would not be known until final reclamation plans are approved.

The Wyoming Department of Environmental Quality (DEQ), in consultation with GS, BLM, and OSM, will give final approval for all seeding mixtures and rates. Before this approval is given, the agencies will consider the surface owner's plans for postmining land use. Final approval should be consistent with the surface owner's wishes.

Sagebrush is not currently a required replacement in areas where it occurred prior to mining.

5. Wyoming DEQ regulations currently prohibit leaving ungraded highwalls (Chapter 2, Section 4.c.9 of Wyoming Land Quality Regulations, September 1978).
6. Map 5 has been corrected to more accurately delineate the riparian areas.
7. The regional maps in Appendix A have been corrected.
8. The Buckskin Mining and Reclamation Plan (May 1977) states that most post-mining slopes would not exceed 30X, in fact most slopes would be around 1X. Very short slopes may exceed 30X where disturbed areas meet steep undisturbed lands. It is recognized that these small steep areas would have a reduced productivity from the average figure cited, but it is felt that the much larger relatively flat areas would offset any productivity loss on the small steep areas.

See response 14-49 for more detail.

9. Final reclaimed slopes must meet federal and state requirements. Mulching, fertilization, and irrigation would be used where necessary and as required to establish a vegetative cover. These measures are designed to alleviate the problem of rill and gully erosion.

10. We agree that there may be suitable material for topsoiling below the 60-inch depth in the Haverson series (which is developed in alluvium) and possibly in the Olney series. Shell has stated in their mining and reclamation plan (May 1977) that they intend to put at least 18 inches of topsoil on the reclaimed site. A greater amount of topsoil could be obtained. State and federal regulations require that all available topsoil be salvaged.

See response 14-49 for more detail.



IN REPLY REFER TO:  
DES 78-48

United States Department of the Interior

HERITAGE CONSERVATION AND RECREATION SERVICE  
MID-CONTINENT REGION  
DENVER, COLORADO 80225  
MAILING ADDRESS: Post Office Box 2501, Denver Federal Center, Denver, Colorado 80225  
STREET LOCATION: 601 Miller Court, Lakewood, Colorado, Telephone 251-2611

DEC 9 1978

Team Leader  
Coal ES Team  
951 Union Blvd.  
Casper, Wyoming 82601

Dear Sir:

We have reviewed the Draft Environmental Statement for the Eastern Powder River Coal Region of Wyoming in accordance with undated instructions from the Bureau of Land Management State Office, and have the following comments.

Page R4-29 states, "Cultural resource sites in uninventoried areas may suffer the greatest adverse effect since salvage cannot be conducted on unknown sites." This appears to be contradictory to the statement on page R3-6 that approval for mining and right-of-way across public lands will not be given until cultural resource surveys have been done. If this is the case, ground disturbing activities should not be taking place in uninventoried areas, and damage to sites in those areas should be lessened or avoided. The Final Statement should clearly describe what activities may take place in uninventoried areas which could result in damage to cultural resources, discuss mitigation measures for such damage, and clarify this apparent contradiction.

While page R9-2 notes that the State of Wyoming Clearing House will coordinate the State's response, there is no definite indication that the State Historic Preservation Officer (SHPO) will be given a chance to comment. If comments are not received from the SHPO through the Wyoming State Clearing House, we recommend that such comments be requested and included in the Final Environmental Statement. The Wyoming SHPO is Mr. Jan Wilson, Director, Wyoming Recreation Commission, 604 East Tenth Street, Box 309, Cheyenne, Wyoming 82001, phone (307) 777-7695.

Sincerely,

*Robert J. Arkins*  
Robert J. Arkins  
Assistant Regional Director  
Land Use Coordination

UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
MEDICINE BOW NATIONAL FOREST  
905 Skyline Drive  
Laramie, Wyoming 82070  
2800  
Eastern Powder  
River Coal  
December 4, 1978



Team Leader  
Coal ES Team  
951 Union Blvd.  
Casper, WY 82601

Dear Sir:

The following are comments concerning the Eastern Powder River Coal Environmental Statement.

1. Summary - Under Section 2, Brief Description of Action, the statement that 4 million tons of coal will be produced by 1985, then 4 million tons by 1990, and then 4 million tons until the end of the mine life seems confusing.
2. Chapter 3, page 10 - The National Grasslands are not managed in accordance with the Multiple-Use Sustained-Yield Act of 1960; they are managed under the principles of the M/U Sustained Yield Act. The correct law for managing National Grasslands are the Resource Planning Act and the National Forest Management Act.
3. BUI - Socioeconomic Conditions - Under this section, there appears to be no mention of the revenue that will be collected from royalties.

Basically, we found the report to be professionally prepared and commend you on your efforts.

*Donald L. Hollens*  
DONALD L. HOLLENS  
Forest Supervisor

Letter 10 Responses

1. The summary has been rewritten.
2. The text has been corrected. See Chapter 3 of the regional analysis.
3. Mineral royalties are discussed as a potential source of revenue in Chapter 2 of the regional analysis. Mineral royalties were taken implicitly into consideration in estimating future county revenue flows. (Municipalities do not receive revenues directly from this source.) Royalties are not explicitly discussed in the socioeconomic portion of the site-specific analysis, because that section concentrates on the public finances of three municipalities--Gillette, Douglas, and Glenrock.



United States Department of the Interior  
BUREAU OF RECLAMATION  
Upper Missouri Region  
P.O. Box 2653  
Billings, Montana 59103

IN REPLY  
REFER TO: UM-415  
120.1

DEC 7 1978

Memorandum

To: Team Leader, Coal ES Team, Bureau of Land Management,  
951 Union Boulevard, Casper, Wyoming 82601

From: Regional Director, Bureau of Reclamation, Billings, Montana

Subject: Draft Environmental Statement for the Eastern Powder River  
Coal Region of Wyoming (DES 78-48)

The proposed development of coal resources should have no effect on projects of the Bureau of Reclamation. Thank you for the opportunity to comment on this Draft Environmental Statement.

*E.R. Wells*  
E. R. W.

Letter 12

No response required.



DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE  
PUBLIC HEALTH SERVICE  
CENTER FOR DISEASE CONTROL  
ATLANTA, GEORGIA 30333  
TELEPHONE: (404) 633-3311

December 6, 1978

Team Leader  
Coal ES Team  
Department of the Interior  
951 Union Boulevard  
Casper, Wyoming 82601

Dear Sir:

We have reviewed the draft environmental statement for the Proposed Development of Coal Resources in the Eastern Powder River Basin of Wyoming. We are responding on behalf of the Public Health Service.

After a cursory review of the document, we were unable to determine if the water demand from the proposed projects would significantly impact on the local aquifers so as to affect public water supplies in the area. Also, we were curious to know if the affected aquifer has been designated as a sole source aquifer by the Environmental Protection Agency.

Other than the above comments, this document seems to thoroughly analyze all aspects of coal development as related to the project.

Thank you for the opportunity of reviewing this document. We would appreciate receiving a copy of the final statement when it is issued.

Sincerely yours,

*Frank S. Lisella*  
Frank S. Lisella, Ph.D.  
Chief, Environmental Affairs Group  
Environmental Health Services Division  
Bureau of State Services

Letter 13 Responses

1. The text in Chapter 3 of the site-specific analysis, Water Resources, has been changed to clarify the probable impact on public water supplies.

There have been no aquifers designated sole source in the Powder River Basin (personal communication, Paul Osborne, EPA, Denver 1978).

12

Shell Oil Company



Two Shell Plaza  
P.O. Box 2099  
Houston, Texas 77001

December 6, 1978

Coal ES Team  
ATTN Ms. Julie Elfving  
Team Leader  
951 Union Boulevard  
Casper, Wyoming 82601

Dear Ms. Elfving:

Attached are three sets of our comments on the Buckskin Mine site specific portion of the Draft Environmental Statement for the Eastern Powder River Coal Region of Wyoming. We are not offering any comments on the Regional Analysis portion of the statement.

If you would like to have further explanation of our comments, we would be pleased to discuss them with you. Also, please do not hesitate to contact us if you need additional information concerning our proposed Buckskin mining operation.

Very truly yours,

*N. J. Ito*  
N. J. Ito  
Manager Mining  
Mining Ventures

Attachments

14

13

14

COMMENTS ON THE BUCKSKIN SITE SPECIFIC ANALYSIS  
OF THE EASTERN POWDER RIVER BASIN COAL  
DEVELOPMENT DRAFT ENVIRONMENTAL STATEMENT  
Submitted By  
Shell Oil Company

Comment 1

Page BU 1-1 Surface Mining Control and Reclamation Act

On November 12, 1978, Shell Oil Company submitted revised Mining and Reclamation Plans to the Wyoming Department of Environmental Quality, The U. S. Geological Survey, and the Office of Surface Mining. These plans meet the initial regulatory requirements of 30 CFR 700 (FR 42:62639; December 13, 1977), revised 30 CFR 211 regulations (FR 43:47181; August 22, 1978), the amended Wyoming Environmental Quality Act (1978), and revised Wyoming Department of Environmental Quality, Land Quality Division regulations (September, 1978).

The Statement is made in this section of the draft Environmental Statement (DES) that "the mining and reclamation plan cannot be approved until it conforms to all applicable Federal requirements" We believe that the revised plans submitted on November 13, 1978 conform to all applicable Federal requirements.

It should be noted that several of the drawings have been revised, perhaps requiring revision of corresponding figures in the DES, including Figures BU 1-4, BU 1-7, BU 1-8, BU 1-11, and BU 1-12 and Tables BU 1-1, BU 1-2, and BU 1-3. We would be pleased to provide the drawings at appropriate scale for inclusion in the DES.

Comment 2

Page BU 1-1 Proposed Action, Purpose and Objective

The revised plans which were submitted on November 13, 1978 show that the mine is now designed to produce approximately 1.2 million tons of coal per year for the first three years of production and expanding early in the fourth year to a production rate of approximately 6 million tons. The DES noted that 18 million tons of coal reserves had been committed. The additional customers which we have secured will require approximately 60 million tons of coal at a rate of 5 million tons per year beginning in 1984. This coal will be shipped by rail to the Gulf Coast Area.

Comment 3

Page BU 1-1 Proposed Action, Purpose and Objectives  
BU 2-17 Mineral Resources  
BU 5-2 Unavoidable Adverse Impacts

The DES states "that only 80 million tons of the 84 million tons of reserves would be extracted, because current mining technology does not permit the economic separation of the remainder from overburden and partings." This statement is not entirely correct. Approximately 1.4 million tons of the unrecovered coal will remain in the lease boundary highwalls, as depicted on Exhibit 8 of the Mining and Reclamation Plans. Further, this coal is not "lost" because it is recoverable when mining adjacent leases.

Comment 4

Page BU 1-2 Proposed Action, Location and Site Description

This section discusses the encroachment agreement we have with Carter Oil Company. The railroad spur is not included in this agreement. A separate agreement is being negotiated with Carter concerning the railroad. Shell Oil Company will purchase rights-of-way for both a railroad and access road.

Comment 5

Page BU 1-2 Proposed Action, Employment  
BU 3-32 Socioeconomic Conditions, Economic Impacts, Employment

The DES states that "During the construction phase, Shell estimates employment at 25."

We recognize that the DES has concentrated on some specific years in their analysis of the proposed project. However, it is misleading to state that construction employment will be 25 persons. This number is an approximation of the average number of employees needed during the first year construction begins. As discussed in the Buckskin Environmental Analysis which was submitted to the U. S. Geological survey in July 1977, maximum construction employment is expected to be approximately 262 employees during the second year of construction. Shell intends to assist in providing housing for this construction work force.

Comment 6

Page BU 1-2 Proposed Action, Employment

The revised Mining and Reclamation Plans discuss a maximum production rate of approximately 6 million tons per year. When the mine reaches full production at this rate, employment will be approximately 156 persons.

Comment 12

Page BU 1-10 Proposed Action, Coal Deposit

The DES states, as did our original Mining and Reclamation Plans, that the coal beds dip at approximately 3 degrees to the northwest. Our revised Plans now correctly indicate that the dip within the mine area is approximately one degree to the west and northwest.

Comment 13

Page BU 1-10 Proposed Action, Mining Sequence

The DES states that "The company has chosen this layout to provide for blending areas of high-sulfur coal (located in a pocket close to the facilities area) with areas of low-sulfur coal, in order to meet Environmental Protection Agency standards." The reason the coal is being blended is to meet customer requirements, so that when the coal is burned the emissions will meet EPA standards.

Comment 14

Page BU 1-10 Proposed Action, Mining Process and Procedures, Topsoil Removal

The DES states that "It is anticipated that approximately 500 tons of topsoil could be moved per day by one 30-yard-capacity scraper." We believe this severely underestimates the capability of a scraper. Our letter of February 1, 1978 to Mr. Newby of the U. S. Geological Survey discussed the amount of topsoil that would be moved per day. We stated that "Topsoil will be removed with one scraper operating 190 shifts per year, 78 miles per shift. Topsoil removal will average 1,414 bank cubic yards of material moved per day." Our revised plans indicate that we will utilize two scrapers; Exhibit 28 indicates the yearly volume of topsoil to be moved.

Comment 15

Page BU 1-15 Proposed Action, Mining Process and Procedures, Overburden Removal

The DES states that "Overburden removal would require shifting approximately 10,000 tons of material per day..." In our letter of February 1, 1978 to Mr. Newby, we stated that an average 15,056 bank cubic yards of material will be moved per day. The revised plans will require moving a greater amount of material per day, as indicated by Exhibit 28.

Comment 7

Page BU 1-2 Proposed Action, Support Developments, Roads

Scoria which is exposed during the mining operation will be utilized; scoria will also probably be purchased locally.

Comment 8

Page BU 1-2 Proposed Action, Support Developments, Railroad Spur

The proposed Buckskin railroad spur will not connect to Carter Oil Company's spur: It will connect with the Burlington Northern Gillette North Line at about the same point where Carter's spur connects to the Gillette North Line, in Section 19, T 51 N, R 71 W.

Comment 9

Page BU 1-2 Proposed Action, Support Developments, Railroad Spur and Power Lines

The Buckskin railroad spur would require a right-of-way about 250 feet wide, with a maximum cut and fill width of about 800 feet, rather than the 100 feet stated in the DES. Total disturbance for the railroad will not exceed 200 acres.

Comment 10

Page BU 1-2 Proposed Action, Support Development, Railroad Spur

The DES states "There is a very small quantity of mineable coal under the railroad right-of-way, but the coal lessee (Carter Oil Company) does not anticipate mining any of it (personal communication, Larry Urey, Shell Oil Company, 1978)." It is true that there is a small quantity of coal under the railroad right-of-way. We do not, however, know what Carter Oil Company's mining plans are. The subject has been discussed with Carter Oil relative to our purchase of a railroad right-of-way. We have agreed that if Carter desires to mine this coal while our railroad is in place, we will move the railroad to accommodate their mining operations.

Comment 11

Page BU 1-6 Figure BU 1-4

This drawing shows that part of our access road crosses property not owned by Carter Oil Company. This interpretation is incorrect, as shown on the Surface Ownership Map, Appendix E-3, Application Section, Volume II, Buckskin Mining and Reclamation Plans. The access road crosses only property which is currently owned by the Carter Oil Company. We intend to purchase an access road right-of-way from Carter.

Comment 16

Page BU 1-15 Proposed Action, Mining Process and Procedures, Coal Mining, Loading, and Hauling

The DES states that "The highwall slope would be about 1:0.6." Our plans indicate that the active highwalls will have overall slopes, including roads, of 1:0.4 to 1:0.6, depending on road width.

Comment 17

Page BU 1-15 Proposed Action, Mining Process and Procedures, Coal Handling

The DES discusses the use of a "surge stockpile" of coal. Our approved Air Quality permit has granted us the use of a temporary stockpile of approximately 6,000 tons, to be constructed only during crushing/conveying equipment breakdowns. This stockpile will normally be in existence less than 24 hours at a time and probably less than five times per year.

Comment 18

Page BU 1-15 Proposed Action, Mining Process and Procedures, Watercourse Diversions  
BU 1-16 Figure BU 1-11

The DES discusses the diversion of Rawhide Creek as it was presented in the original Mining and Reclamation Plans. We would like to point out that the diversion channel design has been completed, with minor modifications. The rail loop has been moved as far north as possible and culverts provided; therefore, the second diversion near the eastern boundary of the lease area, as shown on the original plans, is no longer required.

Comment 19

Page BU 1-17 Proposed Action, Reclamation Activity, Present and Future Land Use

It is true that we intend to reclaim the land to a primary use of grazing. We are not requesting a land use change where there are currently cultivated fields, because the disturbance to the cultivated fields will be minimal. Surface topography will change very little in the area of the cultivated fields. Topsoil will be replaced. We propose, at this time, to seed the cultivated fields with the standard reclamation mixture since we do not know what type of agricultural practices will be conducted in the area at the time when mining has been completed. The fields can readily be returned to cultivation by plowing under the vegetation established on the area. Therefore we do not believe these proposed actions constitute a land use change.

Comment 20  
Page BU 1-17 Proposed Action, Reclamation Activity, Shaping of Overburden (Backfilling)

21 | The DES states "Final shaping of the overburden would be done prior to the placement of topsoil, and would normally occur during the period when seeding of the permanent cover is impractical..." We intend to shape overburden prior to the placement of topsoil, but such shaping activities will occur throughout the year.

Comment 29  
Page BU 2-6 Figure BU 2-4

30 | This figure shows an interpretation of the top and base of the coal, and says that this was interpreted from Shell Oil Company. We have supplied no information from which these interpretations can be made. In fact, several of the maps contained within the Mining and Reclamation Plans show an erosional/burn limit of the coal which does not correspond to the interpretations on Figure BU 2-4. We disagree with the interpretations on Figure BU 2-4.

Comment 21  
Page BU 1-17 Proposed Action, Reclamation Activity, Revegetation Plan

22 | The DES states "Note that the impact analysis in Chapter 3, Soils, disputes Shell's statement that 100% of pre-mining productivity can be restored." This conclusion drawn in the DES assumed a minimal amount of topsoil would be salvaged and 50% of the available topsoil would be unrecovered. We disagree with these assumptions, and the conclusions, as discussed in Comment 48 below. We believe that a recovery of 80-90% of the available topsoil is more realistic for this area.

Comment 30  
Page BU 2-8 Water Resources

31 | The DES indicates that water analyses are contained in the Appendix. None are present.

Comment 22  
Page BU 1-20 Proposed Action, Reclamation Activity, Revegetation Plan

23 | The subject of seed mixtures and the use of Caragana has been discussed with the Wyoming DEQ. A revised revegetation seed mixture, which excludes Caragana has been presented in the revised Mining and Reclamation Plans.

Comment 31  
Page BU 2-12 Water Resources, Surface Water

32 | The DES states that "water is presently used on the mine site for stock and wildlife watering and for irrigation of hay and grain fields." No water is being used for irrigation of grain fields and the irrigation of hay fields is by flood irrigation which occurs in the spring of the year.

Comment 23  
Page BU 1-20 Proposed Action, Pollution Control Methods

24 | The fourth method discussed which would be used to prevent water pollution states that "Riprap or concrete would be used at curves in diversion ditches." The channel has been designed to provide a maximum flow velocity of two feet per second. This flow rate would not be erosive on the channel as designed. However, if it becomes necessary, riprap or concrete will be utilized to prevent erosion.

Comment 32  
Page BU 2-12 Vegetation

33 | The DES states that "the proposed Buckskin Mine site, in particular is more representative of true shortgrass plains than the surrounding areas." We disagree with this statement. It is true that there are several species present which are characteristic of the shortgrass plains. However, over most of the proposed mine area, sagebrush is a dominant feature. The implication should not be made that this area is a unique inclusion of shortgrass within a transition zone. The species cover data support this conclusion.

Comment 24  
Page BU 1-20 Proposed Action, Pollution Control Methods

25 | The DES states that "At present, no data is available as to the presence or absence of toxic materials at the Buckskin lease..." We have supplied a considerable amount of overburden analyses, which are contained in the Mining and Reclamation Plans. We do not anticipate any problems due to toxic materials. This subject is further discussed in the revised plans.

Comment 33  
Page BU 2-12 Vegetation, Terrestrial Vegetation

34 | The statement is made that "The vegetation map, however, is confined to the main mining area..." Vegetation maps were supplied which cover the entire permit area.

Comment 25  
Page BU 1-20 Proposed Action, Pollution Control Methods

26 | The DES states that "Combustible material uncovered during mining would be buried or stored in waste piles stabilized with layers of incombustible and insiparous material." We do not fully understand this statement. Coal is a combustible material. We will be removing this product from the area. Refuse materials, as described in the Mining and Reclamation Plans, would be buried. Further, solid waste will be buried according to the requirements of the Wyoming Department of Environmental Quality.

Comment 34  
Page BU 2-13 Vegetation, Terrestrial Vegetation, Riparian Type, Cultivated Lands

35 | The DES states that "The vegetation of Rawhide Creek is indicative of an alluvial valley floor." We disagree with this statement. The vegetation present is indicative of the presence of subirrigation of plant roots, which is only one of the several criteria used in determining the presence or absence of an alluvial valley floor. The DES indicates that there are about 169 acres of cultivated lands within the proposed permit area. It should be noted that for the most part this cultivation consisted of seeding to desirable native and introduced grasses in a range improvement program.

Comment 26  
Page BU 1-20 Authorizing Actions, Office of Surface Mining (OSM)

27 | The DES states "OSM, with the concurrence of the surface-management agency (Bureau of Land Management) and USGS, recommends approval or disapproval of the Mining and Reclamation Plan..." We believe it should be pointed out that all surface involved is privately owned. Therefore, we interpret that the Bureau of Land Management is not involved in the approval/disapproval process (30 CFR 211.3(a)(3); FR 43:37181; August 22, 1978).

Comment 35  
Page BU 2-13 Vegetation, Aquatic Vegetation

36 | The DES states "Aquatic vegetation is limited to species which require wet ground, but which can exist for long periods without standing water, as in valleys with subirrigated alluvium." We do not believe this to be an unbiased statement. Several other moisture conditions without standing water may support aquatic vegetation, including subirrigated colluvium, subsurface springs, overflowing water tanks and leaky pipes.

Comment 27  
Page BU 1-23 Authorizing Actions, Bureau of Land Management (BLM)

28 | We do not understand BLM's role in the development of "special requirements" and the granting of rights-of-way concerning the proposed Buckskin Mine. All lands involved are private lands. Specific authorities regarding the protection of "oil resources, other than coal and the post-mining use of the affected lands" should be clarified. Some of the resources other than coal are also privately owned.

Comment 36  
Page BU 2-14 Figure BU 2-8

37 | The color endings for riparian and cultivated lands are reversed. It should be noted that several of the areas identified as cultivated have only been seeded to native or introduced grasses as range improvement or for hay production. Exhibits 36 and 37 identify these areas. The areas identified as riparian are much broader and extensive than actually exist on the area. One area in the northwest corner of the proposed permit area is misidentified as plays; it should be the cultivated type.

Comment 28  
Page BU 2-3 Geology

29 | The DES states that "Scoria (clinker) is present in many places where the coal seam is exposed..." There are no known places on the mineral lease where the coal seam is exposed. Scoria is the result of past fires; it may be present in places where the coal seam has never been exposed. We suggest substituting the following language: Scoria (clinker) is present in several places in the proposed permit area.

Comment 37  
Page BU 2-15 Fish and Wildlife, Fishery

38 | The DES states that "These stagnant pools do not contain any fish." During the late summer of 1978 the Wyoming Fish and Game observed some fat-head minnows in a pool at the east edge of the permit area.

Comment 38  
Page BU 2-16 Fish and Wildlife, Amphibians and Reptiles

39 | "A plains garter snake was the only reptile observed on the site." A snapping turtle was also observed on the site, as reported in the Mining and Reclamation Plans.

Comment 39  
Page BU 2-16 Cultural Resources, Prehistoric

40 The revised Mining and Reclamation Plans show a slightly altered railroad alignment. Prehistoric site 48 CA 130, an arroyo trap bison hill site, is no longer within the proposed railroad right-of-way.

Comment 40  
Page BU 2-24 and 25 Tables BU 2-3 and BU 2-4.

41 These tables show employment in the "Minerals" category, which we assume contain employment for the petroleum industry. The discussion of employment in the "Minerals" sector refers to mining employees (page BU 2-22 and others) and mining employment. It was our understanding that at least up to this year, there was more employment in the petroleum sector than the mining sector in the Gillette area. We believe this fact should be addressed.

Comment 41  
Page BU 3-7 Air Quality, Impact on Air Quality

42 The DES states that "Climatological data were collected at the Moorcroft weather station, because the weather station at Gillette had insufficient data." It was our understanding that the Moorcroft data were for the period 1950-1952 and was utilized because atmospheric stability data were available.

Comment 42  
Page BU 3-7 Topography

43 The DES states "Some revision in design may be necessary to meet Office of Surface Mining requirements for keeping reclaimed topography in contact with contiguous operations." We are not sure what is meant by this statement. As our Mining and Reclamation Plans show, reclamation is being carried out as expeditiously as possible. Reclamation is delayed on a limited area for years 5 to 9 due to the presence of an overburden stockpile on this backfill area. We believe it is better to construct this stockpile on disturbed area rather than to disturb new areas. The Mining and Reclamation Plans show that reclamation will be conducted as rapidly as possible for the restricted area in which the operation will be conducted. The revised plans show that beginning in Year 4, when there is space first available, final reclamation activities are conducted continuously (Exhibits 26 and 27 of the Plans).

Comment 43  
Page BU 3-17 Geology  
BU 4-17 SHCRA Performance Standards, Protection of the Hydrological system.

44 The DES states that "About 1-1/2 miles of alluvial valley floor, as defined by the Surface Mining Control and Reclamation Act, would be disturbed..." The Surface Mining Act requires special consideration be given to areas designated as alluvial valley floors. Detailed regulations have been written concerning the subject, and a guideline outlining the study requirements necessary for determination of the presence or absence of an alluvial valley floor has been prepared by the Office of Surface Mining. We therefore object to wording, such as that above, which indicates an alluvial valley floor is present on the mining area. To our knowledge, a determination based on the data requirements of the regulations and guideline has not been made. We recognize that an intermittent stream occurs on the proposed permit area and that along a part of the stream haying activities have been conducted. However, the portion of the stream which occurs within the area to be mined is undeveloped rangeland which in itself is not significant to the ranching operations. Mining this portion of the stream channel would be a negligible impact on the production of the farm. Therefore, even if the entire stream were to be determined to be an alluvial valley floor, that portion within the area to be mined would not meet the criteria of the Surface Mining Act which would require it to be excluded from mining. Geologic studies indicate that Spring Draw is an alluvial fan, which is in itself excluded from alluvial valley floors. Further, we believe we have designed Mining and Reclamation Plans that will maintain the hydrologic integrity of the stream. During mining, the stream will be rerouted to maintain downstream uses. Following mining the stream will be replaced in its approximate original location with its same length and gradient.

Comment 44  
Page BU 3-17 Soils

45 The DES indicates that based on some research work that current levels of soil productivity would be lost and not fully recovered. We are not aware of any studies which have shown long term losses in productivity. We agree that some studies have shown short term reductions in productivity, but others have also shown short term increases in nutrient availability from stockpiles topsoil. We believe that even with topsoil stockpiling, which would be required under any mining scheme, the post-mining productivity of the area will equal or exceed pre-mining productivity since approximately 40 inches of suitable topsoil will be salvaged and replaced over the disturbed area. A substantial portion of the area which will be disturbed has little or no suitable topsoil today; the productivity of these areas will certainly be increased. Further, only about half of the salvaged topsoil will be stockpiled, and of the material stockpiled a substantial portion of that will be at or near the surface of the stockpiles thus maintaining the soil microflora and microfauna.

Comment 45  
Page BU 3-17 Soils

46 The DES states that "According to drilling logs," materials harmful to plants and animals "are absent or present in very low amounts". The extensive overburden analyses which have been conducted also show this to be true.

Comment 46  
Page BU 3-17 Soils

47 The DES discusses increases in erosion of soil due to the proposed mining operation, and suggests increases of 400-500X for wind erosion and 100-500X increases for water erosion. We believe that these numbers are unrealistic based on the extensive mulching program, temporary revegetation, and special practices (where necessary) which we have detailed in the Mining and Reclamation Plans. It should also be pointed out that the annual losses which are suggested in the DES are short-term and not long-term.

Comment 47  
Page BU 3-18 Soils

48 We disagree with the statement that "The limited amount of good to fair soil material, moderately steep slopes, and soils that are poor for reclamation are evident on the Buckskin project in a number of mapping units." On the contrary, there are a number of soils which are suitable for use in reclamation; approximately 33 inches of good to fair topsoil are available for salvage and approximately 7 inches of poor quality (but not unsuitable according to Wyoming DEQ criteria) topsoil are available for salvage over the entire disturbed area.

To continue, the DES indicates that there is going to be "reduction in soil productivity on major portions of the disturbed acreage". Again, we submit that approximately 40 inches of topsoil is more than adequate to maintain the productivity of rangeland, hayland, and dry land row crops. We further submit that our soil analyses show that the topsoil is available and of suitable quality.

Comment 48  
Page BU 3-18 Soils  
BU 4-4 Table BU 4-1  
BU 4-17 SHCRA Performance Standards, Topsoil Handling  
BU 5-12 Unavoidable Adverse Impacts.

The DES presents a discussion concerning a 13 percent loss in soil productivity. We disagree with the assumptions made in this interpretation. As pointed out on page BU 4-1 of the DES, the methodology has not been verified on mined lands. Our calculations show that about 3,665 acre-feet of topsoil will be salvaged, rather than the 3,117 used in the DES. The DES assumes that only half this material is recoverable and further indicates that this is the usual result. We believe that a much higher recovery rate is normal and will be accomplished. Secondly, the site productivities utilized in Table BU 3-8 for the determination of total production do not agree with actual productivities measured, resulting in a substantial overestimate of the pre-mining production. For example, the Big Sagebrush type covers about 40 percent of the proposed mine area, occurs primarily on clayey soils, and produced about 635 pounds per acre, (compared to 1300 lb/A in the DES) in a better than average moisture year (1977). To make a site specific determination that production will not be at least 90X of pre-mining production, we believe that site specific data should be used.

The DES concludes that "there would probably be a long decline in productivity in later decades as the vigor of the planted species declines on the overall thinner soil than existed prior to mining. There are no long-term studies which support the supposition of a long-term decline in plant vigor. Further, although some portions of the disturbed area will have soils thinner than exist today, portions of the disturbed area will have thicker soils than exist today. We believe that the approximate 40 inches of topsoil to be salvaged is more than adequate for the range/hay/dry land crop production for which the land will be reclaimed. To quote the DES, "If a greater depth of "topsoil" material were reclaimed, such as 30 inches, along with the appropriate soil amendments, the long-term productivity of the site should equal or exceed the pre-mining productivity."

Comment 49  
Page BU 3-18 Water Resources, Ground Water.

50 The water required is 50 gallons per minute, not 5 gallons per minute.

Comment 50  
Page BU 3-23 Water Resources, Surface Water

51 The DES discusses the probability of a flood in excess of 1,000 cfs and the possibility of overtopping the bypass channel. The revised Mining and Reclamation Plans show in detail the methods by which a 100-year, 24-hour storm will be controlled during the mining operation. The diversion and stream control facilities have been designed to handle the run-off from a 100-year, 24-hour storm without "overtopping". Further, run-off from disturbed lands for the 10-year, 24-hour storm is contained in sedimentation ponds. At those times when the above storms are exceeded, the additional sediment added to the flow of Rushdie Creek from disturbed areas would be very minor.

Comment 51

Page BU 3-23 Water Resources, Surface Water  
BU 3-31 Agriculture, Livestock Production  
BU 7-1 Irreversible and Irrecoverable Commitments

52

The DES indicates that the lowering of the water table following mining will eliminate or discourage grazing, and therefore the land would not be returned to its pre-mining productivity. We have said we believe that the water table will reestablish itself several feet below the ground surface and that the water table would probably be intercepted by the materials in the replaced stream channel. We have also indicated that we plan to reestablish an existing impoundment in the area. We firmly believe that there will therefore be sufficient water available for the post-mining land uses.

Comment 52

Page BU 3-23, 24 Water Resources, Surface Water  
BU 3-24 Vegetation, Terrestrial Vegetation  
BU 3-31 Agriculture, Livestock Production  
BU 4-1 SMRA Performance Standards, Backfilling and Grading -- Thin Overburden  
BU 4-8 Table BU 4-1  
BU 5-1 Unavoidable Adverse Impacts.

53

The Draft Environmental Statement discusses the possibility of the creation of a surface water impoundment along Rawhide Creek if overburden settling occurs. The discussion states that settlements of between 3 feet and 10X or 20X of the backfilled overburden could occur after mining and reclamation is complete, thus producing water impoundments ranging from 35 acres to about 240 acres.

We do not believe such settlements will occur after mining and reclamation is complete. The three foot settlement figure furnished by us was intended to represent what we think is going to be the maximum amount of settlement of the backfilled overburden (spoil). We believe that most of the settlement will occur shortly after the overburden is backfilled with almost complete settlement occurring within a few years. Therefore, we believe that most of the settlement will occur prior to completion of reclamation activities.

We plan to backfill to approximately the final contour elevation as we advance mining, except for Years 4 through 8 where an overburden stockpile will be created on top of the spoil. Figure 1 (attached) illustrates the backfill schedule for the Buckskin Mine. Mining will take place during Years 1 through 16. Final backfilling and completion of reclamation will take place in Year 17. It can be seen from Figure 1 that Rawhide Creek will be located on areas backfilled in Years 3 through 10. Therefore Rawhide Creek will be located in an area that has been backfilled from at least 7 to 14 years prior to completion of reclamation in Year 17. Our Mining and Reclamation plans indicate that Rawhide Creek

will not be returned to the backfilled overburden area until at least two years after the overburden has been replaced (approximately Year 12 or 13). We believe that any settlement which might occur after Rawhide Creek has been returned to the backfilled area will be localized and will most certainly occur prior to completion of reclamation in Year 17. However, we believe that little if any settlement will occur once the material underlying Rawhide Creek is infiltrated with water. Water within the voids of the overburden will effectively stop settlement. This will be true of most of the overburden below the ground water level.

53

As we stated above we believe that the maximum amount of settlement of the overburden will be approximately 3 feet and with most of this settlement occurring prior to completion of reclamation. However, the assumption that the reclaimed topography will settle 10 to 20X after completion of mining and reclamation is unrealistic. The average depth of the spoil is 148 feet. (This figure is obtained by taking the difference between the average elevation of the final topography and the average elevation of the mine pit bottom.) The 10X and 20X settlement would represent elevation drops of 14.8 and 29.6 ft. respectively. Terzaghi and Peck (1967 p. 270)\* have stated that settlement depends only on the physical properties of the soft strata and on the intensity and distribution of the vertical pressure on these strata. Considering that the average thickness of the spoil is 148 ft., the overburden at the bottom of the pit is under considerable ground pressure, in excess of 80 lb/in<sup>2</sup>, due to the natural weight of the overlying material. Therefore this overburden will settle rapidly. Overburden backfill that will not benefit from this effect is the surface material. This zone of overburden is relatively thin. If settlement occurred after reclamation it would occur in this zone. The depth of this zone is difficult to determine. Even in the event that this zone is 10 to 20 ft. in depth, the corresponding 10 to 20X settlement would only amount to 1 to 4 ft.

Most of the settlement of the overburden will be produced by the weight of the overlying material. However, other activities will also produce settlement. The mining operation is to be by truck and shovel, resulting in a more compact overburden than normally experienced with dragline spoils. As mentioned above, settlement of an area depends on the soft strata, such as clay materials, in which settlements are time dependent. However, due to the mining operations, clay type materials which are generally found in layers will be redeposited in the spoil mixed with rock and other noncompressible materials. This will decrease greatly the settling action of the soft materials.

\* Terzaghi, K. and R. B. Peck. 1967. Soil Mechanics in Engineering Practice. John Wiley and Sons, Inc., New York. 729p.

53

In our original Mining and Reclamation Plans we used a swell factor (bulking) of 25X. This figure represents the "permanent" swell figure, which includes settlement. Since that time we have revised our permanent swell figure to 20X to represent more closely rock conditions being encountered in the Powder River Basin. For supporting evidence we cite the text of *Engineering Geology* which indicates that the normal range is 20 to 30X rock materials (this material supplied to the ES Team on December 12, 1977). Therefore we are predicting that while the transient swelling of the overburden may vary between 30 to 50X the permanent swell will be approximately 20X which will include settlement. The final topography has been designed for a 20X swell for the overburden. This includes 0X swell for the topsoil which will be placed on top of the overburden. Therefore if total settlement does not occur until after completion of reclamation the topography should be higher than the designed final topography. After settlement is complete the final topography should approximate the designed topography.

To help quantify the swell and possible settlement of the Buckskin Mine overburden the stockpiles created prior to mining will be observed. An overburden stockpile, located in the southern perimeter, will be created one year prior to mining, left undisturbed until the last couple years of mining and then backfilled into the final pit. This stockpile will be approximately 100 ft. in height. Any settlement that occurs in this stockpile will show up in the 17 years during its existence. We should then be able to design for settlement that will take place after mining by observing the reaction of the overburden stockpile.

Comment 53

Page BU 3-24 Vegetation, Terrestrial Vegetation

54

We refer to Comment 48 relative to the stated 13X long-term loss in productivity. We also disagree with the 80 to 85 percent loss in wildlife habitat. We recognize that for a particular species there may be habitat loss; for other species there will be habitat improvement. We have also stated in our Mining and Reclamation Plans that we will be replanting some shrub and forb species. Major wildlife which utilize sagebrush, the major shrub present, will not be adversely affected. No sage grouse are present on the area; the proposed mine area is only a small part of the home range of the antelope present.

Comment 54

Page BU 3-27 Fish and Wildlife, General Information  
BU 5-2 Unavoidable Adverse Impacts

55

The DES mentions "121 acres of cultivated land" would be disturbed. The majority of the cultivated land is land that has undergone range improvement by the seeding of native and introduced grasses.

Comment 55

Page BU 3-27 Fish and Wildlife, Wildlife, Mammals

56

The DES discusses fencing along the railroad, mine area and access road forming a barrier to antelope movement. This assumes the use of a woven wire fence or a barbed wire fence with low barbed strands. We have indicated we would use fencing as recommended by the Wyoming DQG which would allow antelope movement, except in those very limited areas where further restriction is necessary for safety reasons. A three or four strand barbed wire fence, bottom wire smooth and an appropriate distance above the ground will be used for most of the access and railroad fencing.

Comment 56

Page BU 3-28 Table BU 3-12

57

This table indicates that the impacts on fish and wildlife will be major and that the impacts on the carrying capacity for fish and wildlife will be major. Yet the table shows that the impacts on fishery populations will be none; will be minor or none on bird populations; will be minor on non-game mammals, no impact on endangered mammals, and major on game mammals; and will be major on amphibians and reptiles with no impact on endangered reptiles and amphibians. There are very few reptiles and amphibians present on the area. Snakes will certainly reestablish themselves in the reclaimed area; in all probability frogs will reestablish the replaced impoundment. Of the game mammals, three species are present: cottontail rabbit, antelope and mule deer. Mule deer are practically non-existent on the area, the area being only a small part of the range of a limited amount of deer in the vicinity. Cottontail rabbits will reestablish themselves in the area; forage will be available and cover from shrub plantings will be available. Finally, the mining area is only a small part of the range of the antelope in the vicinity. Therefore we cannot agree that there will be major long-term impacts on wildlife populations. We firmly believe that in the long-term populations will not be significantly affected due to the proposed project; the small amount of the disturbed area, less than 1100 acres, limits the impact. We also believe that in the long-term carrying capacity and wildlife habitat will not be significantly affected, due to the reestablishment of forb and shrub species through plantings and natural invasion.

Comment 57

Page BU 3-29 Table BU 3-13

58

This table presents a biased view of the impacts on wildlife. There is no presentation of habitat reclaimed. Some of the individuals displaced during mining will move into reclaimed areas, and therefore would not be "lost". For example, doves (a migratory bird) will probably find the reclaimed areas to be better habitat than the pre-mining vegetation.

Comment 58  
Page BU 3-30 Recreation Resources

59 | We cannot agree with the conclusion that "although the population increase attributable to Buckskin would be minor (5%) compared to overall population growth in Caspell County by 1990, its impact would be significant." The significant impacts on recreation resources will be due to the cumulative growth in the county from all development. A small increase in population would, in itself, not cause major impacts on recreation resources.

Comment 59  
Page BU 3-31 Agriculture, Livestock Production

60 | The DES indicates that "Once the Buckskin and other mining operations commence, the operators expect to go out of the grazing business completely in the area". It is our understanding that the ranchers, who are currently leasing the proposed mining areas for agricultural purposes, expect to continue their operations while mining progresses. The ranchers understand, however, that some land will be unavailable during mining and early reclamation.

Comment 60  
Page BU 3-31 Transportation Networks, Railroads

61 | The DES indicates that the railroad spur serving the Buckskin Mine would cause crossing hazards. Highway 59 is currently being relocated and a grade separation crossing is being constructed. Only private roads will be intersected by the rail spur.

Comment 61  
Page BU 3-32 Transportation Networks, Highways, Other

62 | Under "Highways" it is stated that the peak mine-related population increase would be 843. Under "Other" it is stated that the peak mine-related population increase would be 730.

Comment 62  
Page BU 3-32 Socioeconomic Conditions, Economic Impacts, Population

63 | Under the revised Mining and Reclamation Plans, we anticipate that our maximum permanent employment will be 156 persons. This level of employment will be reached in 1984.

Comment 63  
Page BU 3-34 Socioeconomic Conditions, Economic Impacts, Income

64 | It is stated that "In 1990, direct, indirect, and induced earnings attributable to Buckskin would be \$14.2 million including railroad earnings." This estimate appears to be low, if it does include railroad earnings. If transportation is only \$5 per ton of coal, and 6 million tons of coal are shipped, the income to the railroad would be \$30 million.

Comment 64  
Page BU 4-1 SHCRA Performance Standards, Postmining Use of Land

65 | The DES states "Presently, 121 acres of the Buckskin site are, or have been in the past, used as cropland." Most of the area identified as cropland is essentially improved rangeland, seeded to native or introduced species.

Comment 65  
Page BU 4-17 SHCRA Performance Standards, Topsoil Handling  
BU 5-2 Unavoidable Adverse Impacts

66 | The DES indicates that "Accidental spillage of oil, gas, or other toxic materials would contaminate soil and render it useless for reclamation." It should be pointed out that this is a very remote possibility, since topsoil will be segregated. If such an accident did occur it would only contaminate a very small amount of material since large volumes of oil, gas, etc. are not being handled in areas of topsoil.

Comment 66  
Page BU 4-20 Committed Measures

67 | Our discussions with the Wyoming State Engineer's Office have not indicated that the temporary diversion facilities must be designed to accommodate back-to-back 100-year, 24-hour storms. Our design shows accommodation for a single 100-year, 24-hour storm; it is our understanding that such a design will meet the State Engineer's Office requirements.

Comment 67  
Page BU 5-2 Unavoidable Adverse Impacts

68 | The DES states that "Two cultural resource sites would be destroyed...". We believe this statement should be clarified that these sites were minor and archaeological clearance was granted.

Comment 68  
Page BU 8-1 No-Action Alternative

69 | The no-action alternative would not result in 1071 acres being undisturbed. A portion of this land is within the boundaries of another permitted mine.

Comment 69  
Page BU 8-2 Alternative to Approve Mining and Reclamation Plan After Modification, Coal Transport by Conveyor Belt.

70 | We do not believe this method of transport is feasible on this project. The grade that would be required for a conveyor would require additional land disturbance and delay reclamation. Costs for the system, if required, would render the project unfeasible.

Comment 70  
Page BU 8-2 Alternative to Approve Mining and Reclamation Plan After Modification, Fish and Wildlife Mitigation Alternatives.

71 | We believe that the goal, as proposed in the DES, for reclaiming to the highest possible wildlife carrying capacity would be a land use change not acceptable in an agrarian region. We are required to reclaim the land to the highest previous use, which in the Buckskin are ranching activities.

Letter 14 Responses

1. The revision of the Buckskin mining and reclamation plan (M&RP) will not significantly change the regional cumulative impacts because projected coal production from the region is substantially greater than that from the Buckskin Mine alone.

Preparation of the Buckskin site-specific analysis was begun with the understanding that further environmental analysis might be necessary when an acceptable M&RP is finally submitted. This is still true. The revised M&RP will be reviewed, and if found acceptable, an environmental analysis will be made to determine whether impacts are covered in this ES.

2. The figures and tables in the ES correspond to those in the May 1977 M&RP, the one used for the site-specific analysis. Hence they have not been changed.

3. As explained in Chapter 1 of the site-specific analysis, the revised M&RP must be evaluated and accepted by the Office of Surface Mining as meeting requirements of the State and the Surface Mining Control and Reclamation Act before any environmental impacts caused by M&RP modifications will be assessed.

4. Relevant parts of the text have been corrected in Chapters 1, 2, 3, 5, 6, and 7 of the site-specific analysis.

5. The text has been revised.

6. The text has been revised to state that maximum construction employment would be 262. Average construction employment in 1980 (197) was used in the final ES to calculate population growth and employment attributable to Buckskin.

7. Please refer to response 14-3.

8. The text has been revised.

9. The text has been revised.

10. This comment provides new information inconsistent with Shell's M&RP (May 1977). The reclamation schedule in that document shows that a total of 1,071 acres would be disturbed for the mine, the railroad, the rail loop, the access road, and all ancillary facilities. Increasing the width of the railroad right-of-way by 150 feet would increase disturbance by approximately 110 acres (see Tables BU1-2 and BU3-3).

Please see response 14-3.

11. The text has been revised.

12. Figure BU1-4 has been revised.

13. This new information about the geology at the mine site has been incorporated in the site-specific analysis, Chapter 1.

14. The text has been amended.
15. The text has been corrected, using a conversion factor of 2,750 pounds per bank cubic yard of soil material.
- Please see response 14-3.
16. The text has been corrected, using a conversion factor of 3,437 pounds per bank cubic yard of overburden. (GS estimates the overburden in the area to be about 15% hard rock (mostly sandstone), 51% sand, and 34% clay.)
- Please see response 14-3.
17. The text has been revised.
18. The text has been amended.
19. Please see response 14-3.
20. When cultivated land is reclaimed for livestock grazing use, this constitutes a land use change. If it is reclaimed to cultivated use, this does not constitute a land use change. Any proposed change in use must conform with state and federal regulations.
21. Our statement in the ES was derived from Volume I, Reclamation Plan, page 9, of Shell's M&RP (May 1977).
22. See response 14-49.
23. Please see response 14-3.
24. The text has been amended.
25. The sentence in question has been deleted.
26. The item in question has been deleted.
27. The text has been changed to read "leasing agency." As the leasing agency, BM is responsible for insuring that surface mining is conducted in a manner to minimize impacts to the natural and cultural resources of the area.
28. The reference to rights-of-way is, in this case, irrelevant, since no federal surface is involved. It has been deleted. However, where federal minerals occur with private surface, BM is properly concerned with the impacts, both on and offsite, resulting from the mining and transportation of federal coal.
29. The text has been revised. See Chapter 2 of the site-specific analysis, Geology.
30. The map has been revised. See Chapter 2 of the site-specific analysis, Geology, and Figure BU2-4.

31. The water analysis tables have been included in the final ES.
32. The reference to grain fields has been deleted.
33. In a transition zone between two vegetative types, it is not unusual to find areas that are more representative of one type than the other. In this case, the Buckskin Mine site is more representative of the short grass plains.
- This statement is based on information submitted by Mine Reclamation Consultants (Shell 1977) and confirmed by on-the-ground checks. This does not make the site unique. If it were not in a transition zone, then it would be unique.
34. In the interest of trying to keep the ES less voluminous, it was decided to limit the vegetation, soils, and geology maps to the main mining area.
35. One of the criteria for determining the presence or absence of an alluvial valley floor is the vegetative composition found there. From the information submitted by Mine Reclamation Consultants (Shell 1977) and confirmed by on-the-ground checks, it appears that Rawhide Creek has vegetation which is commonly found in alluvial valleys.
- Information submitted by Mine Reclamation Consultants (Shell 1977) indicates that 121 acres of the Buckskin site are or have been used as cropland. The figure is broken down as follows: 32 acres of barley, 2 acres of wheat, and 87 acres of hay. The fact that several of the cultivated areas are improved rangeland needed to native or introduced species has been noted in the text, Chapter 2 of the site-specific analysis, Vegetation.
36. The text has been reworded.
37. The color coding and stipplings on the map have been corrected. The riparian designation used is a broad one which includes bottomland. The map legend has been changed to read "Riparian-Bottomland." The text has been revised to clarify the type of cultivation which has occurred on the mine site.
38. The text has been revised to include this new information.
39. The text has been revised to include the snapping turtle as a species observed onsite.
40. Site 48 CA 130 has been identified as eligible for nomination to the National Register of Historic Places (Zwimans et al. 1978). Because of this, any possible impacts to the site must still be considered by the Bureau of Land Management, Wyoming State Historic Preservation Officer, and the Advisory Council on Historic Preservation, to satisfy the National Historic Preservation Act, the National Environmental Policy Act, and Executive Order 11593.
41. In order to maintain consistency in the data source throughout the ES, the U.S. Department of Commerce, Bureau of Economic Analysis (BEA) (1977) was used. This creates some problems for discussion of a rapidly growing city such as Gillette, in that the most recent information available is from 1975. There is also some confusion due to the sectoral breakdown and comparison between BEA data for employment and earnings. In the case of employment, the minerals

sector includes employment for the petroleum industry and is therefore representative of all minerals employment. For the purpose of illustrating general employment trends, this is sufficient. The narrative provides additional information regarding the actual origin of the growth (mining and construction).

42. The Moorcroft weather station data was used because a STAR data deck, necessary for modeling programs, was available, whereas the data from the Gillette weather station did not have a STAR data deck already compiled.

The text has been revised to clarify this point.

43. The sentence in question has been deleted.

44. According to Van Williams, Surficial Geologic Map of the Rawhide School Quadrangle, Campbell County, Wyoming, Geological Survey MF 978, 1978, the map unit Gfa as shown on Figure BU2-4 is within the definition of alluvial valley floor (Surface Mining Control and Reclamation Act 1977).

45. See response 14-49. The Buckskin Mine M&RP (May 1977), Volume I, Reclamation Plan, page 7, states that productivity of reclaimed stands in the Northern Great Plains declines from initial levels.

46. The text has been revised.

47. We do not believe that our figures for wind and water erosion are unrealistic. In fact, if severe climatic conditions (e.g., drought, very high winds, or flooding) should coincide with the reclamation effort, soil losses could be even greater.

These soil losses would occur over a short period of time (during reclamation); however, soil loss from the mine site is irretrievable and therefore long term.

48. See response 14-49.

49. The methodology used in this document concerns itself with the long-term land capability and forage production potential based on the soils resource on the site. This is explained in the document. We do not agree or disagree with the statement by Shell that the clayey soils on the site are producing, at present, 635 pounds per acre of forage. Based on studies by the Soil Conservation Service, clayey sites have the potential to average 1,300 pounds of air-dry forage per year in northeastern Wyoming. This long-term capability of the soils resource is our concern. We disagree with Shell that 3,665 acre-feet of topsoil would be recovered, but we do agree with them that our recovery rate was conservative and have, upon further analysis, revised our figures to show a greater amount of topsoil recovery than we had originally shown. (See revised soils tables in Chapter 3 of the site-specific analysis.)

There are studies which support our statement that there would probably be a long-term decline in plant vigor on the reclaimed site; the latest work that we know is by Brian Sindelar, Assistant Professor, Montana State University, Bozeman, Montana, and is reported in Rangeland's Journal, August 1978.

We disagree that 40 inches of topsoil can be salvaged (again, see revised soils tables).

We certainly acknowledge that our methodology has not yet been verified on mined lands, but we feel that it is only because of its recent application and adaptation to mined lands. We believe that it will prove to be our most valuable tool to date to consistently evaluate long-term impacts from mining on our soils resource.

50. Shell Oil stated in a letter dated December 20, 1977, that 4,655 gallons of potable water would be required per day at Buckskin. This is equivalent to 3.23 gallons per minute, or less than 5 gallons per minute, as was stated.

51. Whenever an offstream hydraulic structure (the size of those needed for interception of Spring Draw drainage) is breached, the resulting slug of water picks up a volume of sediment which is considerable, even in the much larger Rawhide Creek. About 80% or 90% of the sediment carried by streams in the region comes during the few major flow peaks each year; and this occurs in well defined and protected natural channels. (Any breach of structure would occur most likely during one of these major flow peaks.) Also, see response 14-3.

52. The ES states that grazing would be discouraged as the result of loss of watering points. If the water table occurs below the replaced stream bed, these watering sources would be lost; if above, they would be replaced. The estimate of environmental conditions is given in the text, if a water impoundment is intercepted by the groundwater table. If an impoundment does not intercept groundwater but only surface runoff, then the impoundment might be considered as a replacement for the lost watering sources. Surface water impoundments, however, normally do not hold water for periods as long as do groundwater-fed impoundments; and, as a result, are considered inferior to groundwater-fed ponds (as long as chemical quality of the water is the same in both surface water and groundwater-fed ponds).

The ES indicates that, as a mitigating measure, restoration of reservoirs will be required. This should insure adequate livestock water. The ES does point out the consequences of the loss of watering sources in order to emphasize the need for the mitigating measure.

53. The area covered by the estimated depression due to settlement, as determined from the postmining topography, would be north of the indicated overburden stockpile and west of the unmined, railroad loop area, not along the replaced Rawhide Creek channel. This channel would be within a couple of hundred yards of the probable depression, and flood flows would most likely break into this depression. The depression would intercept all flow from the Spring Draw drainage. (The depression could also be filled by the groundwater which has been predicted by Shell Oil to be within several feet of the land surface.)

It is conceded that settlement would materially slow or possibly stop when the material under Rawhide Creek becomes saturated by groundwater.

The discussion in Terzaghi and Peck you use to support your argument relative to the 10% and 20% settlement values, refers to undisturbed soils, not excavated soil.

It is conceded that most of the settlement of the replaced overburden would be attributable to the weight of the overlying material; but information from consultants (licensed professional engineers and a professional geologist) involved with the placement of excavated soils, indicates that consolidation by trucks is not effective when material is placed in lifts thicker than several feet.

It seems unlikely that the overburden could be classed as either "rocks" or "soils with rock fragments" in Table 8.1 (Engineering Geology). One Geological Survey mining engineer familiar with soils and rocks in the vicinity of the Buckskin Mine site stated that the overburden should more realistically be classed as "clayey, sandy soil." (This classification could indicate settlement, difference between transient and permanent bulking, of 12% to 23%.) Nothing was noted in the mine plan that would indicate that backfill would be placed at a higher elevation than the final contours, so as to allow for settlement.

The plan to help quantify swell and settlement appears reasonable.

All references to the 240-acre depression due to 10% to 20% settlement at Buckskin Mine has been deleted from the ES.

54. Pronghorn, sage grouse, and sharp-tailed grouse all would be adversely affected by the loss of sagebrush. Mourning Doves currently are more abundant in the sagebrush and riparian vegetation types on the site than in the sandhills grassland type, according to data gathered by the Wyoming Game and Fish Department in 1978. Brewer's sparrows would likely also be displaced until sagebrush reinvades reclaimed areas to suitable height and density. Cottontails and jackrabbits would likely return to reclaimed areas, but in lower numbers due to loss of vegetative (brush) and topographic cover.

The riparian and aquatic habitats would not be replaced under the current reclamation plan, and this would further serve to reduce habitat diversity in the postmining vegetative community.

Sage grouse and sharp-tailed grouse were observed onsite in 1978 by Wyoming Game and Fish Department personnel.

See also comment 14-57.

55. The text of Chapter 2 of the site-specific analysis, Vegetation has been revised.

56. The text has been revised to reflect these facts.

57. The proposed mine in itself may not cause major impacts to fish and wildlife, but if one considers adjacent mines running south to Wyodak, new roads, fences, railroad spurs, increased traffic, noise and human activity, the Buckskin Mine creates more impact on wildlife in an area already heavily impacted by development.

With the discovery of fathead minnows in Rawhide Creek, impacts to nongame fish have changed to minor.

Impact to nongame birds would be major overall, especially to birds requiring sagebrush for nesting, such as Brewer's sparrow, and birds dependent on the riparian meadow habitat. Response 14-54 discusses other terrestrial bird species that would be impacted.

Although the number of reptile and amphibian species is only four, three of the four species depend on the riparian-aquatic habitat, which would be lost during mining and difficult to reclaim to premining diversity. Snakes should be able to inhabit reclaimed areas. Frogs may inhabit reclaimed areas if suitable habitat exists along other portions of Rawhide Creek, and pools are available for breeding and escape.

Response 14-54 discusses impacts on other mammals.

Although the mine area (1,100 acres of disturbance) is a small part of the total antelope range, the disturbance from adjacent mines and their associated developments, and the disturbance from the Buckskin Mine cannot be divorced. All impacts are related and build up as development increases.

The use of the expression "long-term" in the ES describes impacts lasting after mining and reclamation are completed. Using a figure of 30 years for the re-establishment of big sagebrush, and assuming a 20-year mine life with no reclamation the first 10 years of the mine and over half the acreage reclaimed during the last year of the project, big sagebrush would reestablish itself on the site 10 to 30 years after the end of the project.

58. Assuming that adjacent undisturbed habitats are fully utilized (at carrying capacity), the animals displaced would be unable to compete for food and/or cover or would, in turn, displace those animals already there. This would eventually lead to a net loss of animals due to disturbance. Reclamation would not take place at all during the first 10 years of the project, and probably 2 years would be required to establish a healthy cover of grass. Any shrubs introduced would take several years more to grow large enough to provide effective cover.

See response 14-54 concerning mourning doves and reclamation.

59. Because recreation facilities and resources in Gillette and the surrounding area are already considered overcrowded, any additional population growth would cause a noticeable and significant impact on those resources.

60. The text has been revised to indicate that the ranchers will continue their operations on adjacent and undisturbed areas. See Chapter 3 of the site-specific analysis, Agriculture.

61. The text has been changed.

62. The population increase of 843 refers to the three counties of Campbell, Converse and Crook. The population increase of 730 refers to Campbell County.

63. See response 14-3.

64. These figures exclude corporate income. A footnote has been added to the table.

65. See response 14-35.

66. In Chapter 3 of the site-specific analysis, Soils, we state that such spillage would be localized and of little relative significance. The text has been changed in Chapters 4 and 5 to reflect this.

67. We have checked Committed Measure (F) in Chapter 4 of the site-specific analysis. It is correct.

The channel design to accommodate a single 100-year, 24-hour storm is part of the revised M&RP. Please see response 14-3.

68. A value judgement that the sites are "minor" would have to be relevant to a specific theory, research design, regional plan, or plains occupation model, etc. The importance of these sites to one researcher may be interpreted as minor. Another may consider these sites significant.

The archeological clearance granted is only by the Wyoming State Archeologist. Cultural resource clearance is determined by the federal agencies involved.

69. Although some land which would be disturbed by the Buckskin project does lie within Carter Oil Company's permit area, Carter's current mining plan, dated December 1977, does not forecast mining or construction on these lands. The text has been amended to indicate the possibility of future disturbance by another mining company.

70. The text has been revised. See Chapter 8 of the site-specific analysis, alternatives to the proposed action.

71. This proposed alternative would not necessarily preclude livestock grazing as a postmining land use. Shell's M&RP (May 1977) for the Buckskin Mine states that wildlife use of the area is third in economic or social value behind grazing and hay production.



Energy Transportation Systems Inc.  
212 Petroleum Building  
111 West 2nd Street  
Casper, Wyoming 82601  
Telephone (307) 265-1800

15  
ETSI

December 8, 1978

Team Leader  
Coal ES Team  
951 Union Blvd.  
Casper, WY 82601

Dear Team Leader:

Here are a few comments for the draft EIS, Eastern Powder River Coal:

- 1 - Page R1-18 indicates that a water-cooled power plant has a water requirement of 10 acre-feet per megawatt. This should be checked against the Dave Johnston or Jim Bridger requirements or the Missouri Basin requirements. I think you will find it's about 50% too low.
- 2 - Page R3-7. The severance tax of 8% on coal omits the 1.6% impact tax fund which would bring the total severance tax on coal to 10.1%.
- 3 - Page R2-89. The location of the proposed coal slurry pipeline is inaccurate. I would suggest that you either see me or see the system description that we prepared for the BLM Department, Cheyenne office, in May 1970 as part of our right-of-way crossing application.
- 4 - Page 7-1. The loss in human life for coal strip mining was estimated but the loss in human life for the increased train traffic has been omitted. There are other reports in which this was estimated. For example, the National Transportation Safety Board could provide you with an estimate or see page 3 of the attached "Export Options for Wyoming Coal." Most of the information on the above was gleaned from your 1974 report on the same subject.
- 5 - Chapter 8 Alternatives omits the alternative of coal slurry pipelines and their corresponding mitigating measures.

"Slurry Pipelines - Moving The Nation's Coal Safely, Cleanly, Silently, Cheaply"

Page Two  
Team Leader  
December 8, 1978

For your background information on ETSI coal slurry pipelines, we enclose a copy of our brand-new ETSI brochure which may have information useful to you.

Very truly yours,



Frank B. Odasz, P.E.  
Rocky Mountain Area Manager

FBO/cr

Enclosures



## Texas Energy Services, Inc.

a Kanab company  
1001 Douglas Highway • Gillette, Wyoming 82716 • (307) 682-5555

Philip L. White  
Vice President

November 30, 1978

Bureau of Land Management  
Team Leader Coal E. S. Team  
951 Union Blvd.  
Casper, Wyoming 82601

Attn: Ms. Julie Elfving

RE: Eastern Powder River Basin Draft  
Environmental Statement  
Written Testimony Regarding:  
Texas Energy Service's Bourke, Amax  
Property, South of Gillette, Wyoming.

On brief review, I am submitting the following in hopes of acquainting you with our attempts to develop the Bourke, Amax properties. I have enclosed an attached outline which briefly describes our property, its reserves, and our plans to develop it.

Texas Energy Services Incorporated, a wholly owned subsidiary, was recently established to represent Kanab's interests in western developments. Chief among these is its joint venture interests in partnership with Northwestern Mutual in the development of its surface interests described herein.

Kanab Services Incorporated is a relatively small firm seeking to establish a coal property in the West to augment its other interests back East. It's primarily an energy oriented firm involved in oil and gas production, coal production and sales, off-shore drilling, reservoir engineering, pipeline technology, and transportation, etc., in addition to its financial, computer, and data services.

### Letter 15 Responses

- Annual average water usage for the Laramie River Station at Wheatland, Wyoming will be an estimated 10,000 acre-feet, or 12 acre-feet per megawatt; maximum usage will be 27,130 acre-feet, or 18 acre-feet per megawatt (REA 1976). These figures correlate with hypothetical water consumption rates for water-cooled plants (Nehring et al. 1976 and Prudenthal et al. 1974). Unit #4 of the Dave Johnston Plant uses approximately 10.6 acre-feet per megawatt (personal communication, Bruce Beaudoin, Pacific Power and Light 1978), which corresponds with the hypothetical rate used by Harza Engineering (1976) in their analysis of resource requirements for the Yellowstone River Basin. According to Mr. Beaudoin, Units #1, #2, and #3 use slightly less. Since the Dave Johnston Plant is the only water-cooled plant expected to exist in the ES region through 1990, it seems logical to retain the figure of 10 acre-feet.
- The text has been revised in Chapters 2 (Socioeconomic Conditions) and 3 of the regional analysis.
- The figure in Chapter 2 of the regional analysis which shows major pipelines has been changed.
- In order to develop data on increased loss of human life for increased coal train traffic it would be necessary to know the types of crossings, the average daily vehicle traffic at each crossing, the number of trains per day, and whether or not each crossing is rural or urban. A section has been added to Chapter 2 of the regional analysis which discusses vehicle-train accidents.
- Coal from the mines discussed in the probable level of regional development is already being shipped via rail. Plans are firm for increased production from these mines to be shipped by rail or slurry pipeline. Therefore, shipment of coal by slurry pipeline or other form of transportation is not a reasonable alternative for these mines. Some of the mines discussed in the high-level scenario, for which firm plans have not been made, might use slurry shipments. At the time site-specific analysis of any new mining proposal is done, slurry shipment of the coal could be considered.

Page two

In pursuit of the latter, Kanab acquired the Bourke and Amax properties in 1977, South of Gillette. With reserves of approximately 800 million tons, and an overall stripping ratio of 3 to 1, it's Texas Energy's intent to establish a viable mining venture on these properties.

Having not clinched the deal for the Amax property, the Bourke property was accordingly submitted for site specific leasing. It's the acquisition of the Amax property however, with its better stripping ratio, that ultimately led to our concerted efforts to develop same.

Where as, the Bourke property could undoubtedly be developed on its own merits, the acquisition of the Amax property enhanced our position with regards to leasing. Together they formed a logical mining unit contiguous to the Carter and Amax properties allowing for the full and orderly exploitation of known economic reserves in this area.

In line with the latter, we're currently engaged in acquiring a site, off coal, for our plant, and certain properties bordering on ours, overlying state and federal coal.

Due to the fact that we have coal in commercial quantities, of compliance quality, with moderate overburden ratios, readily available, and in as much as we believe we should be able to obtain a Federal coal lease, we are proceeding with preparations to develop the property. Accordingly, we are currently readying same with the assistance of the following firms:

Pincock, Allen, & Holt Inc.

- overall mining plan
- equipment selection
- manning projection
- capital & operating costs
- financial reviews

Bullock Engineering and  
Development Company

- plant design and layout
- equipment selection
- capital & operating costs
- construction management

IntraSearch/Rawlins (Consulting Geologist)	-reserve definition -reserve computations -topos, isopacs, cross-sections
Eldorado Exploration Co./ Digilog Inc.	-reserve logging and drilling
Commercial Testing & Engineering	-core laboratory analysis
Harner White Ecological Consultants	-environmental reconnaissance -baseline studies and monitoring -reclamation planning
Summit Inc./Larson, Hick & Brinacombe	-county road relocation

In addition to the letter, we are engaged in numerous attempts to market our reserves. In anticipation of a three-fold increase in their commitments in 1990, various western and mid-western utilities have expressed an interest in acquiring our coal. Contracts could be negotiated today if we held a Federal Lease.

No known encumbrances inhibit our ability to develop the property. We've won agreement from Tri-County Electric for the relocation of their powerlines so as not to prohibit mining. We've removed county road T-7 which criss-crossed our property and relocated the road to the south of our boundary with Amax Coal Company.

Environmentally we have found nothing which would preclude our developing the property. We believe in fact that we can improve upon the current status of these lands, providing for improved ranch and farm lands following mining. As far as we can tell, the property lies outside of those areas in which various groups expressed environmental concern. We've been unable to locate the supposed sage grouse strutting grounds located or bordering thereon and doubt that current usage would allow for same.

We believe we have a viable property and we wish to develop it. Accordingly, we ask for incorporation of our plans in the Eastern Powder River Basin Environmental Statement.

Respectfully,  
  
 Phillip L. White  
 V.P., Project Manager  
 Texas Energy Services, Inc.

Attachments (2)  
 cc: File  
 J. J. Kocian

Letter 16 Response

1. Your comment requesting incorporation of a site-specific proposed development into the Eastern Powder River Basin Environmental Statement (ES) has been considered. As a result of the court decision in the Natural Resources Defense Council v. Hughes case, this ES can include for analysis only existing federal coal leases for which mining and reclamation plans have been accepted by the Department of the Interior.



The Wyoming Chapter of the Sierra Club  
 Secretary: 750 North Sixth St., Laramie, WY. 82070  
 FRIENDS OF THE EARTH, INC.  
 Wyoming Coal Consultant: 260 North Fourth St., Laramie, WY. 82070

Team Leader  
 Coal ES Team  
 951 Union Blvd.  
 Casper, WY. 82601

December 9, 1978

Dear Sir;

Enclosed please find the comments of the Wyoming Chapter of the Sierra Club, and Friends of the Earth in Wyoming, on the Draft ES on development of Eastern Powder River Basin coal. These comments are not in the style which the Wyoming Chapter of the Sierra Club and Friends of the Earth in Wyoming prefer to use; however, it has been concluded that further elaboration is futile. The astonishing lack of reflection of the fact that mining has proceeded in this region for a number of years is directly relevant to the inability to evaluate the statement. There is, to put it bluntly, very little here to evaluate. If there has been an effort to monitor the effects of current and previous mining activity, it is hoped that this will be reflected in the Final ES. The present draft cannot be approved.

One shining exception to the disapproval is the explicit commendation of the socioeconomic and socio-cultural material. These sections are excellent.

Within the region of analysis, there is no reason to believe at this time, on the basis of the information presented in this statement, that the relevant Federal

The Wyoming Chapter of the Sierra Club  
 Friends of the Earth in Wyoming  
 Team Leader; Coal ES Team; December 9, 1978 -2-

agencies have performed any function other than some sort of approval or disapproval licensing function. It does not seem probable that this is the case; indeed, it would be unlikely that no monitoring of the effects of current coal mining activity has been undertaken. However, the draft statement fails to demonstrate the existence of such monitoring. It is urged that the results of studies undertaken be presented in the final version.

It is noted that the Shell Oil Company has proposed a coring and evaluation program for analysis of the overburden in the proposed Buckskin minesite. Given permit stipulations that this will be carried out, and the toxic or undesirable strata will be isolated from groundwater, by encapsulation in impermeable material or other effective means, these measures alone render the proposed mine more acceptable than other mines in the area. It is urged that such requirements be imposed on all regional mines, as part of a continuous program of hazard identification and mitigation.

It is specifically noted that the only apparent identification of cumulative mining effects to date may be in the assumed baselines utilized for air pollution prediction, although no data for 1978 was used. This is not evidence of competent professional management of the public domain.

The Wyoming Chapter of the Sierra Club  
Friends of the Earth in Wyoming

17

Team Leader; Coal ES Team; December 9, 1978 -3-

If the difficulties of time pressure imposed upon the ES Team in the preparation of this statement are the reason for the lack of updated information, and evidence of research on the effects of current mining activity in the region, it is hereby urged that the relevant authorities allow their staff sufficient time to prepare an adequate statement.

For purposes of the preservation of legal objections, it is hereby stated that no challenge to the adequacy of the statement and the management procedures employed is anticipated insofar as the statement and the management procedures relate to the socioeconomic aspects of development.

Sincerely,  
John Winkel  
John Winkel  
Secretary, Wyoming Chapter of the  
Sierra Club  
John D. Wiener, Esq.  
Wyoming Coal Consultant to  
Friends of the Earth in Wyoming

Enc.: 10 pp.

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techniques. There is no indication of any research directed toward discovering where such techniques are required, or would be helpful. Coring of the overburden and subjacent strata, and analysis of the cores is certainly appropriate in all cases, and if depositional patterns of toxic elements and combinations of elements are discovered, suitable isolation should be required. This should be a permit stipulation in all permits, whether new or re-issued under the forthcoming SHCRA regulatory programs.

It is acknowledged that uranium could exist in the overburden material of the region. (p. R2-74). It is stated that data on water from overburden material are inconclusive, (p. R4-19 - 20), although the potential for toxic leaching is certainly present. Table R4-5 indicates that selenium, molybdenum, and lead levels in sagebrush are high, but no information is given on the actual sources of these minerals, and it is noted that sagebrush is not known as being a strong concentrator of trace minerals. No information is supplied regarding plants that are known to convert selenium from inorganic forms to forms which are readily uptaken by other vegetation, or on plants which are known to metabolically require selenium, or to concentrate dangerous levels of selenium - despite the fact that these plants are well known to exist in the region. No information is presented on levels of uranium in any vegetation or animals in the region. It is acknowledged that chronic poisoning may be caused by elements known to exist in the region, which are transported from the site of the ecological exposure by water and air trans-

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Re: Trace elements and contaminants.

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Although the regional section of this statement is described as an "update" of the previous regional statement, (pp. R1-1, R2-1, R4-1), there appears to be little support for this description in the treatment of all aspects of impact except the sociocultural profile. Why is there no data presented on the subject of possible toxicity, or discovered toxicity, or absence of toxicity in the overburden and subjacent materials from the existing coal mines in the region? Because of the lack of reporting of any work done in this area, it appears that no work has in fact been done. The statement provides information which is sufficiently generalized that no conclusions can be reached. It is absurd to attempt to predict what will happen if an activity is continued and enlarged without seeking information on existing effects of the current activity. Yet this appears to be expected from this statement. The failure to monitor the effects of current mining, beyond seedling-survival rates on attempted reclamation areas, is a serious lapse of managerial responsibility.

It is known that the University of Wyoming team which researched the Black Thunder mine, for the Atlantic Richfield Co., discovered significant discontinuities in the deposition of toxic material in coal-adjacent materials. This would indicate that special overburden management could significantly reduce hazards from such material. Isolation of the toxic strata is clearly required, and yet there is no indication of such

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port mechanisms. (pp. R4-19, 22-23, R4-35). No information is presented regarding sulfur content of the coal and overburden in the region, or in existing mined areas, and no information is presented regarding generation of sulfuric acid, with attendant increases in leaching, due to exposure to air and water of sulfates. Suspended particulates are not analyzed for chemical content, and fugitive dust is not analyzed. In light of the EPA definition of fugitive dust as originating from native soils, may it be assumed that all fugitive dust which rapidly settles out of the atmosphere does in fact originate from native soil? Whether emissions may be legally classified as fugitive dust may be settled by analysis of the dust. If it contains elements which are in greater or significantly different proportions than those found in "native soil", then the emission is subject to legal limitations which would otherwise not apply. Yet there is no information on this. There is no information on the synergistic toxicity (or antagonistic non-toxicity) of materials which are no longer immobilized due to mining. While this may have been inevitable before significant mining occurred, it may not be inevitable now.

Overall, there are serious gaps in the statement. Many could have been filled by effective managerial monitoring of the effects of current mining. But it appears that once a project is licensed, no further analysis occurs. That would be unacceptable. Further failures would also be unacceptable.

Re: Hydrology and water quality.

6 While there is an overall impression that there  
 is actual data on these subjects, the presentation is so  
 nebulous that commenting is extremely taxing. For instance,  
 a critical observation is that local reversals in flow may occur  
 as topographic surface is lowered below potentiometric surface  
 and aquifer levels in specific mine sites. (p. R4-17). But,  
 7 where will discharged water go? There is simply insufficient  
 description of actual water movements in these areas. Rehn's  
 statement that spoils transmit almost as well as the aquifers  
 they replace does not relate to reversed flows. There is no  
 consideration of normal upward flow from unsaturated areas to-  
 ward a frozen surface. It is acknowledged that restoration of  
 original conditions may be impossible where mining occurs below  
 8 potentiometric surface, but no quantification of discharge into  
 mine pits is offered, nor is there offered any information on  
 transmissivity of the substrata below the mined seams. It appears  
 to be impossible to predict actual hydraulic adjustment without  
 site-specific analysis; perhaps no regional treatment has yet  
 achieved accuracy in regard to highly idiosyncratic conditions.  
 9 But there appears to be no effective analysis of what may be  
 expected in even archetypical situations despite the existence  
 of extensive mining.

Assuming, for instance, that ultimate resolution  
 may be impossible without site-specific analysis, it should at  
 least be possible to treat this subject in terms of the limits

10 which may be imposed by known possible situations. What are  
 the effects of subjacent impermeable shale strata? Should there  
 be permit stipulations directed toward prohibition of perforation  
 of such strata? It is unclear whether this particular situation  
 even exists within the region. Description of the alterations  
 of aquifers is difficult, to say the least, without knowledge  
 of the characteristics and location of the aquifers.

11 Given the high probability of quality degradation  
 due to mining and storage of fragmented overburden, it is  
 certainly desirable to assess the ultimate destination of the  
 degraded waters. "In areas where bedrock aquifers discharge into  
 spoil, the water moving into the spoil would probably increase  
 somewhat in dissolved constituents." (p. R4-19.) This quotation  
 illustrates the frustrations of the statement. In what areas  
 do bedrock aquifers discharge? Will spoil be stored or re-  
 placed in such locations? Is this avoidable? What are the  
 possible dissolved constituents? To what extent will they in-  
 crease? To what extent is that avoidable? While being fully  
 aware of the suspect nature of the use of statements out of  
 context, the inconclusive nature of this statement is such that  
 one may question its semantic and informational value.

Criticism of every statement of this type would  
 be merely annoying, given their prevalence. It appears that  
 the statement can be boiled down to a large number of questions  
 without answers. Granted that site-specific analysis may be  
 required to provide answers, it would seem far more useful to

12 present the results of actual research on mines which already  
 exist, and which are selected on the basis of the variety of  
 situations which they present, or at least to perform detailed  
 theoretical modelling of archetypical situations. If the  
 facts are not available, it should be stated that this is the  
 case. What reasons may exist for the apparent paucity of  
 information are open to question. But at this time, it can  
 be stated with assurance only that the environmental impacts  
 of coal mining on the aquifers, surface waters, and hydrology  
 and water quality of the analysis region are unknown.

It is hoped that the final statement will  
 supply more information, even if it is necessary to delay the  
 issuance of the final statement until research can be completed.

Re: Socioeconomic Analysis

The authors of this exceptionally well-drafted  
 section deserve sincere congratulations and gratitude. The  
 depth of analysis and fairness of consideration is especially  
 welcome. The quality of this section is far superior to the  
 usual treatment in statements of this type. The attitude and  
 cultural values material is excellent, as is the financial  
 analysis of the local governments. It could be desired that  
 further work be done on the local inflationary spirals which  
 are generated by large influxes of highly-paid transients,  
 but the housing analysis does address this, to some extent.  
 Further data on food prices, and increased rentals of existing  
 units would be helpful. It is deeply regretted that the re-  
 mainder of the statement falls to meet this standard of  
 quality.

Re: Reclamation.

13 There is no indication in the statement that toxicity is considered in evaluation of reclamation plans or efforts. The guidelines mentioned on p. R1-14 omit such considerations as toxicity of new vegetation, biomass and bioassay procedures and evaluation, and also omit any post-mining evaluation of effects on groundwaters, and hydrology of the allegedly-reclaimed area. The fact that plants of unknown content are growing on land which is covered with material of unknown content does not appear to be a sufficient measure of the success of reclamation. There is no apparent information on the amount of water to be used during reclamation (e.g., Tables R1-7 and 8), or on the expected necessity for water use after mining has terminated, for erosion control as well as reclamation. The climatic data appears to be old, and therefore, fails to indicate whether any effects have resulted in the local microclimate from the recent vast increases in particulate and dust emission. Data presented on pp. R2-1 through 11 appear to have been acquired during 1921 - 1955. Therefore, effects of coal mining on, for example, snow structure and rate of fall, or rate of local rain shower activity, is lacking. Therefore, the data in the section on growing season is suspect. (p. R2-1 et. seq.) Although the surface-management agency is to inspect for compliance with stipulations in permits, no stipulations are mentioned. (p. R3-11.) It is acknowledged that various plans may be defective, due to increased levels of

17 erosion, headcutting, and other factors. Yet despite the statement that difficulties are occurring in maintenance of unreclaimed overburden, mitigation measures are not described. (p. R4-22;) It is stated that no adverse chemical characteristics appear to be present in ten feet of overburden above the Wyodak coal seam, and therefore that the overburden is not toxic. But no supporting data is provided, and clearly on the basis of the discontinuous deposition patterns of toxic elements which was found at the Black Thunder mine, the allegation is not probative. Further, its informational value is questionable, due to the apparent widespread differences in local concentrations of toxic elements. Both of the reclamation efforts described include seeding with four-wing saltbush which is known to be a heavy concentrator of selenium. This might well be justifiable if the plants of the genera Atriplex were selected for use to allow subsequent removal for bioassay. However, this does not appear to be the case.

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19 No evaluation of any worth can be made on the basis of this insufficient information.

Re: Air Quality

In light of the definition of "fugitive dust" as "particles of native soil which are uncontaminated by pollutants resulting from industrial activity", (p. R3-5), it is here specifically noted that the application of this exemption from regulations designed to prevent significant deterioration of air quality, and other emission limitations is suspect. As is apparently the case in every aspect of environmental impact with the exception of surface plant growth on reclamation attempts, there appears to be no monitoring effort expected, predicted, or required. This also is cause for serious concern, and further investigation.

It is noted that certain of the mines are predicted to produce enormous amounts of fugitive dust, such as Eagle Butte, Belle Ayr, and the Cordero mine, as well as the Highland uranium operation. It is expected that managing agencies and mine operators seeking to apply the fugitive dust exemption from regulation will provide for unbiased evaluation of the content of their emissions as a measure necessary to avoid liability.

Letter 17 Responses

Some of the concerns expressed throughout the Sierra Club/Friends of the Earth letter are of a general nature; they are related to impact monitoring, results of past mining, and toxic materials. A discussion of these matters follows.

Regulations promulgated under the Surface Mining Control and Reclamation Act (SMCRA) provide for monitoring of air quality, surface water, and groundwater, and for identification and isolation (from root zones and groundwater) of toxic materials. These regulations apply to all ongoing coal operations on federal leases in accordance with promulgation of final federal lands program regulations under SMCRA.

Wyoming laws also provide for the monitoring of water discharged into surface waters, of air quality before and during mine operations, and of reclamation according to an approved plan.

All results of soil sampling, overburden testing, and monitoring are a matter of public record. Members of the team used such data available to them in writing the description of the environment and the impact analysis. Because monitoring requirements are recent or, in some cases, not yet effective, data are sparse. Data gaps are, however, pointed out in the text. Please see also responses 17-9 and 17-12.

With regard to delaying publication of the final ES, please see response 33-14.

1. Trace elements considered to be of environmental concern (antimony, arsenic, cadmium, copper, fluorine, lead, lithium, mercury, selenium, thorium, uranium, and zinc), along with other trace elements, have been analyzed from Wyodak-Anderson coal, surface and near surface materials (0 to 6.6-foot depths), and overburden rocks (10- to 166-foot depths) in the Powder River Basin by the Geological Survey (Keefer and Hadley 1976). Available data on the geochemistry of overburden rocks based on the above analyses show a relatively wide range of concentration for many elements. Table 1, below, summarizes some of the results of the Geological Survey analysis program. Data from the first (1976) and second (1975) annual progress reports of the Geological Survey geochemical surveys of the western coal regions are included in the table. This is a continuing program and subsequent annual progress reports will add to the analytical data.

Keefer and Hadley (1976) state:

The greatest potential for change in the chemical makeup of surface materials stems from the substitution of overburden rocks for surface soils following strip mining. This potential may be minimized by the removal, stockpiling, and subsequent return of existing surface and near-surface soils and rocks as topdressing on mine spoils. As indicated in Table 1, the few localities in which these materials have been sampled show little change in geochemical properties from the surface downward to 6 to 7 feet (about 200 cm).

One inevitable result of surface mining, however, is that still more deeply buried, relatively unaltered rocks will be brought closer to the land surface in many places and subjected to the natural cycle of leaching,

weathering, and erosion. Although available analyses on overburden rocks (Table 1) indicate higher concentrations of some trace elements as compared with concentrations in surface and near surface materials, conclusions have been reached that (1) when the higher values for the samples that were analyzed are averaged with those of other samples from the same core, their significance is minimal; (2) none of the elements occurs in abnormally greater amounts than are present in similar rock types throughout the United States; and (3) the presence of toxic trace elements (those indicated in Table 1) serves as a warning of potential pollutant or contaminant but does not necessarily indicate that toxic concentrations would result from the oxidation and leaching of overburden materials. Few oxidation and leaching tests, however, have yet been conducted for overburden rocks in the Eastern Powder River Basin.

TABLE 1  
CONCENTRATIONS OF TRACE ELEMENTS IN WYODAK-ANDERSON COAL, SURFACE SOILS, NEAR-SURFACE SOILS AND ROCKS, OVERBURDEN ROCKS, AND SAGEBRUSH IN THE POWDER RIVER BASIN

Element	Wyodak-Anderson (reconciled on whole- coal basis)		Sagebrush ash (reconciled on whole- plant basis)		Surface and near-surface materials		Overburden rocks		Average concentrations of the surface soils (1-2, 3-5, 5-8) ft crust
	Mean	Range	Mean	Range	Depth: 0-1 inch (0-2.5 cm)	Depth: 6-8 inches (15-20 cm)	Depth: 1-2 feet (30-60 cm)	Depth: 3-5 feet (90-150 cm)	
Actinium*	0.3	<0.1-1.7	---	---	---	---	0.4-0.9	0.8-1.0	1.0-2.9
Arsenic*	1.9	<1-4	---	---	1.2	8.2	4-5	2.8-5.0	0.2
Cadmium*	1.1	<1-1.12	6.8	1.3-30	7.2	---	---	---	1.2
Copper*	13.2	3.3-51.0	---	---	---	---	---	---	---
Lead*	4	<1.5-8.2	---	---	18	18	5-50	7-20	55
Lithium*	2.5	<1.5-4.9	65	<30-150	18	18	10-1200	15	260-840
Mercury*	1.14	.05-2.9	---	---	22	22	24-47	9-15	11-50
Thorium*	1.5	<1.5-7.9	---	---	0.02	0.02	0.1-0.04	0.1-0.02	0.07-0.15
Uranium*	1.8	<1.5-3.2	---	---	9.60	9.6	5.3-15	8.1-3	4.1-14.3
Zinc*	7.5	2.1-25	430	200-800	67	64	25-104	2.2-2.4	2.1-6.9

Modified from Keefer and Hadley 1976

Note: Analyses performed in Geological Survey laboratories. Symbol \* indicates concentration is less than the value shown. Leaders (...) indicate no available data. Asterisk (\*) indicates elements generally considered to be of environmental concern. All values are in ppm.

2. An addition has been made to the text in Chapter 4 of the regional analysis, Vegetation.

3. See response 17-4.

4. No information was presented regarding the generation of sulfuric acid because it is not a problem in the area. The groundwater in the coal and adjoining aquifers has a high pH (Hodson et al. 1973) and is highly buffered. Where groundwater is discharged at the surface it remains in a basic environment, so there is small, if any, change in pH. Examples of high pH water that are, or may be, influenced by strip mining are in the abandoned Midden Water Mine near Sheridan, where the pH of the water is about 8 and in Donkey Creek below the Wyodak Mine where the lowest of five pHs measured in the period August 1975 to August 1977 by the Geological Survey was 7.7.

The generation of H<sub>2</sub>SO<sub>4</sub> in air from SO<sub>2</sub> or SO<sub>3</sub> emissions (most of this generation will occur by the oxidation of SO<sub>2</sub> to SO<sub>3</sub> or SO<sub>3</sub> compounds and then reaction with water) is a relatively slow fraction in the atmosphere and is dependent on solar radiation. The increased amount of H<sub>2</sub>SO<sub>4</sub> produced as a result of the SO<sub>2</sub> emissions from the mines should be small, due (1) to the low level of SO<sub>2</sub> emissions from the mining operations, and (2) to the low sulfur content of the coal itself.

5. No chemical analysis of the total suspended particulates (TSP) associated with the proposed mines has been performed. It is assumed that chemical composition of the TSP will be similar to that of the native soil in the areas to be disturbed. Analysis of the chemical composition of the native soil has been performed. (See Chapter 2 of the regional analysis, Soils.)

The only other major source of TSP besides the fugitive dust is the coal itself. Some preliminary analyses for chemical composition of the coal have been performed on the coring samples. It is also standard procedure to perform this type of analysis as the coal is mined. See Table 1, response 17-1.

There has been no research work done on the synergistic toxicity of the emissions associated with a rural coal mine. Studies in this area of air pollution have only been done in urban areas. Their results are not applicable to the mining operations discussed in this ES.

6. The water would flow into the mine pit.

7. It is correct that Rahn's work described saturated flow. Vapor transfer through a ground temperature gradient was not considered in writing the ES. A cursory check of the literature indicates that water movement toward the frozen surface would occur in areas of high water tables in the winter, but a reverse flow, of approximately the same amount, would occur in the spring. Therefore, the overall change in water by this mechanism is considered minor, and a section describing the movement has not been added.

8. Estimation of discharge into the Buckskin Mine pit is given in the site-specific analysis, Chapter 3. Flow into the Belle Ayr Mine is reportedly about 100,000 gallons per day but this includes runoff from precipitation.

Wells described in Table RB-2, Results of Aquifer Tests, that are completed in strata below the coal are Rozet #5, and Wyodak Wells 5, 6, and 7.

9. The impact of the Wyodak Mine on the water level in the coal is shown in Figure R4-10. There are, to date, no reclaimed areas at the Wyodak Mine with saturated spoil from which to obtain data on the hydrologic conditions in the reclaimed areas. The Wyoming Water Resources Institute has prepared an analysis of the hydrology of reclaimed areas at the Belle Ayr Mine in draft form and publication is expected by March 1979. Other mines are too new to generate this type of information.

10. Subjacent impermeable strata, where present, will impede the vertical movement of water. Assuming the concern is for pollution of an underlying aquifer by vertical movement, there are no prohibitions against perforation, but there are regulations protecting aquifers such as Wyoming law:

§ 30-96.14. Drill holes to be capped, sealed or plugged. -- All drill holes sunk in the exploration for locatable or leasable minerals on all lands within the State of Wyoming shall be capped, sealed or plugged in the manner described hereinafter by or on behalf of the discoverer, locator or owner who drilled the hole. Prospecting and exploration drill holes shall include all drill holes except those drilled in conjunction with the expansion of an existing mine operation or wells or holes regulated pursuant to chapter 6, title 30, Wyoming Statutes 1957, Compiled 1967. (Laws 1971, ch. 248, § 1.)

Subjacent, relatively impermeable strata do occur in the region. See Chapter 2 of the regional analysis, Water Resources, Groundwater, Fox Hills Sandstone...

11. Figure R4-10 shows the gradient down which water flows; the discharge would be focused at the mines. Spoil will be stored in these locations, and this is unavoidable because spoil will be placed next to the coal at the edges of the leases to conform with regulations on reclamation. Water is probably the most universal solvent, so it is possible that about anything in contact with the water could be dissolved, depending on such things as temperature, pressure, oxidation-reduction potential, pH, and reactions with other constituents. On the other hand, probable constituents are those found by Rahn (1976). It probably is not possible to identify the change in a natural system, because the amount of water moving regionally in the coal is small compared to local recharge. Therefore, local conditions will dominate and mask other changes.

12. Modeling was beyond the scope of this ES. However, the Bureau of Mines has let a contract to a consultant for modeling shallow aquifers in the Powder River Basin, and the Geological Survey has ongoing studies that include modeling of the deep and shallow aquifers in the basin.

13. The guidelines were established to provide a consistent approach for the team in their analysis and are not meant to evaluate effects.



United States Department of the Interior

NATIONAL PARK SERVICE  
ROCKY MOUNTAIN REGIONAL OFFICE  
805 Park Street  
P.O. Box 25287  
Denver, Colorado 80225

IN REPLY REFER TO:

L7621 (RMR)PC

DEC 8 1978

14. The mining and reclamation plans used in the preparation of the analysis generally state that supplemental watering of reclaimed areas will not be done or will be done only when needed to establish early growth.

15. The climate data presented in Chapter 2 was used because of the availability of the STAR (Stability Array) data deck associated with them. The STAR data deck was necessary for modeling the emissions from the mines and the surrounding areas. It was felt that this data was adequate in that the climatic conditions between 1921 and the present were fairly constant. No change in regional climate due to coal mining is expected.

16. Stipulations are placed on a lease at the time of issuance or on a mining and reclamation plan at the time of approval. Stipulations on a mining and reclamation plan result from concerns and problems discussed in the environmental statement.

17. Reclamation measures such as contouring and revegetation are prescribed to prevent water erosion. Mitigating measures listed in the ES are those legally required or committed by an agency or private organization. Other means to reduce impacts can be suggested as alternatives on a site-specific basis, as appropriate.

18. See response 17-1.

19. An addition concerning selenium-converter plants has been made to the text in Chapter 4 of the regional analysis, Vegetation.

Memorandum

To: Team Leader, Coal ES Team, Bureau of Land Management, Casper, Wyoming

From: Regional Director, Rocky Mountain Region

Subject: Review of draft environmental statement for the Eastern Powder River Coal Region of Wyoming (DES 78-48)

We have reviewed the subject statement and offer the following comments:

The proposed mining activities would not directly impact any units of the National Park System. The increase in population from the labor force may result in some increase in visitation to areas such as Devils Tower National Monument and Fort Laramie National Historic Site, Wyoming; and Jewel Cave National Monument, Wind Cave National Park, and Mount Rushmore National Memorial, South Dakota; but there is no way of quantifying what that impact might be. We expect it would be a rather small percentage of the thousands of people that visit these areas annually.

Also, as noted on page B13-7, current Environmental Protection Agency regulations exempt fugitive dust from control under the total suspended particulate increment of the prevention of significant degradation of the Clean Air Act. The regulation in which that position was taken by the Administrator of the Environmental Protection Agency invited input from the public pertaining to the subject indicating that he would consider reversing that preliminary decision. The Service disagrees with this Environmental Protection Agency position. We believe that without adequate control, fugitive dust can become an important factor in the prevention of significant deterioration in pristine air quality areas such as the national parks. Although coal mining is not the sole source of fugitive dust, in this instance it must be considered as a major source. Technology for modeling the transport, dispersion, and concentrations of fugitive dust has developed rapidly. We feel strongly that fugitive dust be included as a controlled



Save Energy and You Serve America!

Team Leader  
Coal ES Team  
951 Union Blvd.  
Casper, WY 82601

12-11-78

Dear Sirs,

I have not had an opportunity to finish reading the coal E.S. at this time. However, please find enclosed a map of the Thunder Basin National Grasslands. It contains the current Prairie Dog towns to 1978 which are located in the Grasslands. I hope you will include these on your map of small animals.

Sincerely  
Roy J. Paichenbush  
Manager  
Thunder Basin Grazing Assoc.

emission under PSD for Class I areas. If this is done, additional authorization will be required, including the authority to redesignate road corridors where Class II TSP increments will be exceeded.

We appreciate the opportunity to comment on this environmental statement.

*Glen T. Bean*  
for Glen T. Bean

Letter 19 Response

1. This comment refers to EPA regulations rather than the ES; thus no response is necessary.

Letter 18 Responses

1. The small animals map (Map 7, Appendix A) has been revised to include your new information.

**BURGESS & DAVIS**  
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TELEPHONE  
 801-882-7448  
 P.O. BOX 728

December 11, 1978

United States Department  
 of Interior  
 Bureau of Land Management  
 P.O. Box 1828  
 Cheyenne, WY 82001

Re: Draft Environmental Statement-Eastern Powder  
 River Coal

Gentlemen:

The following brief comments relate to the Draft  
 Environmental Impact Statement for Eastern Powder River  
 Basin.

I understand some individuals at the public hearing on  
 Tuesday, November 28, 1978 represented to you that ranchers  
 in the Powder River Basin were against further coal leasing  
 at any level. Contrary to that position, we have represented  
 and do represent a number of land and mineral owners who  
 desire to have their minerals, and particularly coal, devel-  
 oped. In some cases over 200 individuals will benefit when  
 the coal is mined. From my observations, as long as mineral  
 development takes place in an orderly fashion and in accor-  
 dance with environmental regulations, most of the land  
 owners affected do not object.

One of the problems which we have found to affect land  
 owners in the Powder River Basin, more than others, are the  
 impacts from the location of transportation, transmission  
 and utility easements. It does not appear the draft impact  
 statement adequately comments on the need for a coordinated  
 federal, state and local policy on the location of these  
 burdens within natural corridors. An example is the pro-  
 posed 230 KV line by Tri-County Electric. That line runs  
 generally north and south. It could be located along exist-  
 ing corridors, particularly Highway 59 or the Burlington  
 Northern right-of-way. Instead, it picks a new corridor,  
 not parallel to either of those mentioned, nor to any exist-  
 ing power line.

Letter 20 Responses

1. The Bureau of Land Management's Management Framework Plan (MFP) (July 1977)  
 specifies that persons constructing new energy transmission or transportation  
 facilities must consider locating them near existing facilities. New corridors  
 will be considered only when location near other facilities is impractical or  
 unsafe.

The text of Chapter 3 of the regional analysis has been amended to indicate this  
 MFP decision.

Bureau of Land Management control over new rights-of-way, however, applies only  
 to federal surface under its jurisdiction. See transcript response #18.

The 230-kv line to be constructed by Tri-County Electric Association, Inc. was  
 the subject of a separate ES published in final form in April 1978 by the Rural  
 Electrification Administration. Several alternate routes were analyzed for  
 visual, safety, land use, and vegetative disturbance impacts, as well as their  
 proximity to strippable coal resources.

2. Section 510(b) of the Surface Mining Control and Reclamation Act provides,  
 in certain circumstances, for the lease of other federal coal deposits to an  
 operator in exchange for relinquishment of leased deposits (minerals for min-  
 erals). Section 206 of the Federal Land Policy and Management Act provides for  
 the exchange of federal lands for private lands in certain circumstances.  
 However, the need for mixed exchanges has not yet been demonstrated in the  
 region.

U.S. Department of Interior  
 -2-  
 December 11, 1978

Land owners in the area have for years suffered from  
 the helter-skelter and spider-like growth of these easements  
 upon their lands. I recommend the Bureau of Land Management  
 develop a firm policy and not grant easements for right-of-  
 way across federal lands which do not conform to some exist-  
 ing corridor.

Finally, I suggest the rules and regulations governing  
 the trading of minerals and surface between the federal gov-  
 ernment and private individuals be expanded to provide for  
 exchanges of surface and minerals, as well as surface for  
 surface and minerals for minerals. To do so would (1) pro-  
 mote the consolidation of isolated federal surface; (2) pro-  
 mote the consolidation of economically recoverable coal; (3)  
 prevent mining of areas deemed environmentally unacceptable;  
 and (4) promote the orderly development of the general area  
 of the Powder River Basin for the benefit of the land owner,  
 federal government and general public.

Yours very truly,

BURGESS & DAVIS

*Richard M. Davis, Jr.*  
 Richard M. Davis, Jr.

RMD:gkp



UNITED STATES DEPARTMENT OF COMMERCE  
 The Assistant Secretary for Science and Technology  
 Washington, D.C. 20230  
 (202) 377-38K 4335

December 13, 1978

Team Leader  
 Coal ES Team  
 951 Union Blvd.  
 Casper, WY 82601

Dear Sir:

This is in reference to your draft environmental impact  
 statement entitled: "Eastern Powder River Coal Region  
 of Wyoming." The enclosed comment from the National  
 Oceanic and Atmospheric Administration is forwarded for  
 your consideration.

Thank you for giving us an opportunity to provide this  
 comment, which we hope will be of assistance to you. We  
 would appreciate receiving four (4) copies of the final  
 statement.

Sincerely,

*Sidney R. Gallet*  
 Sidney R. Gallet  
 Deputy Assistant Secretary  
 for Environmental Affairs

Enclosure Memo from: Isaac Van der Hoven  
 Environmental Research Lab.  
 NOAA

NOV 24 1978



U.S. DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration  
ENVIRONMENTAL RESEARCH LABORATORIES R32  
Silver Spring, Maryland 20910

November 27, 1978

TO: PP - William Aron

FROM: R32 - Isaac Van der Hoven

SUBJECT: Comments on "The Eastern Powder River Coal Basin of Wyoming"  
DEIS #7811.09

It is assumed that the predicted particulate concentrations shown in figures BU3-1 through BU3-8 are calculations using the NCDM-V3 dispersion model with the Buckskin Project as the source. The ambient particulate concentrations are assumed to be the contribution from all other surrounding sources in addition to the Buckskin Project. From the figures, it is obvious that the difference between predicted and ambient is always 12 micrograms/m<sup>3</sup>. This then would mean that between 1980 and 1999 no increase in the contribution from all other surrounding sources would be expected, which does not seem reasonable. Also, one would expect a difference between the average annual and 24-hr contribution from the surrounding sources. Finally, the meteorological conditions which can cause a worst-case predicted value from the Buckskin Project can also cause a worst-case situation for the surrounding sources.

21

22

FEDERAL ENERGY REGULATORY COMMISSION  
WASHINGTON, D.C. 20426

(IN REPLY REFER TO)

December 12, 1978

Team Leader  
Coal ES Team  
951 Union Blvd  
Casper, Wyoming 82601

Dear Sir:

I am replying to your request 1792 (920) to the Federal Energy Regulatory Commission for comments on the Draft Environmental Impact Statement for the Eastern Powder River Coal Region of Wyoming. This Draft EIS has been reviewed by appropriate FERC Staff components upon whose independent evaluation this response is based.

The staff concentrates its review of other agencies' environmental impact statements basically on those areas of the electric power, natural gas, and oil pipeline industries for which the Commission has jurisdiction by law, or where staff has special expertise in evaluating environmental impacts involved with the proposed action. It does not appear that there would be any immediate significant impacts in these areas of concern nor serious conflicts with this agency's responsibilities should this action be undertaken. However, there does not appear to be any recognition of the potential jurisdictional responsibilities of FERC related to the joint venture of Panhandle Eastern Pipe Line Co. and Peabody Coal Co. for a coal gasification facility, a gas transmission pipeline and co-mingling of SNG with natural gas in the interstate system. If the SNG is to be co-mingled with interstate natural gas supplies, FERC jurisdiction will be involved. We recommend that the sections dealing with institutional relationships, laws and regulations be revised to include FERC.

In general, staff finds the contents of this DEIS to be satisfactory, but it could be improved with the addition of a benefit/cost analysis and since it is important to strike a balance between economics and environmental impacts.

Sincerely,

*Jack M. Heinemann*  
Jack M. Heinemann  
Advisor on Environmental Quality



Letter 21 Responses

1. The assumption that predicted particulate concentrations shown in Figures BU3-1 through BU3-8 are calculations using the NCDM-V3 dispersion model is correct. The assumption that the ambient particulate concentration is the contribution from all other surrounding sources in addition to the Buckskin project is also correct. While it is true that the background concentration of 12 ug/m<sup>3</sup> could change over the years, it was not in the scope of the project to predict such a change. The sole purpose of the site-specific analysis was to predict the particulate concentration that the Buckskin project would contribute to the total suspended particulate (TSP) concentration in areas closely surrounding the mine site. When conducting the analysis on a site-specific basis, there were no means of predicting any possible changes in background TSP concentrations, so a consistency was assumed throughout the study period. These possible changes were, however, investigated in the regional analysis, which was developed simultaneously with the development of the site-specific analysis. Any changes can be substituted for the background concentration of 12 ug/m<sup>3</sup>.

The meteorological conditions which can cause a worst-case situation for the surrounding sources may not necessarily be the same conditions which cause a worst-case predicted value. For instance, high winds, increased activity at the mine site, or an extended period without precipitation (or a combination of these factors) could cause a worst-case predicted value and not cause a worst-case situation for the surrounding sources. The joint probability of having worst-case conditions for both surrounding sources and predicted sources is therefore very low. Thus the annual average for surrounding sources was used in computing worst-case 24-hour situations from the mine site.

Letter 22 Response

1. The text has been amended. See Chapter 3 of the regional analysis.
2. The Bureau of Land Management does not normally include in its environmental statements benefit/cost analyses or economic comparisons of proposed actions and alternatives. Benefit/cost analyses are prepared separately if needed for consideration during the decision-making process.

THE CARTER MINING COMPANY  
GILLETTE, WYOMING 82716

DARRELL G. WARNER  
Vice President

Post Office Box 209

December 18, 1978

Draft Environmental Statement for the  
Eastern Powder River Coal Region  
1792 (920)

Team Leader  
Coal ES Team  
951 Union Blvd.  
Casper, WY 82601

Dear Sir:

The Carter Mining Company appreciates this opportunity to comment on the above-referenced statement. The Draft Environmental Statement reflects an extensive effort that your group devoted to preparing a thorough, comprehensive consideration of the environmental impacts of coal development upon the Eastern Powder River Coal Region of Wyoming.

With reference to the statement on Page BUI-2 that Carter does not anticipate mining the coal under the railroad right-of-way, please be advised that The Carter Mining Company, operator of the lease, intends to mine all economically recoverable and salable coal on the lease. The Carter Mining Company has an agreement with Shell Oil to provide for the mining of coal in the right-of-way.

Sincerely,

*D. G. Warner*  
D. G. Warner

DGM/JHM/elr

Letter 23 Responses

- 1. The text has been revised. See Chapter 1 of the site-specific analysis, Support Developments.



CITY OF CASPER

Incorporated 1889  
Casper, Wyoming 82601  
December 6, 1978

Team Leader  
Coal ES Team  
951 Union Boulevard  
Casper, Wyoming 82601

Dear Team Leader:

Thank you for the opportunity of reviewing the Draft Environmental Statement for the Eastern Powder River Coal Region of Wyoming. I found the report very informative and well documented. As I indicated during the hearing, my primary concern was in regards to the population estimates for Natrona County. Since the hearing, I have had an opportunity to review the entire draft and have made some comments for your consideration.

If you have any questions or need additional information regarding this matter, please contact our office.

Respectfully,

*Lee West*  
Lee West  
Planner II

LM/jd

1. Table R2-23, page R2-102

A. Disagree including Evansville, Mills, and Casper under one general heading of Casper unless indicated.

B. Disagree with population estimates for 1973, 1975, 1976, 1978 and related percentages of growth. The City-County Planning Office conducted an on-site inventory of all residential structures in the county, excluding remote rural areas, in 1975-1976. From this inventory, a total of 20,773 dwelling units were counted. Assuming a similar density of 1970, a total of 61,306 persons were estimated for 1976. (See Exhibit I)

Another inventory was conducted in the fall of 1978 (See Exhibit J) which indicates a total of 24,387 dwelling units and an estimated population of 73,588.

C. Disagree completely with estimated population for other areas and related percentages. As indicated in the table, overall growth from 1970 to 1978 was 1,421 persons. This area, which I assume to be the Towns of Midwest and Edgerton; unincorporated areas of Paradise Valley and Mountain View; urban development near and adjacent to Casper, Mills, and Evansville; and all rural development in the County is a rather large and diverse grouping to include without further explanation.

The Planning Department designated the unincorporated areas of Paradise Valley and Mountain View and the urban development near and adjacent to Casper, Mills, and Evansville into a general heading "Special Study Area". This area had 3,031 dwelling units and an estimated population of 9,026 in 1976 and 4,919 dwelling units and an estimated population of 15,950 in 1978.

While detailed population projections were not computed for 1973 or 1975 by the Planning Office, a more realistic projection, using a straight line three percent growth rate from 1970-1976, for table R2-23 is shown on the next page.

1970-1973		1973-1975		1975-1976		1976-1978	
Population	Change	Population	Change	Population	Change	Population	Change
<u>NATRONA COUNTY</u>							
56,018	(3.0)	59,429	(3.0)	61,306	(1.0)	73,588	(8.4)
<u>CASPER</u>							
45,626	(2.7)	48,404	(3.0)	49,877	(2.9)	55,121	(4.8)
<u>OTHER AREAS</u>							
10,392	(3.4)	11,025	(2.9)	11,429	(3.5)	18,467	(19.0)

Supporting documents reflecting 1976 dwelling unit counts and 1978 counts are included for your consideration. (See Exhibit I, II)

2. Table R2-30, page R2-116, Housing Supply

A. Agree with housing supply data supplied by myself but question how the data is used in comparison to the population data referred to in Table R2-23. The housing supply data presented only reflects totals for the City of Casper, while the population estimates for Casper includes the City of Casper, Town of Mills and Town of Evansville.

3. Table R2-32, page R2-118, City Housing Market Characteristics, 1978

A. Reflect 1977 and 1978 totals for various communities not entirely 1978 totals.

B. City of Casper totals are for 1977 and only reflect the incorporated limits. The 1978 total for the City of Casper is 17,087; Evansville, 688; and Mills, 793; for a combined total of 18,568.

4. Section R-3

A. While the section "Planning and Environmental Controls" focuses primarily upon Campbell and Converse counties, I feel that the land use planning process and agencies for the region should also be identified somewhere in the report. (i.e.: Crook, Johnson, Natrona, Niobrara, Sheridan, and Weston)

Mention may also be made regarding the cooperative planning agreement between the City-County Planning Office of Natrona County and the Bureau of Land Management. It is my understanding that Converse County has a similar agreement.

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5. Table R4-3, Projected Population for Cities In and Near the Region  
A. Uncertain of the meaning of this table from the text.

6. Table R4-13, Cumulative Population Projections, 1978-1990  
A. As indicated previously, I disagree with the 1978 population base of 58,000 for Natrona County.  
B. Combining population estimates for Casper, Mills, and Evansville, as has been done in Table R2-23, the following are the cumulative projects.

1978	1980	Annual Rate of Change 1978-1980	1985	Annual Rate of Change 1980-1985	1990	Annual Rate of Change 1985-1990	Annual Rate of Change 1978-1990
<u>NATRONA COUNTY</u>							
73,588	78,038	(3.0)	90,467	(3.0)	104,876	(3.0)	(3.0)
<u>CASPER</u>							
55,121	58,478		67,792		78,589		
<u>OTHER</u>							
18,467	19,560		22,675		26,287		

7

7. Table R4-16, page R4-52, Projected Cumulative Housing Demand  
A. As previously indicated, 16,269 dwelling units is the total for the City of Casper only.  
B. It is not foreseen that the greatest influx of housing for the City of Casper by 1990 will be mobile homes. The urbanized area has experienced an influx of mobile homes, but not the City of Casper, as shown by the following.

	<u>HOUSING TYPE, 1976</u>			
	<u>Single Family</u>	<u>Multi-Family</u>	<u>Mobile Homes</u>	<u>Total</u>
Casper	11,476	3,401	620	15,497
Evansville	403	2	283	688
Mills	301	14	379	696
Special Study Area	<u>1,749</u>	<u>70</u>	<u>1,068</u>	<u>2,887</u>
<b>TOTAL</b>	<u>16,931</u>	<u>3,487</u>	<u>2,350</u>	<u>19,768</u>

	<u>HOUSING TYPE, 1978</u>			
	<u>Single Family</u>	<u>Multi-Family</u>	<u>Mobile Homes</u>	<u>Total</u>
Casper	12,568	3,868	655	17,091
Evansville	403	2	283	688
Mills	350	14	429	793
Special Study Area	<u>2,756</u>	<u>115</u>	<u>2,048</u>	<u>4,919</u>
<b>TOTAL</b>	<u>16,077</u>	<u>3,999</u>	<u>3,415</u>	<u>23,491</u>

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C. The Planning Office has not projected housing types through 1990.  
D. A problem I see is the interchange of terminology between Casper and Natrona County which should be clarified somewhere in the report.  
8. Table R8-12, Table R8-34, Low Level Scenario and High-Level Scenario reflect 58,000 population data base.  
9. Other tables reflecting a population base of 58,000 are indicated throughout the report, e.i.: Health Care Requirements, Health Facilities, Particulate Emissions, etc.  
10. R2-111 - Change police ratio of cars to 3.0 instead of 3.7.  
11. Request that you examine all other figures with the respective City and County Departments.

Letter 24 Responses

Thank you for the information you provided.

1. The population table in Chapter 2 of the regional analysis has been revised so that total population for Casper no longer includes that of Evansville and Mills.

Estimates for 1973 and 1975 have been allowed to stand. The difference between these estimates, which were made by the Bureau of the Census, and City of Casper estimates, is explained in part by the city's assumption that the number of persons per household has held constant, when in fact it has almost certainly declined. The figures for 1978 have been omitted from the revised population table. In the case of 1978, the city's estimates are probably more accurate than those we showed in the draft ES, which did not take into account the unexpectedly large increase in local employment in 1978. Therefore, 1978 figures have been adjusted to those provided by the City of Casper.

Regarding grouping together all other areas, the time allowed for analysis seemed to necessitate concentrating on those localities expected to experience the greatest impacts from energy-related development.

2. Population estimates have been adjusted to show Casper alone, corresponding to the geographical basis of housing data. See the population table in Chapter 2 of the regional analysis.

3. It is recognized that data for Casper, as well as for other communities, necessarily reflects a variety of sources and analytical methods. It was, however, the best data available as of early 1978, and it serves as an adequate basis for further analysis. However, the title of the table has been amended to indicate that data is not exclusively from 1978. See also response 24-2.

4. Campbell County and a major portion of Converse County were selected as the area of analysis for this regional ES. Where it is considered pertinent to impact analysis, regulations, land use planning, and related agreements are identified; in this ES, county plans for Campbell and Converse counties seemed to be relevant. Preliminary contacts between BLM and Converse County have been made toward the development of a planning coordination memorandum of understanding. The agreement is not final.

5. The table has been revised. It shows population projections used for the air quality modeling. See Chapter 4 of the regional analysis, Air Quality.

6. See response 24-1. Casper data has been disaggregated in the final ES.

7. See response 24-2. Since we disaggregated Casper's data from that of suburban areas, we have revised the annual increase in demand for mobile homes in Casper from 14.5% to 8.4%. See housing demand table in Chapter 4 of the regional analysis. Housing demand projections shown in the ES do not purport to be those of the planning department.

8. The population base has been adjusted. See response 24-1.

9. Socioeconomic tables throughout the regional analysis have been adjusted to reflect the higher population base.

10. The ratio of one police car to every 3.7 officers reflects the number of sworn officers (70) and the number of fully equipped vehicles (14 marked, 5 unmarked) as furnished by the Casper Police Department in April 1978.

11. It is believed that figures on facilities and manpower cited in the ES were correct in early 1978 and are adequate for purposes of this analysis.

UNITED STATES DEPARTMENT OF AGRICULTURE  
FOREST SERVICE  
Rocky Mountain Region  
11177 West Eighth Avenue, Box 25127  
Lakewood, Colorado 80225

25

1950  
December 8, 1978



Team Leader  
Coal ES Team  
951 Union Blvd.  
Casper, Wyoming 82601

Reference: DES - Eastern Powder River Coal Region of Wyoming

We have reviewed the Draft Environmental Statement for the Eastern Powder River Coal Region of Wyoming that includes portions of the Thunder Basin National Grasslands and do not have any substantive comments. Any editorial revisions can be made by the Forest Service representative on the ES Team.

*William C. Rupp*  
CRAIG W. RUPP  
Regional Forester

Letter 25

No response required.

RD00-11 (1-78)

26



### Powder River Basin Resource Council

Sheridan, Wyo. 82801  
307-672-5809

Douglas, WY 82633  
214 S. 4th St.  
(307)358-5558

December 18, 1978

Team Leader  
Coal ES Team  
951 Union Blvd.  
Casper, WY 82601

Team Leader:

Following are additional comments on the Draft Environmental Statement for Eastern Powder River Coal, as were promised at the ES hearing in Casper.

Concerning uranium production levels and schedules, the ES Team would do well to obtain a copy of Mineral Development Monitoring System, a recent publication of the Minerals Division of Wyoming's Department of Economic Planning and Development. The report is an attempt to survey probable mineral development in Wyoming for each county and active company, and as such gives a useful oversight. However, the section on uranium does not catalogue all possible or probable developments. The section on coal makes no mention of HEMCO's new proposed mine in Converse County. I stand by my testimony on probable new uranium mines for the near future, except that one of the possible open pit mines reported for the Pumpkin Buttes area should have been counted as a solution mine.

I am concerned that the ES is supposed to assess significant impacts of cumulative energy development on towns outside of the study area, yet does not address the problems of Midwest, Edgerton, and Kaycee. These towns should all experience impact from expanded uranium development in the Pumpkin Buttes area. I suggest that the ES Team discuss the situation with local governmental officials and planners, as well as with social service representatives from Natrona and Johnson Counties.

As promised, here are some names of ranchers in the immediate vicinity of uranium exploration and mining activity who have experienced well problems. I am sorry that I cannot document more, for my records are quite sketchy and I have not attempted to do anything like the exhaustive study which should be done. From my limited contacts in Campbell County, I found that the following ranchers have had problems: Albert Schlaumann, John Christiansen, Charles Christiansen, and Leroy Van Buggenum. In Converse County, Gene Hardy and Richard Hornbuckle have had problems as well as others who prefer to remain unnamed. There are doubtless others in both counties who have experienced declining yields, flowing exploration holes, lowered artesian pressure, and contamination of potable aquifers.

Other impacts of uranium mining and milling have not been adequately addressed. For example, participants (including myself) in a Congressional tour of the Powder River Basin (staged this July by the Colorado School of Mines and Resources For the Future) discovered that Selenium-converter plants are growing on reclaimed land at Exxon's Highland Uranium Mine. Questions remain concerning the seriousness of the situation and the probability of it occurring at other sites. The Morton Ranch Statement states that moderate to high levels of Selenium are associated with overburden at the Morton Ranch sites, which indicates a strong possibility that the Selenium

-2-

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problem may develop there, also. Elevated concentrations of Se in both sagebrush and lichen were found by the U.S. Geological Survey near the Dave Johnston power plant, raising questions about levels of Se in grasses. (See "Geochemical Baselines," U.S.G.S. Circular 778, 1978, p. 27-28.)

Other trace elements may produce geochemical impact for vegetation, livestock, and wildlife. The U.S.G.S. Circular cited above also addresses altered Cu/Mo ratios for vegetation growing on strip mined lands in the Northern Great Plains, and other geochemical parameters. The ES does not adequately assess their potential and probable impacts for coal and uranium strip mines and power plants.

Other impacts of uranium mining and milling have been touched upon or hinted at, but not addressed in detail. They include, but are not limited to: the effect upon groundwater tables of not re-injecting water from deep mine de-watering operations, both on a site-specific and cumulative regional basis; the potential and probable solution mining impacts; the potential Selenium, Radium, and Radon problems with tailings ponds versus in-pit burial of tailings; and, the cancer rates in uranium mining areas. These impacts should be assessed for the region (and contiguous areas) and for a typical site. I would suggest Exxon's Highland Uranium Mine for the latter, as it has a mill and strip, deep, and solution mine projects in one location, and has been operating for some time.

In summary, the Draft ES does not give a true picture of the cumulative regional impacts of energy development in the Eastern Powder River Basin, and largely because of its failure to address uranium development in any kind of depth. Its value as a decision document is substantially diminished for this and other reasons. The Powder River Basin Resource Council has supported the cumulative regional impact assessment of all mineral development, and reiterates its support for this concept now.

Thank you for the opportunity to comment.

Sincerely,

*James V. Resick*

James V. Resick, Douglas Staff  
Powder River Basin Resource Council

#### Letter 26 Responses

1. The team used the Mineral Development Monitoring System (DEPAD 1978) as a source for correcting uranium development information throughout the text, most notably in Chapter 1 and the socioeconomic portions (projected population increases). For reasons explained in transcript response #4, changes in coal development projected for the region have not been made.
2. This ES was prepared to analyze impacts of coal development in the Eastern Powder River Basin. It is felt that most population increases due to coal development will occur in Gillette, Douglas, Wright, and communities east of Gillette. The impacts of uranium development are discussed as a part of the cumulative regional analysis rather than in detailed terms.
3. Thank you for the information. Hydrologic problems posed by uranium development are recognized but, admittedly, not well described. A recommendation for study is being prepared for the Director of the Geological Survey at the Survey's National Center in Reston, Virginia. The Bureau of Land Management and other agencies have been asked for their input to the recommendations.
4. An addition has been made to the text in Chapter 4 of the regional analysis, Vegetation.
5. See response 17-1.
6. This ES was prepared to analyze the impacts of coal development in Campbell and Converse counties. The increase in uranium mining activity, population increases attributable to uranium development, water usage, air quality impacts, and so forth are described as a part of the cumulative regional analysis.
7. See response 26-2.

UNITED STATES DEPARTMENT OF AGRICULTURE  
SOIL CONSERVATION SERVICE  
P. O. Box 2440, Casper, Wyoming 82602

December 12, 1978

Mr. Daniel Baker, Director  
Bureau of Land Management  
P. O. Box 1829  
Cheyenne, Wyoming 82001

Dear Mr. Baker:

My staff has reviewed the Draft Environmental Statement for the Eastern Powder River Coal Region. We have no comments other than we thank you for the opportunity to participate in the review process.

Sincerely,

*Frank S. Dickson*  
Frank S. Dickson  
State Conservationist

Letter 27

No response required.

**AMAX COAL COMPANY**  
A DIVISION OF AMAX INC.  
1900 POLY DRIVE—SUITE 100 (406) 282-2821 BILLINGS, MONTANA 59102

December 11, 1978

Mr. Dan Baker  
State Director  
Wyoming State Office  
Bureau of Land Management  
P. O. Box 1808  
Cheyenne, WY 82001

Dear Mr. Baker:

AMAX Coal Company wishes to submit written testimony to the Draft Environmental Statement Eastern Powder River Coal. The document which was subject to public hearings in November overall is a good effort in compliance with environmental requirements and court decisions. The comments we offer are intended to be constructive and to make the document stronger and more accurate.

Should you have further questions on our comments, please so advise.

Sincerely,  
*Thomas E. Ebzery*  
Thomas E. Ebzery, Manager  
Government Relations West

TEB  
Enclosures

CHAPTER I - DESCRIPTION OF REGIONAL DEVELOPMENT ACTIVITY

Regional Development Summary

"The high level of coal development (329 million tons annually by 1990) represents the addition of potential new coal development to the probable level."

Comment: This level is totally unrealistic in view of factors such as coal demand, economic conditions, diligent development, lack of a federal leasing policy, taxes, and legislation. As to coal demand there is a current "softness" in the market due to a number of factors including delays in power plant construction and energy conservation.

The Department of Energy, empowered by Congress to develop diligent development criteria and regulations under the Federal Coal Leasing Amendments Act of 1975 presently requires that on existing leases the coal resource be mined at a rate of 1/40th of the leasehold per year beginning in 1986. With the number of statutory and regulatory delays for mine approvals plus marketing conditions likely the numbers will be at a lower level. The other problem areas all contribute to a lesser demand on the coal resource. A more realistic figure is advised. By placing a figure so high only invites unnecessary criticism and does not adequately address "probable impacts", a requirement of NEPA.

Levels of Coal Production

Table RI-2, Eagle Butte 5.8 million tons 1978 is incorrect. Eagle Butte is now forecast for 300,000 tons in 1978 and 3-4 million in 1979, 1980 and thereafter is accurate. Construction start up for Eagle Butte was 1976. For Belle Ayr 18.5 is realistic for 1978, 20.0 for 1979 and thereafter. There are other corrections to this such as Caballo which is producing now and Cordero which will likely not be near 9.2 million tons in 1978.

Comment: Table RI-2 Federal coal areas for Belle Ayr appears to be incorrect. The proper number is 2440 acres.

Table RI-2 (continued page RI-8) 211 Permanent employees at Eagle Butte appears to be high. 30 employees 1979, 103 in 1979, 200 in 1980.

Page RI-4 and 10 Coal Gasification Plant

Comment: The timetable here appears to be unrealistic in view of financing and permitting difficulty.

Page RI-13 Table RI-3. "Number of coal mines 11-1978 and 15-1980 thereafter."

Comment: 10 is a more accurate number and 15 appears too high.

Page RI-18 Table RI-7 Water Requirements for Development. "Mine Operation 20 A-F per million tons coal".

Comment: This appears to be too high. In our experience in the Powder River Basin little if any water is needed. Pit water is used for dust suppression, the remainder from wells would be used for drinking and sanitary facilities.

Chapter 2

Description of the Environment

Page R2-29 Alluvium

Paragraph 3 which discusses alluvial valley floors contains references to studies which are either discredited or the mapping done did not pertain to the 1977 Act. This section should be rewritten explaining that guidelines have been developed to both identify valley floors and to suggest restoration of the hydrologic balance.

Page R2-42 Silver Sagebrush

"The silver sagebrush shrub community is found on level to gently sloping floodplains of streams which during at least part of the growing season, or on land which receives additional water from overflow."

Comment: This statement implies that silver sage is only found where irrigation or subirrigation is present. It is found everywhere in the Powder River Basin and with no evidence of irrigation or subirrigation in many instances.

Page R2-71 Farming

Paragraph 7 "Prime Farmland is probably present in the region, but is expected to be a minor component of the agricultural lands. No formal designation of prime farmland has yet occurred in the region."

Comment: Suggest that the Soil Conservation Service, the duly authorized agency to designate areas has determined that no prime farmland areas exist in the area. This should replace the statement that prime farmland is probably present in the region.

Page R2-86 Air Service

Paragraph 6 - This should be rewritten to reflect the construction additions to the Gillette airport that have taken place. Also additional commuter lines have been added.

R2-88 should be redram. Western has discontinued service from Sheridan to Casper and Cheyenne.

Page R2-92 Area Development and Growth

Comment: This data presented in this section should be checked thoroughly to be certain that it reflects the most recent survey data available. The City of Gillette/Campbell County Citizen's Policy Survey is taken twice each year, and there is additional data available. As to the surveys themselves, have they been professionally taken? Suggest they be added as appendix material.

Table R2-26 Average Wage & Salary Income

Comment: This appears to be dated information, particularly regarding mining.

R2-III Local Services

- 15 

Comment: The 1978 Wyoming Legislature provided for loans from the Wyoming Mineral Trust Fund and other sources to construct a series of pipelines to bring water from the Madison Formation. (RB76A) This is a significant breakthrough for citizens of Gillette and should be fully discussed including a solution to the chief citizen complaint in the 1977 survey.

Page R2-102 Table R2-23
- 16 

Comment: The population figures should be reviewed and changed. The figures given for Gillette and Campbell County are certainly too low, and it may well be that the figures for other cities and counties are also. Suggest that local planning authorities be consulted to help in this area.

Page R2-24 Table R2-24
- 17 

Comment: Suggest that the table be brought up to date with data available from Local Chamber of Commerce Offices. In an area growing as rapidly as this, a document of this sort should present the most accurate data available. More accurate survey figures are definitely available from Campbell County Chamber of Commerce Office.

R2-127 Finances
- 18 

Comment: 1. There is no discussion of the Coal Impact Tax enacted in 1975 and is 2% of the value of gross production. The tax is available for grants or loans to communities impacted by coal for sewer, water and highways.

2. Severance Taxes - "State severance taxes are 8.5% of the value of gross production. These taxes accrue directly to the state and are not returned to communities." A breakdown of the tax would be appropriate, e.g., coal, oil and gas, iron and where the taxes go.

Page R3-5 Air Quality

Paragraph 1, Column 1

"No mandatory Class I areas are within the Eastern Powder River Basin. The nearest mandatory Class I areas are Grand Teton and Yellowstone...."
- 19 

Comment: The discussion concerning the Class I, Class II and Class III areas should be rewritten in order that the Powder River Basin situation is more accurately reflected. While it is true that the nearest mandatory Class I areas are located at Grand Teton and Yellowstone National Parks, there are additional areas, not included on the mandatory list, which presently do receive or may receive in the future, the protection of Class I. The Northern Cheyenne Reservation presently does have Class I status. Devil's Tower national monument, about 40 miles northeast of Gillette, is being studied by the National Park Service for possible Class I status.
- 20 

Page R3-5 Water Quality

Comment: A status report on the 208 Program would be appropriate.
- 21 

Page R3-7 Coal Impact Tax

Comment: Delete and insert proper language. This is incorrect. As mentioned in earlier comments, this Act was passed in 1975, is mandatory until 100 million is raised.

- 22 

Page R3-7 Local Sales Tax Option and Joint Powers Act.

Comment: Both of these acts were passed in the 1970's to provide other outlets for raising money for impact purposes. Wyoming's Constitution does not provide for debt and the above acts were specially designed to fall within the Constitution and allow for assistance to communities. There should be more than one or two sentences describing these statutes as they have a significant bearing on the future of the Eastern Powder River Basin.

Page R3-9 Local Planning
- 23 

Comment: As has been commented upon earlier, the Land Use Plan was approved by both the City Council and County Commissioners in 1978, then submitted and approved by the Land Use Commission in fall 1978. There is no ban on mining within 3 miles of the City of Gillette. It is suggested that Section K be reviewed and this section be rewritten incorporating the final version.
- 24 

Page R3-11 State & County

DEQ - Comment: The agreement was signed in October 1978.
- 25 

Table R4-1 - Page R4-2 - AMAX believes if this information is to be considered accurate, it should go to much more detail in explaining the methodology and the sources.
- 26 

R4-5 - Population Table R4-3 - These figures are suspect and be rewritten.
- 27 

Page R4-25 - "The removal of vegetation from stripping areas, access roads, the main rail line, rail spurs, and its destruction under piles of overburden would lead to increased use of remaining vegetation by livestock and wildlife."

Comment: This statement is exaggerated and considering how few temporary acres are disturbed and balanced against productivity increases on the reclaimed land make the statement unnecessary.

Page R4-25
- 28 

Comment: Under the heading AMAX Coal Company (Belle Ayr Mine) the final five paragraphs should not fall under this heading as they are generalized statements on revegetation. A new heading should follow the statement: "more data on reclamation results will become available as the results of current studies are published."
- 29 

Page R5-2 Paragraph 3 - This is a conclusion and stating that TSP standards may be exceeded at the mine boundaries indicates no source for such a conclusion and use of such a statement is not warranted in this statement.
- 30 

Chapter 7 Irreversible and Irretrievable Commitments of Resources

Comment: This entire chapter is marked by statements not supported by even reasonable facts. It appears to be mere speculation by the authors. For example, "The traditional lifestyle of towns and counties in the region would undergo additional integration with newcomer's lifestyles. By 1990, newcomer's lifestyles would likely predominate."

Comment: There is absolutely no foundation for such a statement. This is highly unlikely as the growth in the region will be fairly steady with a

- 30 

solid agricultural base. A statement such as this does a disservice to present and future residents of the region.

Chapter 8 Alternatives

Regional Alternatives - "To date the Wyoming Department of Environmental Quality has not released any area as being satisfactorily reclaimed."
- 31 

Comment: An explanation should be made here. The Wyoming Environmental Quality Act was not passed until 1973 and the statute does not provide for bond release until a minimum 5 years from completion of reclamation. This should explain why bond release has not been achieved.

Page R8-4 Table R8-1
- 32 

Comment: Figures for Eagle Butte are too high and Belle Ayr should be 18.5 in 1978. In 1979 Belle Ayr should read 20.0 and Eagle Butte 3.0-4.0 million. I also suspect that Cordero is high. Caballo has 1978 production.

Page R8-9 Table R8-2 "No. of Gasification Plants - 1"
- 33 

Comment: This does not seem realistic.

Page R8-27 Paragraph 4
- 34 

Comment: The paragraph refers to ground water supplies used in conjunction with gasification and makes assumptions which should be reviewed.

Page R12-12 Water Resources - Ground Water. "The presence of unconsolidated stream laid deposits containing groundwater indicates hydrologic conditions within the definition of 'alluvial valley' floors are present."
- 35 

Comment: Section 701 of P.L. 95-87 is a complete definition of what an area must possess to be considered alluvial valley floors. Section 530(b) (5) of the same act provides requirements or exclusions (such as undeveloped rangeland) from obtaining permits. This is not discussed and should be if a statement that valley floors do exist is to have any credibility.

Letter 28 Responses

1. There are, as noted in the ES, many factors which could affect future rates of coal production. Our production scenarios are based upon our best judgment after consideration of all available and relevant information.
2. Information for the Eagle Butte and Belle Ayr mines has been corrected in the relevant tables and portions of the text. According to Bill Stone, Carter Mining Company, production at the Caballo Mine in 1978 was approximately 145,000 tons (fee coal), and this additional production has been inserted in the appropriate tables. Other data for Caballo and all data for Cordero were taken from the company-submitted mine plans, dated September 1977 and December 1976 respectively.
3. The tables in Chapters 1 and 8 of the regional analysis have been corrected.
4. The tables in Chapters 1 and 8 of the regional analysis have been amended.
5. Information about the gasification plant was drawn from company plans and personal contacts.
6. Since neither the Coal Creek nor the East Gillette Mine began construction in 1978, the number of mines in 1978 was 10. The text has been changed accordingly. However, by 1980 all 15 mines are expected to be operating or under construction.
7. Water use for individual mines showed wide variation, necessitating an average use figure, which was found to be 20 acre-feet per million (A-F/MM) tons of coal produced. This figure was derived from water use data contained in three mining companies' mining and reclamation plans (MHRPs) and two GS environmental statements on file at the Casper BLM District Office, and from personal communication with Karl Starch, Bureau of Mines 1978. MHRP and ES data ranged from 16 to 25.8 A-F/MM tons with an average water use of 20.2 A-F/MM tons. Bureau of Mines data for four mines ranged from 6.7 to 70 A-F/MM tons with an average water use of 23.2 A-F/MM tons. Overall average for nine mines was 21.7 A-F/MM tons of coal produced.
8. Although the mapping was done before the Surface Mining Control and Reclamation Act was passed and does not have the detail of the proposed guidelines published in the Federal Register, August 25, 1978, the maps are pertinent to the identification of alluvial valley floors. It is recognized that on-the-ground study and mapping will be necessary in many cases before the existence or absence of alluvial valley floors can be established.
9. The statement has been changed to indicate that silver sagebrush is also found in other areas. See Chapter 2 of the regional analysis, Vegetation.
10. According to the latest information that is available, the Soil Conservation Service has not yet made a determination that no prime farmland areas exist in the region. The situation has not yet been resolved.
11. The text has been revised. See Chapter 2 of the regional analysis, Transportation Networks.

12. The figure has been corrected.
13. At the time the draft ES was written, the 1977 Citizens' Policy Survey was the best information available. Since that time, a 1978 survey has been released. It indicates that citizens have substantially the same major concerns that they did in 1977. Therefore, although the text now notes the existence of the new survey, extensive changes in results have not been made.
14. This information is intended to illustrate relative changes in wages and salaries, and is still valid for this purpose.
15. This information has been added to the text of the site-specific analysis, Chapter 2, Socioeconomic Conditions, Water Supply.
16. This is a valid observation, and the appropriate changes have been made throughout the text.
17. For the purpose of comparing all impacted communities, it was decided that the sectoral employment for the various counties would be based on a common data source. In this case, the U.S. Department of Commerce, Bureau of Economic Analysis 1977 (Local Area Personal Income, 1970-75) was chosen.
18. The coal impact tax is discussed in Chapter 3 of the regional analysis, Severance Taxes. The disposition of the coal severance tax is also shown here.
- The text in both Chapters 2 and 3 has been revised to show a tax on coal of 10.1X.

Since this is a coal ES, a breakdown of severance taxes for other minerals is not included in the text. It is as follows:

Severance Tax Distribution, 1978  
(Excluding Coal)

	Trona	Uranium	Oil and Gas
Permanent Wyoming Mineral Trust Fund	2.0X	2.0X	2.0X
General Fund	2.0X	2.0X	2.0X
Capital Facilities Revenue Account	1.5X	1.5X	---
TOTAL	5.5X	5.5X	4.0X

Adapted from: Wyoming Department of Economic Planning and Development, 1978 Yearbook.

19. An addition has been made to the text in Chapter 3 of the regional analysis.
20. Currently, a 208 plan is being completed for Johnson, Sheridan, and Campbell counties. It is undergoing state certification review. Water quality impacts of mining are a major emphasis of this plan.
- No plans have been developed for Converse, Natrona, Carbon, Albany, Platte, Goshen, Laramie, Fremont, or Sublette counties. These will be completed by 1983, as federal funds become available. Energy development impacts will be addressed in great detail. (Status report supplied by personal communication, Carolyn Dinger, Water Quality Division, DEQ 1979.)
- Additions have been made to the text in Chapter 3 of the regional analysis.
21. The text of Chapter 3 has been revised.
22. Our purpose is to point out the availability of various revenue-sharing and taxation methods, not to provide detailed information.
23. The Cooperative Planning Program, City of Gillette/Campbell County, was adopted by the City of Gillette on July 17, 1978, and by Campbell County on July 18, 1978. It was approved by the Land Use Planning Commission of the State of Wyoming on August 27, 1978. The text has been revised to reflect the final approved version of the Cooperative Planning Program. See Chapter 3 of the regional analysis.
24. The text has been amended.
25. The source of the information in Table R4-1 is the Radian (1978) study contracted by BLM for this ES. The study explains the derivation of the information given in Table R4-1. It is available for public review at the BLM Casper District Office.
26. Table R4-3 has been corrected.
27. Until such time as disturbed lands are reclaimed to livestock use at a much greater rate than at present, it is inevitable that the remaining vegetation will receive increased use. The Wyoming Department of Agriculture shares this concern (see letter 35).
28. The text has been corrected.
29. The statement in question has been deleted.
30. Given the fact that the agricultural sector will decline in relative importance, as measured in terms of employment and income, it is not unreasonable to assume that the agricultural life-style will decline as a proportion of all life-styles in the region.
31. The text has been changed to explain one reason why no areas have been released as yet. See Chapter 8 of the regional analysis, Regional Alternatives, Defer Future Federal Coal Development.
32. See response 28-2.

33. Many possible coal gasification projects have been discussed at various times in recent years. However, we have no recently updated, firm proposals for the region. On the basis of information we do have, we feel one plant is a reasonable projection within the 1990 time frame.
34. The amount and sources of water required for the gasification project are described in the company's plans (SERMCO 1974). Reference in the ES is only to groundwater sources being considered for use. The sources considered are correct as stated.
35. The definition of alluvial valley floors from P.L. 95-87 is given in Chapter 2 of the regional analysis, Water Resources. This definition is one of the tools used to identify alluvial valley floors. Whether or not an exclusion might apply in an individual case is a separate question.

29

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December 22, 1978

Re: Draft Environmental Statement - Eastern Powder River Coal (Your File 1792 (920))

Dear Sir:

Burlington Northern Inc. submits the following comments on the Draft Environmental Statement (ES) for Eastern Powder River Coal.

Development Projections

The draft ES has evaluated future coal production at three projected levels - probable, low and high. Although the "low" and "probable" demand projections are not outside the realm of reason, the "high" projection challenges belief. All estimates must be tempered with the realization that production of - and demand for - Powder River Basin coal depends on a number of factors related to the competitiveness of this region's coal vis-a-vis other fuels as well as coal from other regions in the U.S. There are a number of developments currently in the offing which are now significantly tipping the competitive balance away from Powder River coal and may well reduce drastically even the "probable" scenario.

Among these developments are laws pertaining to pollution-control, especially the "best available control technology" regulations currently being formulated by the Environmental Protection Agency (EPA) as a result of the 1977 amendment to the federal Clean Air Act. The proposed regulations would require that all new coal-burning power plants be required to install expensive scrubbers to remove at least 85 percent of the sulphur dioxide produced. This requirement would apply regardless of the sulphur content of the coal being used. The legislative history of the Clean Air Act suggests to some that it was the intention of the Congress to foster the production of eastern coal from underground mines at

the expense of western surface mine production despite the fact that now the cheapest way for many utilities to reduce sulphur emissions is to use low sulphur coal from the latter source. If the new regulations go into effect, however, the attractiveness of Powder River Basin coal will be sharply diminished as a higher-sulphur "local" coals could be used for mine mouth generating plants or would not have to be transported as far to the power plant. This in turn would no doubt result in major curtailment of planned mine expansion and new openings in the western regions. The precise extent of this shift in fuel sources is not predictable until EPA settles on final regulations which it is required to promulgate no later than March 12, 1979 by court order. If they are comparable to those now proposed, the effect on western production will be severe. Burlington Northern has filed a submission with EPA, attached, which gives the problem perspective. It is in the form of a statement by our Mr. A. E. Michon and an accompanying technical paper prepared at our instance by Teknekron, Inc. This material is based on computer programs which take into account the variables represented by such factors such as prices of coal from most major sources, the capital costs enacted in constructing scrubbers, their operating expenses, coal transport costs, and so on. While the purpose of the papers is to demonstrate to EPA that the proposed standards are not legally required and are inappropriate in the national interest, they also provide measures of the effect of those standards. Moreover, they illustrate the manner in which, if adopted, those standards will circumscribe the market for Powder River Basin coal.

Legislation and regulations restricting the surface mining could also reduce the market for the Powder River Basin. The Surface Mining Control and Reclamation Act of 1977 provides stringent guidelines governing surface mining of coal. These may well serve to restrict mining activities. Until implementation of regulations and state programs are established, it is not possible to predict what effect this Act will have on western coal development.

Another potentially restrictive development is the recent proposal of the U.S. Department of Transportation that a fifty-cents-per-ton surcharge be added to coal prices in order to help pay for (1) highway reconstruction in Appalachia to facilitate coal haulage and (2) rail-highway crossing improvements. If enacted into law, this would place a disproportionate burden on lower-priced western coal because of its relatively lower BTU-per-ton yield, and would affect the competitive price relationships with coals from other regions.

As stated, further development of Powder River Basin coal is strongly dependent on its competitive relationship with coals with a higher sulphur content or from regions closer to major markets. This relationship can be sharply altered by new technology in mining and in fuel burning processes, by improvements in the availability of other energy sources and by new laws and regulations which are being developed and implemented. Any projections, especially those beyond 1985, should recognize these high potentials for diminution in production.

Projected Rail Traffic

The impacts attributed to rail operations in the region are overstated throughout the draft ES. Most rail traffic will consist of unit coal trains whose number will be directly related to coal production and the location of coal consumption. The number of daily unit trains was calculated based on a 100-car train\* with capacity of 10,000 tons. In actuality most unit trains are comprised of 110 cars giving a train capacity of 11,000 tons. The effect of calculating the number of unit trains based on the shorter 100-car train is substantial. In Table R4-10, page R4-38, for example, the 1980 daily average number of unit coal trains eastbound is given to be 28.4. Using a 110-car train, the number drops to 25.8\*\* per day, a reduction of 949 trains per year. Moreover, if the demand for western coal softens for reasons suggested above or if a greater percentage of the coal produced is consumed in the Powder River Basin because of changing regional demands, the number of unit coal trains will be reduced accordingly.

In estimating growth in coal unit train traffic the increase as a percentage of current traffic is overstated. This can be traced to two factors. First, the number of trains is inflated by a factor of approximately 10% based on the 100-car unit train. Second, the number of present coal unit trains is understated. For example, 1978 coal traffic is stated to be 60 unit trains per week (one way). D.E.S., page R5-1, third paragraph. Burlington Northern's operating records show that

\* See Table R1-2, pages R1-8 and 9; Table R2-17, page R2-81; Table R4-10, pages R4-37 and 38; Table R8-1, pages R8-7 and 8; Table R8-11, pages R8-32 and 33; Table R8-21, pages R8-48 and 50; Table R8-32, pages R8-77.

\*\* 28.4 trains x 100 cars ÷ 110 cars = 25.8 trains.

nearly 75 unit coal trains are now operated each week between Donkey Creek, Wyoming and Alliance, Nebraska. This discrepancy exaggerates the effect on the environment and communities attributed to rail operations in those cases where changes are expressed in terms of percentage increases in present operations.

Changes in projected rail traffic volume will also affect predictions of rail line capacities. The draft ES states that current capacity of BN's main line from the Eastern Powder River Basin is 40 to 65 trains per day. D.E.S., page R2-78. Current traffic is computed to be 40% to 50% of this available capacity. Misstatements of current traffic volumes and anticipated traffic growth grossly underestimate the ability of rail carriers to transport the coal to be produced in this region. The draft ES also ignores steps which can be and are being taken to increase line capacity, including installation of CTC systems, adding sidings and completion of the Gillette-Douglas main line, all scheduled for 1979.

Apart from the deficiencies in the study attributable to uncertainties as to production volumes, another basic problem lies in the fact that no attention is given to the fact that even existing coal traffic may be divided between rail carriers and then diverted to routes different from those which have been considered. Specifically, the Chicago and North Western Transportation Company has sought a Federal loan guarantee from the Department of Transportation by which to finance the rehabilitation of its route between Shawnee, Wyoming and Fremont, Nebraska at a cost of \$52 million. 43 FR 4126 (September 14, 1978). While that application is still pending, announcement has been made that that company and the Union Pacific have agreed that they will collaborate in the development of a substitute, entirely new rail route connecting a point east of Shawnee, Wyoming and the Union Pacific line between Torrington, Wyoming, and O'Fallons, Nebraska. This would allow the movement of coal to markets in the east and southwest over a combination of routes of the two railroads. See clipping attached. If these plans become a reality, large volumes of coal traffic will be diverted from BN routes to C&NW-UP and the basis for the draft ES as it applies to rail transportation will be entirely wrong.

Impact on Communities From Unit Trains

Impact on communities along rail lines will not be nearly as great as was suggested by the draft ES for several reasons. As described above, the projected number of unit trains is inflated at a minimum by a factor of nearly 10%.

It should also be understood Burlington Northern has taken and will further pursue steps to minimize the adverse effect on major communities through which its line passes. Following is a brief summary of some of those specific measures already taken.

Sheridan

BN operating personnel are working with the yard and train crews to keep the crossings open as much as possible. This is a continuing process.

Gillette

The State of Wyoming has recently completed an analysis of various possible locations for an overpass and has submitted this analysis to the city for its further handling. Additionally, an existing grade separation of U.S. Highways 14-16 is to be widened and at the same time a second track separation will be constructed. The second track over the highway will relieve congestion at Gillette to some extent and thereby reduce the time that crossing is occupied. Again, operating personnel for BN are constantly working at reducing delays at crossings due to switching operations and movement of through trains.

New Castle

CTC installation had eliminated some of the problems associated with trains being delayed while waiting for opposing trains to clear as has the extension of the sidings in this area.

Grand Island

Present train traffic through Grand Island averages 18 trains per day, not 22 as stated on page R2-84. BN's operating department has taken several steps to reduce delays at the crossings. BN trains are being held out of grade-crossings until it is known that the Union Pacific crossing is clear. Further improvement can be expected in this area as BN radio communications equipment is being installed at the Union Pacific interlocking tower for direct communication with BN trains. Currently there is a 10 mile per hour train order on the UP crossing on the BN track due to track conditions. This condition will be corrected in the spring with the installation of new crossing diamond.

Team Leader -6- December 22, 1978

Team Leader -8- December 22, 1978

While there will be an increase in unit coal train traffic, the character of this type train operation must be kept in perspective. Unit trains are generally less noisy, less obstructive and less hazardous than conventional, general commodity trains even though, by reason of the sameness of the equipment, they present a unique and massive appearance. As stated, a coal unit train consists of approximately 110 similar cars and three to five diesel locomotives. The entire train moves as a unit from mine to utility and back again without stopping and switching except for emergencies or at crew change points. They represent rail transportation at perhaps the highest level of efficiency. Yet unit trains are often shorter than other trains and operate moderate speeds which minimize hazards at grade crossings. They usually travel about 45 miles per hour and thus block a crossing for only 90 seconds.\*

to limit its statement at this time to impacts from the Buckskin Mine and to postpone its regional analysis. A final ES for the region based on the draft ES cannot claim to accurately portray environmental impacts on the region in light of the very great immediate risk of major changes in the subjects under review.

Respectfully submitted,

James R. Walker  
General Counsel

JRW:DBP:4-11

Attachment

In contrast, general commodity trains may consist of 150 or more cars of various kinds, both loaded and empty. Since they employ a variety of equipment, they are noisier than unit trains and since they carry time-sensitive freight, they operate at speeds up to 60 miles per hour. Yet, except for manifest trains, they must also pick up and set out cars for shippers along the line and, therefore, sometimes cause delays and conflicts at grade crossings. By any standard, a coal train is less disruptive of the communities through which they pass than are most freight trains.

It is also highly misleading to aggregate periods to highway traffic interruption so as to conclude, as does the ES at page R2-78, for example, that "A railroad crossing is impassable for an hour and 15 minutes per day at 20 miles per hour and for 5 hours per day at 5 miles per hour." The same logic requires a conclusion that at any signalled street intersection each street is impassable 12 hours per day. The only significant measure obviously is the duration of individual interruptions. It is perhaps also appropriate to point out that the measurement of problems associated with grade crossings concern perceptions as opposed to reality. Thus it is appropriate to point out that while concern is expressed as to Burlington Northern's new operations, for many years Union Pacific has operated 60 or more trains daily through the same general territory here under consideration without substantial complaint as to safety, environmental or other effects.

\* The examples in the draft ES calculate crossing blockage time for only very slow speeds. See pages R2-78 and R4-36. These yield unrealistically high estimates of crossing blockage due to unit trains.

Team Leader -7- December 22, 1978

Letter 29 Responses

Coal Slurry Pipelines

The draft ES makes only passing reference to slurry pipelines because no adequate application for right-of-way for the pipeline is currently on file. (See page R1-11.) This cavalier treatment is hardly justifiable in a presentation which undertakes to forecast such nebulous subjects as coal demand and the effects of coal demand in 1990. Slurry line proponents themselves represent that slurry line construction is a certainty in the early 1980's.

1. The concerns pointed out in this comment are certainly relevant: some which involve national considerations are discussed in the draft ES on the Federal Coal Management Program (December 15, 1978); others are very speculative. The production scenarios used in this ES were based upon our best judgment after consideration of available information.

In light of the serious environmental risks posed by slurry pipelines - especially the diversion of Wyoming's scarce water resource - and the relative ease of filing an application, careful treatment of these environmental impacts seems required. It will not be our purpose to deal with this subject, but refer the Bureau to the report of the Office of Technology Assessment, TASK REPORTS, COAL SLURRY PIPELINES (January 1978). Reference should be made in particular to the environmental consultant's report as set out in Volume II, Part 2, Task Report No. III in that study.

2. The Wyoming Highway Department (1977) states that the average load per car is approximately 94 tons, which means that a 110-car train would still haul approximately 10,000 tons. Therefore, both the hypothetical 100-car train loaded with 100 tons per car or the 110-car train loaded with 94 tons per car would move approximately the same tonnage. This being the case, the number of trains comprised of 110 cars would be the same as the ES calculates for the 100-car train. The result of using the 100-car length train in the ES actually reduces the time crossings are blocked. Rather than recalculate the blockage time based on the same number of longer trains, we stand by our previous assumptions.

Other Considerations

It is certainly appropriate to point out also that the operation of a railroad as a transportation instrumentality produces important environmental and other benefits. Not only is employment made available in territory where jobs are scarce, but other large economic benefits result. The making of low sulphur coal available to generating stations both within and beyond the region is a vast contribution to the improvement of air quality. The final ES would be grossly incomplete should it fail to emphasize that western coal development had its genesis in the need to preserve and improve the national environment and that such sacrifice as there may be in the region is greatly outweighed by these larger considerations.

3. For the first part of the comment, refer to response 29-2. As to the second portion of the comment, refer to Table R2-25 where it is shown that the segment between Donkey Creek and Alliance averages nearly 75 one-way unit coal trains per week. The segment that is discussed in Chapter 5, however, covers the segment from Donkey Creek to Grand Island. This averages out to about 62 one-way unit coal trains per week. The text has been clarified.

4. The range of 40 to 65 trains per day was given to account for additional capital equipment that would likely be installed during the first year of analysis. Because this particular section of Chapter 2 is concerned with the existing environment, planned changes that are not currently underway are not discussed.

As to the current traffic volumes, refer to responses 29-2 and 29-3.

5. The fact that Chicago and North Western (with the collaboration of Union Pacific) is planning to upgrade and/or construct alternate routes has been added to the text in Chapter 1 of the regional analysis. Because these plans are tentative, no change in impact analysis is required. Prior to approval of any right-of-way application for new construction, a separate environment assessment, including impacts to Burlington Northern's rail traffic, will be done. (The Department of Transportation, Federal Railroad Administration, is the lead agency for preparation of the environmental analysis on this action.)

6. For the comment on the number of unit trains, refer to response 29-2.

To the extent that planned changes are currently funded and underway, they have been included in the narrative, Chapter 2 of the regional analysis. The description of conditions in Sheridan and Gillette is considered accurate. The installation of the CTC system in Newcastle has been included in the narrative. Train traffic on the BN line in Grand Island is based on actual counts by Dave Wheeler, Switch Master for Union Pacific. The additional capital items mentioned in your comment have been included in the narrative.

Conclusion

In light of our comments above, especially regarding the uncertainty of demand for western low sulphur coal and failure to adequately review environmental impacts of slurry pipelines, it appears that this attempt to prepare an environmental statement on the entire Eastern Powder River Basin is premature. To be sure in a situation of this kind at least some change is always in prospect. Yet we suggest that the Bureau would be well advised

7. The statement recognizes that the speed of a unit train traveling in open country may reach 50 miles per hour. It is pointed out, however, that speeds through communities are much slower, which means that the corresponding intersection blockages are longer.

The ES merely presents an example of how speed affects the time crossings are blocked, especially when speed slows to around 5 miles per hour near switchyards.

Information presented in the ES about the amount of time crossings are blocked in various communities was obtained through interviews with local officials.

8. The example given in the comment would be appropriate were it not for the fact that the narrative points out the time that each train would block a given intersection, as well as the total time a given number of trains traveling at a specified speed would block that same intersection during a 24-hour period.

9. Energy Transportation Systems, Inc. filed an updated right-of-way application with the Bureau of Land Management in May 1978. The application is in the process of being perfected. Environmental impacts of the proposed slurry pipeline will be assessed in a separate ES.

10. The text has been amended to mention the positive impacts of increasing railroad employment and making low sulfur coal available to other regions. See Chapter 6 of the regional analysis.

11. Your point of view has been noted. See response 33-34.

#### Letter 30 Responses

1. The text in Chapter 1 of the regional analysis has been revised to include mention of the Sierra Club v. Interstate Commerce Commission lawsuit.

The rail transportation sections of this ES identify offset (outside the region) impacts which pertain to the proposed action, as far as they are significantly identifiable. Some additions have been made to the text in Chapters 2 and 4 of the regional analysis.

2. Please see response 29-5.

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DEPARTMENT OF TRANSPORTATION  
FEDERAL RAILROAD ADMINISTRATION  
WASHINGTON, D.C. 20590

2 DEC 1978

Ms. Julie Elfing  
Team Leader - Bureau of Land Management  
Coal ES Team  
951 Union Boulevard  
Casper, Wyoming 82601

Dear Ms. Elfing:

We have reviewed the Bureau of Land Management's draft Environmental Impact Statement (EIS) on Eastern Powder River Basin (EPRB) Coal and suggest that the Final EIS include the following clarification:

1. The statement is made on page R1-10, "Rail service is provided via two main lines of Burlington Northern (BN) (principal rail service) and one main line of Chicago and North Western (C&NW). Upgrading of existing tracks is presently in progress. BN and C&NW are jointly constructing a major new rail line between Gillette and Douglas, portions of which are in operation." With regard to the "major new rail line," there is no mention, however, of the litigation, Sierra Club vs the Interstate Commerce Commission (ICC), and the decision to remand the case to the ICC for further information on the proposed joint new line. We understand that this Environmental Impact Statement is to be responsive to the decision. If this is so, it should be so stated and the implications of the decision discussed in the EIS.
2. In the sections beginning on pages R2-78, R4-36, and R8-78 there is discussion of rail transportation. The Federal Railroad Administration presently is considering an application for financial assistance to the Chicago and North Western Railroad Company which would permit them to participate in the carriage of Powder River Coal. If approved, this project would increase the capacity of the rail system serving the EPRB market as well as provide a competitor to the BN. The final EIS should include discussion of the socio-economic and environmental implications of C&NW participation in the coal movement as well as the implications of competition on regional coal production.

We appreciate the opportunity to review this EIS and look forward to receiving the final EIS.

Sincerely,

*Ronald H. Remann*  
Steven R. Ditmeyer  
Associate Administrator  
for Policy and Program Development

31



#### Powder River Basin Resource Council

Sheridan, Wyo.  
82801

150 W. Brundage  
(307)672-5809

310 Richards  
Gillette, Wyo. 82716  
December 22nd 1978

Team Leader  
RLM  
951 Union Blvd.  
Casper, Wyo. 82601

#### COMMENTS ON THE DRAFT ENVIRONMENTAL STATEMENT FOR THE EASTERN POWDER RIVER BASIN

These comments are a written recapitulation and clarification of oral testimony given in Gillette's Campbell County High School auditorium by Robert S. Anderson, a consultant for the Powder River Basin Resource Council.

These comments arise out of a concern for the overview of energy development in the Eastern Powder River Basin. It is felt that the Draft Environmental Statement (D.E.S.) is deficient in its analysis of overall trends, something which the general public ought to be able to extract relatively easily from such a statement. The included calculations are based on data introduced in various parts of the D.E.S., and on coal lease information published in a supplement to the Council on Economic Priorities' (C.E.P.) recent publication entitled Mine Control.

The two county area described in the D.E.S. is thought to contain roughly 73 billion tons of 'original mineable coal resources', of which some 30 percent, or 2 billion tons, is stripable. Something like 17 percent, or 3.7 billion tons, of the stripable

reserves are under lease to mines which are now operating in the two county area. Another 10 percent, making a total of 27 percent, is held by companies and operations included and enumerated in this report under the 'probable level of development' scenario.

A third and more revealing figure may be derived from inspection of the C.E.P. booklet entitled 'Coal Leasing' which accompanies the Mine Control publication. C.E.P. details the existing (i.e. issued) Federal coal leases by county and acreage. Summing the acreages for the two county area considered within the Eastern Powder River Basin, a total of 102,500 acres is under issued federal lease. That is 160 square miles. Assuming a conservative tonnage of coal per leased acre of .1 million tons (calculated from mines presently in production), this total acreage represents some 10.25 billion tons of issued federal coal. That is, over 46 percent of the strippable coal reserves are under issued federal lease. Add to that all the coal under the state leases of school sections 16 and 36 -- all of which have been issued in the two county area ( a total of 400 square miles) -- and to that the coal which has been leased privately, and it is demonstrable that well over half of the region's coal reserves are already leased.

With these figures in mind, let us look at the various scenarios for the mining of that coal which has been leased. The curves in figure R1-2 (page R1-5) were extrapolated using the slope of the last segment of the curves presented (the 1985-1990 slope). Taking areas under these curves, one may calculate total stages produced by a certain date -- cumulative production. Using the 'most probable' scenario, a total of 22 billion tons of coal (the full strippable reserve) will have been extracted

by the year 2030, slightly more than a century from now. But using the high level projection, these same strippable reserves will be gone by the year 2031, little more than fifty years away. We might add that the Department of Energy (D.O.E.) has come out with a statement which puts the expected (or requested?) production from the Eastern Powder River Basin at 500 million tons per year (that is, half a billion) by the year 1990. Note that this is fifty percent over the highest level scenario presented in this report (which shows production in 1990 to be 320 million tons). Using this D.O.E. projection to anchor a third scenario, our strippable coal reserves would be exhausted well before the year 2020. The range, then, of these scenarios puts the exhaustion of our strippable coal reserves at somewhere between 2020 and 2030.

We would like to present an appeal for a more regional mining plan which ensures a viable coal industry in the area for a more extended length of time than is represented by the more rapid scenarios. The west is notorious for having gone through boom after bust and bust after boom. These cycles owe their oscillation to a lack of recognition that the resource causing the boom -- be it oil or coal -- is in fact a finite resource. Coal is no exception, and we will be out of it soon if no restraint is shown by the leasing authorities. Very little control is left in the hands of the public after the coal has been leased.

Over half of the coal is already in the hands of the large oil and mining companies and their numerous subsidiaries. All the state owned coal in the Eastern Powder River Basin has been leased.

That coal under private ownership cannot and probably should not be restricted from development. Thus, the only handle left for the public is in the restraint of federal coal leasing. It is our opinion that enough federal coal is presently under lease to support a viable and in fact quite large mining operation in the region, and that only minimal federal leasing should take place until the present mining operations begin to taper off. A graph of expected production based upon the D.E.S. 'most probable' scenario is presented elsewhere in Powder River Basin Resource Council's written comments. Allowing for a substantial lag time between leasing and commencement of production, it is clear that a five to ten year curtailment of significant leasing would be advisable. As we feel the 'most probable' scenario is a conservative one, the graph will probably have a higher and later peak -- an argument for an even more extended curtailment of significant further leasing.

It is our opinion that this is the sort of analysis that the USGS and BLM should be coming up with -- an analysis which keeps in mind the historical element, the potential boom and bust cycles, the finitude of the resource being studied, and the stability as well as the viability of a coexistence between ranching and coal mining industries.

Respectfully submitted,

  
Robert S. Anderson, consultant  
Powder River Basin Resource Council

Letter 31 Response

This comment letter presents a number of concerns which cannot be identified with particular parts of the ES. The following paragraphs respond to the letter as a whole.

This ES does not consider new coal leasing. The Department of the Interior is currently reviewing its coal leasing policies (a draft ES on the Federal Coal Management Program was issued in December 1978), and any new leasing would be the subject of future regional ESs. The concerns identified in this comment letter would be germane at the time new leasing is being considered.

Production projections beyond this century are largely academic. Projections for the region even to the year 2000 are subject to change, because they are dependent on competition from other coal (which may be influenced by legislation or new technology) and other energy sources. Furthermore, the depth to which stripping coal is feasible may change with economics and new technology.

Energy development boom and bust cycles in the west have historically been the result of changing market demand rather than presence or depletion of the resources. Changes in market demand can occur again.

Finally, the numbers cited in the comment vary in accuracy. (a) The reserve figures and percentages are within reason. (b) The acreage under federal lease in the region is 93,961.62 (personal communication, US Conservation Division 1979), and therefore the leased federal reserves would be approximately 9.4 billion tons (using the conversion factor of .1 million tons per leased acre). (c) The land under state coal lease amounts to 315,804.27 acres or 493 square miles (Class 1976). (d) The biggest error lies in assuming that all leased coal is strippable coal. (For example, only about 45% of the state coal leases lie in areas of strippable coal reserves.) The letter states that 45% of the strippable coal reserves are under federal lease. This number was derived by assuming an average coal thickness for all federally leased coal in the region, then comparing it to a research-derived reserve figure. It is doubtful that half the region's strippable reserves have been leased, let alone minable reserves.

The following are written comments received after the December 26th deadline. Some were received too late for complete responses to be prepared.

Advisory  
Council On  
Historic  
Preservation

32

1522 K Street NW  
Washington D.C.  
20005

Letter 32 Responses

1. The ES has been revised to clearly state that procedures to provide compliance with Section 106 of the National Historic Preservation Act are currently in progress.

December 22, 1978

Team Leader  
Coal ES Team  
951 Union Blvd.  
Casper, Wyoming 82601

Dear Sir:

This is to acknowledge receipt of the draft environmental statement for the Eastern Powder River Coal Region, Campbell and Converse Counties, Wyoming, on October 26, 1978. We regret that we will be unable to review and comment on this document in a timely manner pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969.

Nevertheless, the Bureau of Land Management is reminded that, if the proposed undertaking will affect properties included in or eligible for inclusion in the National Register of Historic Places, it is required by Section 106 of the National Historic Preservation Act of 1966 (16 U.S.C. 470f, as amended, 90 Stat. 1320) to afford the Council an opportunity to comment on the undertaking prior to the approval of the expenditure of any Federal funds or prior to the issuance of any license. The "Procedures for the Protection of Historic and Cultural Properties" (36 CFR Part 800.4) detail the steps an agency is to follow in requesting Council comment.

Generally, the Council considers environmental evaluations to be adequate when they contain evidence of compliance with Section 106 of the National Historic Preservation Act, as amended. The environmental documentation must demonstrate that either of the following conditions exists:

1. No properties included in or that may be eligible for inclusion in the National Register of Historic Places are located within the area of

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Page 2  
Team Leader  
Eastern Powder River Coal Region  
December 22, 1978

Historic Places are located within the area of environmental impact, and the undertaking will not affect any such property. In making this determination, the Council requires:

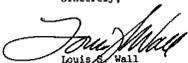
--evidence that the agency has consulted the latest edition of the National Register (Federal Register, February 7, 1978 and its monthly supplements);

--evidence of an effort to ensure the identification of properties eligible for inclusion in the National Register, including evidence of contact with the State Historic Preservation Officer, whose comments should be included in the final environmental statement.

2. Properties included in or that may be eligible for inclusion in the National Register of Historic Places are located within the area of environmental impact, and the undertaking will or will not affect any such property. In cases where there will be an effect, the final environmental statement should contain evidence of compliance with Section 106 of the National Historic Preservation Act through the Council's "Procedures for the Protection of Historic and Cultural Properties".

Should you have any questions, please call Brit Allan Storey at (303) 234-4946, an FTS number.

Sincerely,



Louis G. Hall  
Assistant Director  
Office of Review and Compliance, Denver



City of Gillette

December 22, 1978

Ms. Julia Elfving
Team Leader, Coal ES
951 Union Blvd.
Casper, Wyoming 82601

Re: Comments, Eastern Powder River Coal Draft Environmental Statement (Including Buckskin Mine)

Dear Ms. Elfving,

This letter is in response to your request for comment on the Eastern Powder River Coal draft environmental statement. The City of Gillette has a direct interest in the disposition of matters relating to the development of coal in the region.

My comments will relate both to the statement in question as well as the process in general. Unless otherwise indicated, my remarks should be considered with respect to socioeconomic.

Joe Racine pointed out in his testimony at the public hearing that the population base estimates and projects are totally unrealistic. Page R6-45 projects a 1985 County population which is less than our December, 1977 estimate. I hope that Mr. Roy Allen's work with our planning office and with current literature will serve to correct this discrepancy.

Page R5-2 acknowledges that Gillette's air quality may already exceed the Wyoming 24-hour standard. What will be the effects of additional mines in the area and what measures, if any, can reverse this trend?

The reference to Gillette's budget deficit by 1985 on page R5-1 is vague. I suggest that your staff meet with the City Administrator to obtain a more complete picture of Gillette's capital improvement needs, etc.

P O BOX 3003 GILLETTE, WYOMING 82718

PHONE 686-2222

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Ms. Julia Elfving - 3 - December 22, 1978

8 While such an approach has been neglected in this and in other statements, we believe that it is well within the scope and intent of NEPA. "Impacts" should encompass the positive as well as the negative. Also, companies should be given the opportunity to propose how willing they are to channel their resources into community projects. Such an approach would clearly identify individual companies' willingness to help implement solutions, an important factor in evaluating mine plans. Also, such a process would tend to articulate a cooperative, rather than an adversary relationship between the mines and the community.

9 Impact mitigation in such an extreme case requires innovative measures and financing. This statement and others fall far short of this goal by failing to recognize that the Federal Government itself is a source of such of the problem and is certainly a source of funds to meet the community's needs. Recognizing housing needs, why can't the statement call for HUD to adjust its subdivision approval standards to allow for more local control of local matters and encourage, rather than discourage housing production? Why can't the statement point to other federal agencies to fund capital improvements in advance of growth to relieve some of the burden on the community? All too often the Federally-drafted statements only concentrate on state, local and company solutions.

10 Another of the most common discrepancies in the evaluation of mine proposals is the tendency of both the companies and those preparing environmental statements to relate the site specific to the overall growth projections and conclude that a specific proposal is not significant. Campbell County is growing fast and experiencing the resultant increase level of development activity. This growth is due to coal mining. If each of the mining proposals is not addressed as an integral component of this overall significant "impact", then the process will fail to serve as a mitigating factor.

The Buckskin mine and each of the other mines in the region are significant contributors to growth and should be addressed as such.

11 We've noted that there is an almost total lack of consistency in base socioeconomic information among the many statements. The regional statement baseline should be corrected and used as a guide for other statements. Our planning office has recently engaged a consulting firm to update the Campbell County Economic Base Study. This will be available in February and would surely be a useful guide in establishing your data base.

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Ms. Julia Elfving - 2 - December 22, 1978

Ms. Julia Elfving - 4 - December 22, 1978

4 There is an apparent discrepancy in the mines projected full production employment. Page B03-32 states that the permanent, 1990 employment would be 131. Presumably, this would be for a production level of 6 MTPY, as presented in Shell's testimony at the hearing. However, the North Antelope and Prognhorn mines, each with similar projected production rates, anticipate 190 and 293 permanent employees respectively. If this apparently low projection is allowed to stand, the reasons for its being so much lower should be fully examined.

5 The potential for West Coast coal contracts and the resulting increase in train traffic through Gillette should be examined. Recent reports already paint a grim picture of the effects of unit trains on the town in the future.

6 An ever-increasing concern of the community is that leases were granted by BLM in the vicinity of the City of Gillette. This statement should include a complete and comprehensive analysis of the physical, social and economic consequences of surface mining in an urban environment. Also, the statement should evaluate alternatives to this environmentally-unacceptable condition such as lease trading. Considering the vast coal reserves in the area, the BLM made a very serious mistake in leasing so close to town. The statement should serve as a step toward correcting this error before it is too late.

Over the years of participation in this process I have made several observations regarding the NEPA process. I believe that these observations are particularly relevant in relation to a statement as far reaching as the Eastern Powder River.

7 One of the major shortcomings we notice in this statement, as well as in others, is the apparent intent of the overall process. The direction of the statement seems to be to simply meet the statutory requirements, rather than to perform the more substantive task of producing a working document which will somehow improve the manner in which coal is mined and the community provides for the needs of the incoming population.

In the area of socioeconomic, the identification and evaluation of mitigating measures is almost totally lacking. Page B04-16 is an example. No socioeconomic mitigations are identified!

8 The identification and analysis of alternative mitigating measures is totally lacking in the area of socioeconomic. We recommend that the companies and the agencies drafting statements propose specific mitigations, including company activities, which will potentially help to alleviate growth pressures on the community. Such proposals should be evaluated and related to identified impacts in the draft environmental statement.

12 Considering the level of mining currently taking place in the county, there is an opportunity to gather empirical data relative to the effects of mining in the county. The statement should call for an intense program of monitoring air quality, sound and seismic effects, etc. so that future evaluation of mines and their effects on nearby populations can be better understood. Statements can become less dependent on guesswork and company projections.

We recommend that the EIS hearing process be more extensive and less formal. Rather than rigid public hearings, a series of public meetings conducted by two or three knowledgeable persons would be less expensive and more productive. Formal hearings tend to intimidate the public and discourage response. A few people coming to Gillette for a few days would allow for informal presentations of the statements and more thorough discussion. Also, this would give those drafting the documents more of an opportunity to meet with local officials and the public to discuss and evaluate draft statements. The public input process should actively solicit local input, rather than be satisfied with "one shot" formal hearings.

13 I request that information and analyses supplemental to the draft be developed and distributed for comment prior to inclusion in the final statement. This information and/or analysis would include anything developed subsequent to the draft which would fill the "gaps" in the statement outlined in this letter or in the comments of others. My staff and I would also like an opportunity to discuss your responses to these comments prior to the final draft.

We are not seeking any additional formal hearings or comment period. We only request that we be given an opportunity to comment on the content of the much-needed new material and to continue to actively participate in the EIS process.

Thank you for the opportunity to comment on this draft. We appreciate Mr. Allen's recent efforts to work with local officials as well as the extended deadline within which to prepare these comments. Please don't hesitate to contact me or Joe Racine in our planning office if you have any questions or if we can be of any assistance in the preparation of the final ES.

Sincerely,
Michael B. Enzi
Michael Enzi
Mayor
ME/imb

Letter 33 Responses

1. The base and projected populations for Gillette and Campbell County have been revised throughout the text to reflect current local information.
  2. Mines developed in the past in the Gillette area were not required to institute BACT (Best Available Control Technology) to control emissions of pollutants from the mines. The present mines and future mines will be required to use BACT to control pollutant emissions. This requirement should keep ambient air quality in the Gillette area in compliance with Wyoming and federal air quality standards.
  3. Chapter 5 is intended to be a summary of the unavoidable adverse impacts. Detailed discussions of probable impacts are contained in Chapter 4.
  4. The 1990 employment of 133 is for 4 million tons annual production. For reasons discussed in response 14-3, the revised mining and reclamation plan cannot be considered in preparation of the final ES.
  5. Our analysis of the rail transportation of coal is based on the best available information as to markets, both firm and tentative. No west coast markets have yet been identified for Eastern Powder River Basin coal. Therefore, no increase in westbound coal train traffic through Gillette is expected.
  6. Much of the analysis requested is already available in previous site-specific ESs (Kerr-McGee, East Gillette DES 77-13, April 1, 1977; Amax, Eagle Butte, FES 77-33, August 23, 1977; Carter, Rawhide, and Wyodak, FES 74-55, October 8, 1974), and is also included in the cumulative impacts discussed in this ES.
- Existing leases in the vicinity of the city of Gillette are included in the high-level scenario in general terms, because there are no suitable specific mining and reclamation plans on file for impact analysis. When and if specific mining and reclamation plans are submitted for these leases, environmental assessments will be completed which could include alternatives for exchange of leases.
- The leases in question were issued between 1959 and 1967, and Gillette has grown toward the leased areas since then.
7. The intent of this environmental statement is to analyze the impacts of coal development in the region, identify committed mitigating measures, and examine possible alternatives to the proposed action.
  8. Mitigating measures to reduce socioeconomic impacts could be proposed by a company or suggested by local communities for consideration by companies or agencies, if appropriate. The opportunity exists for community and company officials to attempt to work out problems created by increased development.
  9. The ES recognizes the financing and related problems faced by rapidly expanding communities in meeting public service and housing needs. These are complex problems and partial solutions are suggested. One way the federal government compensates the states which have mineral production from federal lands is to return 50% of the royalty to that state. In 1977, royalty payment

OPTIONAL FORM NO. 10  
JULY 1973 EDITION  
GSA FPMR (41 CFR) 101-11.6

UNITED STATES GOVERNMENT

**Memorandum**

TO : Team Leader, Coal ES Team, 951 Union Blvd., Casper, Wyoming 82601 DATE: December 15, 1978

FROM : Zoologist, Fort Collins Field Station, National Fish and Wildlife Laboratory thru Dr. Clyde Jones, Director, National Fish and Wildlife Laboratory 820-12-86  
1300 Blue Spruce Drive, Fort Collins, CO 80524

SUBJECT: DES - The Eastern Powder River Basin of Wyoming Reptiles and Amphibians

We wish to provide the following comments to the proposal:

- R2-43 Habitat Types
  - 1 | Terrestrial
  - 2 | The snapping turtle in particular and the painted turtle are principally aquatic species, not "riparian" forms.
  - 3 | Bullfrogs may be introduced to the included two counties but there are few records from northern Wyoming. Its occurrence is marginal in the area.
  - 4 | Species of the terrestrial reptile fauna occur in the other habitat types, but none are mentioned.
- R2-47 Reptiles and Amphibians
  - Forms that occur in the region but were not listed include:
  - Western spiny softshell (*Apalone spiniferus*). An aquatic form.
  - Plains hognose snake (*Heterodon nasicus nasicus*)
  - Western Smooth green snake (*Opheodrys vernalis blanchardi*)
  - Common garter snake (*Thamnophis sirtalis*)
  - Wandering garter snake (*L. elegans elegans*)
  - Red-belly snake (*Storeria occipitomaculata*)
  - "Rare" form in State of Wyoming.
  - In Croak and Weston Counties. Possibly elsewhere.
  - Eastern fence lizard (*Sceloporus undulatus*)
  - Many-lined Skink (*Eumeces multivirgatus*)
  - In Niobrara County, Wyoming.

The nongame wildlife at sites of the proposed project appear to be poorly known. Rigorous field census work in the region is largely nonexistent and apparently many forms of nongame wildlife were overlooked due to the paucity of published information.

If we can be of assistance to your field oriented studies, please feel free to contact us.



*Bruce Barry*  
K. Bruce Barry

Buy U.S. Savings Bonds Regularly on the Payroll Savings Plan

to the federal government from Wyoming was \$5.3 million, and in 1978 it is expected to be approximately \$7 million, half of which will be returned to the State of Wyoming. Another way the federal government compensates local governments is through the payments in lieu of taxes. For fiscal years ending September 30, Wyoming received approximately \$6.4 million in 1977 and \$7.3 million in 1978.

10. We have pointed out in the site-specific analysis that although Buckskin would produce a small proportion of total regional coal mined, Buckskin-related population increases would significantly affect housing, city services, and recreation facilities; and further, that the impacts of any new mine on natural resources would contribute to regional impacts discussed in the regional ES.

11. Population data have been changed throughout the ES to reflect available local information. The updated Campbell County Economic Base Study mentioned in the comment was not completed before the final ES was printed. It will be useful for future studies.

12. Monitoring of the environment is required by implementing regulations of the Surface Mining Control and Reclamation Act. These regulations, as proposed now, require monitoring of ambient air quality, soil testing for evaluation of results of topsoil handling and reclamation procedures, monitoring of all water discharges from the mine area, and monitoring of groundwater.

In addition, on-the-ground inspections are required at a minimum of every 6 months. Additional inspections may also be made as considered necessary.

While there are no monitoring requirements for noise levels from mining activities, there are several proposed regulations for the use of explosives, which require preblasting surveys, public notice of blasting schedules, seismographic measurements, and records of blasting operations.

13. During the period of review between the draft ES and final ES, nothing has been identified which would necessitate republishing the draft or any portion of it. In parts of the draft ES where changes were found necessary, the corrections have been made. Data gaps identified either during impact analysis or through public review will be considered prior to any decision on the proposed action.

A meeting was held in early February 1979 with officials of the City of Gillette to discuss the concerns expressed in this comment letter.

Letter 34 Responses

1. The two habitats are closely related due to the presence of water. The two turtle species undoubtedly use both habitats and were listed under the riparian heading for the sake of simplicity.
2. The bullfrog has been deleted from the species lists in Chapter 2 of the regional analysis.
3. The species lists by habitat type are intended to be representative rather than inclusive. A density table by habitat type for reptiles and amphibians has been added to the text in Chapter 2 of the regional analysis.
4. The first five species have been added to the list in Chapter 2 of the regional analysis. The last three, red-belly snake, eastern fence lizard, and many-lined skink, have not been added because their known occurrence is outside the area of analysis.



ED HERSCHLER GOVERNOR

December 26, 1978

Julie Elfving, Team Leader
Coal ES Team
Bureau of Land Management
951 Union Boulevard
Casper, Wyoming 82601

Re: Eastern Powder River
Coal Region of Wyoming

Dear Ms. Elfving:

We have completed our review of the above mentioned environmental statement. Comments received from the state agencies are enclosed.

Thank you for providing an opportunity to review the statement. Please keep us informed of the progress of this effort.

Our apologies for the delay of these comments.

Sincerely,
State Planning Coordinator's Office

CO:mee
Enclosures



ED HERSCHLER GOVERNOR

State Engineer's Office

BARRETT BUILDING CHEYENNE, WYOMING 82002
WYOMING WATER PLANNING PROGRAM

December 7, 1978

TO: Dick Hartman, State Planning Coordinator
FROM: Louis E. Allen, Water Resources Engineer
SUBJECT: Comments on Eastern Powder River Coal Draft Environmental Statement

- 1. There is recognition of the requirement for permits from the State Engineer for water appropriations, diversions, and impoundments in both the Regional Statement and the Buckhorn Mine Statement. The protection of existing water rights from interference without the owner's consent is only partially addressed and should probably be more explicit with regard to repair or replacement of the supply, or compensation for damages, under Wyoming water law.
2. Page R1-16, Table R1-7: The 10 A-F/megawatt requirement for water cooled power plants seems low. An allowance of 15 A-F/megawatt is generally accepted for planning purposes. Does use of the 10 A-F figure contemplate a combined cooling system, or some other consideration?
3. Page R2-41, second full paragraph: The statement relative to a 20 acre-foot limit on stock water reservoirs is not correct. The 20 acre-foot size is the maximum for a simplified permit procedure (if the embankment height does not exceed 12 feet). It is also the maximum size for the exception of stock water reservoir accounting under the Yellowstone River Compact and the Belle Fourche River Compact which affect the statement area.
In this same paragraph with regard to the reduced yield per square mile (cfsm) leaving the region, this yield consistently becomes smaller as the size of the drainage area increases. The small reservoirs and spreader systems probably make only a small contribution to this inverse relationship between yield and drainage area.
4. Page R2-73, Figure R2-37: The map shows "Acme's Power Plant" in Sheridan County. This plant has been out of service for several years.
5. Page RC-5, Storage Coefficient: The definition is either poorly expressed or lacks part of the statement.



THE STATE OF WYOMING

Wyoming Department of Agriculture

TELEPHONE: (307) 777-7321 CHEYENNE, WYOMING 82002

ED HERSCHLER GOVERNOR

Dick Hartman
Page 2
December 7, 1978

LARRY J. BOURRET, COMMISSIONER

MEMORANDUM

DATE: December 7, 1978
TO: State Planning Coordinator
Wyoming State Clearinghouse
FROM: Dan Daiss
Assistant Commissioner and Liaison Officer
for E.I.S. Review
SUBJECT: Eastern Powder River Coal Region of Wyoming
State Identifier Number 78-1280

EDWARD MEYERS
FRANK LESLEY LARAMEE
CLARENCE FRED POWERS
JOHN ESKUND BUFFALO
PETER VORSHIE CLARK WILSON
FRED HAGENSON, CHAIRMAN
ED HERSCHLER, GOVERNOR
DR. HAROLD TILMAN, DEAN
COLLEGE OF AGRICULTURE
UNIVERSITY OF WYOMING, LARAMIE

- 6. Many statements in both the Regional and the Buckskin Project sections are too definite as to what would occur in the future under a given set of actions. We cannot be that certain, in most cases.
LEA:ew
cc: George L. Christopoulos
William Long

We have reviewed the draft and find the explanations of impacts are as well-written as, or better than, most environmental impact statements we have reviewed.

We have a concern relative to agriculture in that continually we find food and fiber production being squeezed as the need for natural resources goes on. Livestock grazing must be diverted to other grazing lands thereby creating a heavier impact on the remaining grazing lands while reclamation to restore the mining lands is a number of years in the future.

We also find consultation with numerous agencies--except the State Department of Agriculture--and would suggest that the 1978 Wyoming Agriculture Statistics is available for current data on agriculture in Wyoming.

We appreciate the opportunity to comment.

DDjh

Interagency

Letter 36 Responses

- 1. The section on laws and regulations in Chapter 3 of the regional analysis has been expanded to include a section on water rights.
2. See response 15-1.
3. The text has been revised. See Chapter 2 of the regional analysis, Water Resources.
4. We believe the fact of decreasing unit yield in flow as drainage increases was conveyed by stating that 0.033 cfsm originates on the region but only 0.014 leaves the region.
5. Figure R2-37 has been corrected.
6. The missing words have been inserted. See Appendix C of the regional analysis.
7. Using the data available, we have used our best professional judgement to determine predicted impacts. We agree there are uncertainties in most predictions.

Letter 35 Responses

- 1. The 1978 Wyoming Agriculture Statistics were used in the final ES where applicable.

"AGRICULTURE--the backbone of Wyoming"



THE STATE OF WYOMING

Wyoming State Highway Department

P. O. BOX 1708 CHEYENNE, WYOMING 82001

37

Ed Herschler, Governor  
Lynn Mergins, Superintendent and Chief Engineer



THE STATE OF WYOMING  
EXECUTIVE DEPARTMENT

Office of Industrial Siting Administration

SUITE 600 BOYD BUILDING CHEYENNE, WYOMING 82002 TELEPHONE: 307-777-7388

38

ED HERSCHLER  
GOVERNOR

MEMORANDUM

November 3, 1978

TO: State Planning Coordinator  
Wyoming State Clearinghouse  
2320 Capitol Avenue  
Cheyenne, Wyoming 82002

FROM: William P. King, P.E., Environmental Services Engineer *WPK*

SUBJECT: Comments on Draft E.I.S. for Eastern Powder River Coal Region of Wyoming  
State Identifier Number 78-128 D

We have reviewed the subject Draft E.I.S. and offer the following comments:

1. The E.I.S. notes that rail traffic is causing problems and impacts in communities and at highway crossings. We feel this is a much more severe problem than discussion in the E.I.S. indicates. We feel that it is time to seriously study mitigation measures. It is possible that train scheduling could provide some relief. At the other extreme the best solution might be relocation of the railroad or some of their supporting facilities. Coupled with this is a financing program for the mitigating measures.
2. As we interpret the proposal, the railroad to the Buckskin Mine will cross Highway 59 at grade. Since Highway 59 is a major State Highway it is the position of the Highway Department that this will have to be a grade separated crossing.

Team Leader  
Coal ES Team  
951 Union Blvd.  
Casper, WY 82601

Dear Sir:

We have reviewed the "Draft Environmental Statement on Proposed Development of Coal Resources in the Eastern Powder River Basin." Overall, the DES provides a valuable composite of descriptive environmental data for the Eastern Powder River Basin. However, we believe that the Statement has incorrectly identified the various levels of coal development. Specifically, the No Action alternative should include only those projects currently in production or under construction (please note that the Caballo Mine is already in production). The Most Probable Level should include those projects with valid leases in the active planning and permitting stage. Finally, the High Level should include valid leases without active projects, preference right lease applications, and potential development on areas of interest. A listing of projects included in each alternative is given in the following table.

The projects listed under the No Action alternative are all producing mines at this time. The projects listed under Most Probable Level still require various State and Federal approvals. However, each project listed has either announced contracts, submitted permit applications, or indicated to a State or Federal agency that permit applications are being prepared. In contrast, the No Action alternative in the Statement includes several projects for which Federal approvals are currently pending and the Most Probable Alternative excludes from consideration many projects which will undoubtedly be in production before another regional environmental statement is prepared. Thus, the Regional Statement does not accurately evaluate the anticipated impacts associated with the Most Probable Level of regional coal development.

Specific comments on portions of the Regional Statement and the Buckskin statement are provided below.

Description of Regional Development Activity: (P RI-17)

It appears the figures in Table RI-6 for cumulative acreage disturbed due to population expansion underestimate considerably the regional situation.

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Letter 37 Responses

1. Given the scope of the ES, it would be beyond our present capabilities to fully explore all mitigating measures that are associated with rail traffic. What we have done is to simply point out the probable impacts of increased rail traffic and discuss changes that will alleviate these problems.

2. Wyoming State Highway 59 is currently being rerouted around the Carter Mining Company's Rawhide Mine, which is adjacent to the proposed Buckskin Mine. Upon completion of the highway relocation, State Highway 59 will pass over the Rawhide railroad spur on a bridge.

Shell Oil Company's railroad spur would pass under State Highway 59 at the same bridge.

The text has been revised to reflect this. See Chapter 3 of the site-specific analysis, Transportation Networks.

ALTERNATIVE LEVELS OF COAL PRODUCTION

No Action - Low Level

- Wyodak - Wyodak Resources
- Dave Johnston - PP & L
- Belle Ayr - Amax
- Cordero - Sunco
- Rawhide - Carter
- Black Thunder - Arco
- Jacobs Ranch - Kerr McGee
- Kerr McGee #16 - Kerr McGee
- Eagle Butte - Amax
- Caballo - Carter

Most Probable Level

- Coal Creek - Arco
- Wildcat - Gulf
- Norfolk - Gulf
- Fronthorn - Mobil & Consol
- Mobil Lease - Mobil
- East Gillette - Kerr McGee
- Antelope - PP & L
- Buckskin - Shell
- Rochelle - Peabody
- North Antelope - Peabody
- Hyno Fuels - American Electric
- South Rawhide - Carter

High Level

- Valid leases without active projects
- Preference right lease applications
- Potential development on Areas of Interest

Source: Table A-2 Staff Review Permit Application for the Atlantic Richfield Company Coal Creek Mine, Campbell County, Wyoming Docket No. WISA-78-1, July, 1978, The Office of Industrial Siting Administration.

2 This is significant only in that these figures are used in later sections as a base for a number of calculations. The DES estimates that 2200 acres will be disrupted by a population increase of 22,000 by 1990 under the probable level of development and yet the City of Gillette alone saw the development of more than 2200 acres from 1965 to 1977 for an even smaller population increase. A major reduction in undeveloped land base is evident from the rural sprawl in the basin, particularly in Campbell County. Assuming a continuation of this situation, the DES estimate of 2200 acres for 22,000 people does not appear realistic. Rural sprawl should be considered in the ES to more realistically reflect probable land base development and subsequently provide more reliable estimates of impacts of regional development on other resources.

3 Fish and Wildlife: Terrestrial (p. R2-43)

Regarding habitat affinities, beaver should be removed from the ponderosa pine habitat type and placed under riparian.

4 Fish and Wildlife: Mammals (p. R2-44)

The document writers estimate pronghorn and deer density for the region as 20.8 and 3.0 per square mile respectively. However, these figures do not reflect density for the region since the data used to derive these estimates are from mine sites only, in a relatively small, restricted area of the entire basin. The estimates are totally invalid statistics even for the mine sites overall since they were improperly calculated (i.e. densities per square mile for each of the mine sites were simply totaled and divided by the number of mine sites). The correct average density per square mile for the mine sites overall is approximately 15.7 for pronghorn and 2.1 for deer, assuming the mine site figures are not in error.

5 Economic Environment: Population (p. R2-102)

The population estimates given Table R2-23 of 16,000 for Campbell County and 10,067 for the City of Gillette for 1978 are obviously in error. For example, the Wyoming Employment Security Commission estimates the labor force alone residing in Campbell County to be 13,507 as of September, 1978. The City of Gillette-Campbell County Department of Planning and Development estimated the 1977 County population to be 24,406 with 12,073 in the City of Gillette and an additional 5,424 in the Gillette area.

6 Environmental Impacts of Regional Development: General

The analysis of potential adverse environmental impacts associated with regional development is very limited. Throughout Chapter 4 is the frequent statement that no data is available to substantiate or quantify a potential adverse impact.

6 The DES is remiss for not identifying or suggesting the means by which these data gaps will be filled. The ES should address the means by which these data gaps can be filled in order to properly discern the probable significance of environmental impacts of regional development.

7 Environmental Impacts of Regional Development: Surface Water (p. R4-22)

Not unlike other environmental statements concerning coal mine development at sites with tributaries to the Belle Fourche River, the DES also ignores the issue of possible cumulative impacts of mining on sedimentation in the Belle Fourche and Keyhole Reservoir. Keyhole Reservoir is an important regional fisheries and multiple-use recreational resource that is of considerable concern to wildlife agencies respecting adverse impacts from regional development. Additionally, the DES does not sufficiently address the probable drawdown of the Belle Fourche as a consequence of destruction of near-surface aquifers and the pocketing of some surface drainages, or downstream agricultural usage of the river. These are potential adverse impacts that could be significant and should be addressed in the ES. If data are not available for these potential impacts, are monitoring programs or basic research studies anticipated?

8 Environmental Impacts of Regional Development: Wildlife (p. R4-26 to R4-28)

Direct losses of game species (i.e. pronghorn and deer) should be recalculated since density estimates given in Chapter 2 were improperly qualified with the statement that losses were calculated in proportion to the amount of habitat lost directly and does not account for indirect loss resulting from barriers to migratory movements to or from critical winter range, the additional acreage in a buffer zone around access roads, rail spurs, or other rural developments that may be uninhabitable for some wildlife species, and the loss associated with increased human encroachment and disturbance in otherwise undisturbed habitat. Though obviously not calculable, the magnitude of loss could be much greater than that predicted.

9 Environmental Impacts of Regional Development: Socioeconomic Conditions (p. R4-43 to R4-48)

The Socioeconomic impacts associated with regional coal development are consistently underestimated due to the extremely low population estimate for 1978 developed in Chapter 2. This entire section should be reevaluated based on more reasonable population estimates.

10 PROPOSED BUCKSKIN PROJECT

Description of the Project: Watercourse Diversions (p. BU1-15)

We do not believe that the 20 year flood is adequate as the design flood for the diversion system due to the high probability of being exceeded during the life of the mine and the probable impacts associated with the failure of the diversion system.

Description of the Environment: Groundwater (p. BU2-8 to BU 2-12)

The DES states that there are 52 wells within three miles of the lease, many of which were drilled for stock or domestic supplies. The document does not indicate whether any of these wells are drilled in aquifers that will be disrupted or indirectly impaired by the Buckskin mining project. There is no indication of mitigating impaired wells or delimiting the area of groundwater influence by the Buckskin project from that of adjacent mines. The ES should clarify the probable impact on existing wells, if any.

Description of the Environment: Surface Water (p. BU2-12)

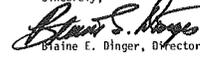
12 There are apparently 5 reservoirs presently on the lease area but no indication is given as to their replacement for livestock and wildlife watering purposes. Please clarify.

Impacts of the Proposal: Game (BU3-27)

13 The DES suggests that the rail spur, if fenced, and in combination with the mine itself and the access road, would form a barrier to north-south movement by pronghorn between Highways 14/16 and 59. If properly designed, the rail spur fence should not prohibit pronghorn movement. The project should follow the fence structure guidelines proposed by the Wyoming Game and Fish Department to avoid this potential impact.

Thank you for the opportunity to comment on the draft statement. We hope our comments will be useful to you in the preparation of a final statement.

Sincerely,



Elaine F. Dinger, Director

BED/sr

Letter 38 Responses

1. Please see transcript response #4 and response 28-1. We have amended our tables in Chapters 1 and 8 of the regional analysis to show Caballo's 1978 production.
2. Acreage allowance for population increase over 1978 base has been increased.
3. A change in the text has been made. See Chapter 2 of the regional analysis, Fish and Wildlife.
4. Figures for big game densities have been obtained from the Wyoming Game and Fish Department for the major big game herd units in the region. The figures for all herd units were averaged and used in assessing impacts. The text has been changed to reflect the new figures. See Chapter 2 of the regional analysis, Fish and Wildlife.
5. Your observation is correct, and these estimates have been changed throughout the text.
6. Data gaps are deficiencies which are identified and considered in evaluating environmental impacts. If a data gap is considered significant, a decision to defer action can be made.
7. Total sedimentation from the region is estimated in Table R4-4. An estimate of possible increased sedimentation might be obtained through the use of the 7 acre-feet per square mile per year value (see Chapter 4 of the regional analysis) in conjunction with an estimate of the unreclaimed mine areas left exposed each year within the Belle Fourche River drainage. The summation of these annual computations should then give a very rough estimate of the increase in sediment accumulated in Keyhole Reservoir as the result of mining. We do not have available estimates of annual unreclaimed acreage by specific drainage. Probably all but a very small percentage of the water supply into Keyhole Reservoir is the result of direct runoff from rain or snow and not the result of groundwater seepage. Current estimates indicate no significant reduction in river flow; if there is a significant impact, it will probably be in flow quality. Laws require monitoring programs, and research of mined areas is anticipated.
8. Direct losses of game have been recalculated using new figures from Chapter 2. A statement that wildlife losses were calculated in proportion to the amount of habitat loss has been incorporated in Chapter 4 of the regional analysis.
9. The text has been revised.
10. State regulations prescribe a much larger flood design (refer to Chapter 4, Mitigating Measures, of the site-specific analysis).
11. The section on laws and regulations in Chapter 3 of the regional analysis has been amended to describe provisions protecting water rights.

Changes in water levels in bedrock aquifers would be virtually the same, with or without the Buckskin Mine. The text of Chapter 2, Future Environment, of the regional analysis, has been so revised.

Quantitative data on the impacts to existing wells is not available; a qualitative description is given in Chapter 4 of the regional analysis.

12. The Wyoming Department of Environmental Quality will require restoration of reservoirs. The impact statement indicates that restoration of reservoirs is a committed or enforceable mitigation measure. See Chapter 4 of the site-specific analysis.

13. The construction of fences which permit movement of pronghorn is a committed mitigating measure. See Chapter 4 of the site-specific analysis.



Wyoming Recreation Commission

804 EAST 26TH STREET CHEYENNE, WYOMING 82002

COMMISSION OFFICERS: RICHARD BAFFORD, PRESIDENT, P.O. Box 8225, Lusk, WY 82531. MRS. ROBERT FRISBY, VICE PRESIDENT, 2007 Newton Drive, Cody, WY 82414. E. LAWSON SCHWOPPE, TREASURER, 900 First Avenue, Cheyenne, WY 82001. MEMBERS: FLOYD BARTLING, P.O. Box 172, Douglas, WY 82523. MARVIN HARSHMAN, 180 West Spruce, Rockville, WY 82001. WILLIAM MIDFAT, 107 W. Jackson Avenue, Rockton, WY 82501. JACK O. OSMOND, P.O. Box 218, Pinedale, WY 82801. ALBERT PILCH, 1000 Alton Lane, Evanston, WY 82630.

Mr. Richard Hartman, State Planning Coordinator, Wyoming State Clearinghouse, 2320 Capitol Avenue, Cheyenne, Wyoming 82002

December 6, 1978

JAN L. WILSON, Director, 777-7955

Dear Mr. Hartman:

Our office has received and reviewed your memorandum of October 30, 1978, and attached "Draft Environmental Impact Statement: Eastern Powder River Coal Region of Wyoming--78-1280".

The Historical Section of the Wyoming Recreation Commission appreciates the opportunity to review this two-part statement, including a regional impact analysis of existing and anticipated coal development and a site specific study of the Buckskin Mining and Reclamation plan. In truth, we are very pleased to find that this study has tapped professional archeological and historical sources in drafting a solid regional analysis. We specifically compliment the respective studies of Bob Murray and Alan Alpert, Cultural Resource Inventory of the Caspar District, Wyoming, and Description of Historic Events Relating to Potential Coal Lease Areas. Both are articulate works based upon substantial historical research.

The Wyoming State Historic Preservation Officer (SHPO), however, has identified numerous additional sites eligible for the National Register of Historic Places within the Eastern Powder River Region, which are not included within the draft. For your information, we are forwarding to your office an updated copy of the Wyoming Inventory of Historic Sites for Converse and Campbell Counties. Moreover, please note the Bureau of Land Management listing of the LX Bar Ranch is absent from the official inventory. Bob Murray notes the site's historic significance on page 283 of his cultural inventory.

Again the first portion of this Draft EIS is an overall management tool. This office will conduct more comprehensive reviews as subsequent EIS are filed for specific developments.

Mr. Richard Hartman, State Planning Coordinator, Cheyenne, Wyoming 82002

December 6, 1978

Page Two

Regarding one such specific development, the proposed Buckskin Mine, I find no historic sites either enrolled in or eligible for the National Register. However, a possibility exists that "recorded history" began earlier than 1883 (page B02-16). William P. Hunt's journal reveals that the Astorian Expedition of 1810-1811 may have traversed the region on their way to the mouth of the Columbia. We would like to remind those who are involved in construction work that should they discover any evidence of this route, they must halt work and contact the SHPO immediately.

Since the entire Buckskin permit area has been surveyed by the Wyoming State Archeologist and has been found to contain no site of National Register caliber, the SHPO can recommend clearance. We again would like to reiterate that should sites of unknown cultural values be uncovered during overburden removal, the State Historical Preservation Officer be notified as required in Section 106 of the Historical Preservation Act of 1966.

Sincerely,

Jan L. Wilson, Director & State Historic Preservation Officer

By:

Greg Kendrick, Special Assistant Historical Section

JLH:GDK:kln Encls.



Wyoming Recreation Commission

804 EAST 26TH STREET CHEYENNE, WYOMING 82002

COMMISSION OFFICERS: RICHARD BAFFORD, PRESIDENT, P.O. Box 8225, Lusk, WY 82531. MRS. ROBERT FRISBY, VICE PRESIDENT, 2007 Newton Drive, Cody, WY 82414. E. LAWSON SCHWOPPE, TREASURER, 900 First Avenue, Cheyenne, WY 82001. MEMBERS: FLOYD BARTLING, P.O. Box 172, Douglas, WY 82523. MARVIN HARSHMAN, 180 West Spruce, Rockville, WY 82001. WILLIAM MIDFAT, 107 W. Jackson Avenue, Rockton, WY 82501. JACK O. OSMOND, P.O. Box 218, Pinedale, WY 82801. ALBERT PILCH, 1000 Alton Lane, Evanston, WY 82630.

Mr. Richard Hartman, State Planning Coordinator, Wyoming State Clearinghouse, 2320 Capitol Avenue, Cheyenne, Wyoming 82002

Dear Mr. Hartman:

The Wyoming Recreation Commission would like to see the Bureau of Land Management in its "Draft Environmental Impact Statement: Eastern Powder River Coal Region of Wyoming--78-1280", address the impacts on recreational facilities in Converse and Campbell Counties as well as the lands under consideration for mining. Recognizing local concern for the scenic, historic, and recreational lands and facilities in the State and realizing the responsibility of this generation to protect Wyoming's quality of life, we feel provision should be made for meeting recreational needs in newly formed high density population centers where present facilities often prove inadequate.

Sincerely,

for Jan L. Wilson, Director

Robert B. Stevenson, Recreational Specialist

JLH:RBS:kln

39 DEC 7 1978

ED HERSCHLER, GOVERNOR

JAN L. WILSON, Director, 777-7955

December 6, 1978

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THE STATE OF WYOMING

Wyoming Recreation Commission

804 EAST 25TH STREET CHEYENNE, WYOMING 82002

COMMISSION OFFICERS: REGINALD BAFFORD, PRESIDENT, MICHAEL ROBERT FRISBY, VICE PRESIDENT, E. LAWSON SCHWOPF, TREASURER, MEMBERS: FLOYD HARTLING, RICHARD HARTMAN, WILLIAM McEFFAT, JACK D. OSMOND, ALBERT PILCH.

December 21, 1978

ED HERSCHLER GOVERNOR

JAN L. WILSON Director

Richard Hartman State Planning Coordinator 2320 Capitol Avenue Cheyenne, Wyoming 82002

Dear Mr. Hartman:

Reference is to my letter of December 6, 1978, commenting upon the "Draft Environmental Impact Statement: Eastern Powder River Coal Region of Wyoming--78-128D". The Wyoming State Archeologist has completed testing on sites 48CA 89 and 48CA 130, located within the Buckskin mining permit area. Both sites are now considered eligible for enrollment in the National Register of Historic Places. Therefore, the State Historic Preservation Officer cannot recommend clearance of the mining operation until the Bureau of Land Management, in consultation with the SHPO have applied the criteria of effect as outlined in the National Historic Preservation Act of 1966, as amended "Protection and Enhancement of the Cultural Environment (36CFR800.3a)".

Sincerely,

Jan L. Wilson, Director and State Historic Preservation Officer

By:

Greg Kendrick, Special Assistant Historical Section

JLW:GDK:kln

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MEMORANDUM

TO: Robert E. Sundin, Director
FROM: Thomas J. Mueller, Water Quality Sheridan District Supervisor
SUBJECT: Draft Environmental Statement "Proposed Development of Coal Resources in the Eastern Powder River Basin of Wyoming"

The following comments are offered on the Draft Environmental Statement.

- 1. On page R3-5, under the Water Quality heading, the Water Quality Standards for Wyoming are mentioned and described. Those standards have been superceded by the "Quality Standards for Wyoming Surface Waters", which became effective June 6, 1978.
2. On page R2-119 it is stated that "communities face difficulties in obtaining sufficient funds for . . . modern sewage treatment facilities". The availability of 75% federal funding through the EPA Municipal Grants Program should be pointed out, as should the existence of Coal Tax Grant monies, available from the State Farm Loan Board.
3. There are currently several small, marginally adequate, troublesome sewage treatment facilities serving housing subdivisions in the unincorporated areas around Gillette. No mention of these facilities, their impact, or likely proliferation is made anywhere in the document. This is a significant oversight.
4. A description of the Gillette water supply is provided on page R2-29. The description is slightly inaccurate in that Electrolysis treatment is no longer used.
5. On pages R4-50 and R8-84, statements are made indicating that the City of Sheridan's sewage treatment facility should remain adequate through 1990. The Water Quality Division does not presently consider the treatment facility adequate. The problems are primarily treatment efficiency and the very high quality of the receiving stream (Goose Creek). The City presently has a Step 1 grant from EPA for planning of facility improvements.
6. The "Most Probable Level" of Coal Production cited in the document is unrealistically low. The various Divisions of this Department are aware of as many as eight potential coal mining operations which are not identified in the regional analysis. Some of these operations have existing Federal coal leases, and some are entirely on State or private coal. While some, many, or all of these projects may be delayed or cancelled, it is unrealistic to assume that only those projects which presently have or are preparing Environmental Statements will be in operation by 1990.

Letter 39 Responses

- 1. The impact sections of both the regional and site-specific analyses discuss the effects of increased population on recreation facilities.
2. Chapters 2 and 4 of the regional analysis have been revised to account for the additional sites eligible for the National Register.
3. The year 1883 is established by documentation. While it is true that the Astorian Expedition of 1810-1811 may have traversed this region, we have no definite proof of travel across the Buckskin Mine site.
Chapter 2 of the regional analysis, Cultural Resources, describes the travels of the Astorians.
4. Documentation for compliance with the National Historic Preservation Act is currently in progress.

Letter 40 Responses

- 1. The text has been corrected. See Chapter 3 of the regional analysis.
2. The section on local finances, Chapter 2 of the regional analysis, discusses various sources of revenue available to communities.
3. This problem was discussed briefly in Chapter 2 of the site-specific analysis, Socioeconomic Conditions, Waste Disposal. The text there and in Chapter 2 of the regional analysis has been changed to reflect your concern.
4. This sentence has been corrected.
5. The text has been changed to reflect your concern. See Chapters 4 and 8 of the regional analysis, Economic Impacts, Local Services.
6. Please see transcript response #4.

MEMORANDUM

TO: Robert Sundin, Director

THROUGH: Randolph Wood, Administrator

FROM: Richard L. Schrader, District Engineer

SUBJECT: Draft Environmental Statement on the Proposed Development of Coal Resources in the Eastern Powder River Basin prepared by the Department of the Interior.

DATE: November 14, 1978

The following comments pertain to the above subject environmental statement:

- 1) Annual dispersion modeling predictions for TSP in the mid-1980's compare closely with predictions made by the Division during permit reviews at receptors within the lease boundary are not evaluated. Emissions were estimated for all mining operations as well as fugitive dust emissions for access road traffic.
- 2) Applications for proposed mines which are presently being reviewed by the Division and were not included in the regional dispersion modeling are as follows:
 

	Date Received
Nojo Caballos Mine	6/28/78
Fort Union Mine	10/30/78
North Antelope	11/09/78
- 3) An air quality permit was issued on October 16, 1978 for construction of the WYMO Mine. Public notice proposing approval of the South Rawhide Mine air quality application was published on October 17, 1978. Neither of these mines were included in the air quality assessment.

Letter 41 Responses

1. No response necessary. This comment supports the technique used in the ES.
2. Please see transcript response #4.

- 3) The impact of transmission lines is discussed in the Statement - but only insofar as 230 KV line is concerned. None of the mines to date can use 230 KV. Thus a whole system of 69 KV feeder lines is building rapidly in the area. The Statement should address the commitment to not just 230 KV lines but 69 KV as well. This information should be available from Tri-County Electric Association in Sundance, Wyoming, and also Pacific Power & Light in Douglas.
- 4) The treatment of air quality impact is alarmingly poor in the Statement. While Interior finds total emissions from mines in 1990 to be 41,513, PEDCO figures indicate 296,000 tons. (Interpretation of PEDCO Environmental, Inc. Study, "Survey of Fugitive Dust from Coal Mines" by Gerald Dodson, Office of the Solicitor, Department of Interior, Washington, D.C.). Using PEDCO and Dodson, we find the Statement has underestimated the emissions in the region by at least 700 percent.
- 5) The Statement indicated that both annual and 24 hour air quality standards will be violated in Gillette in 1990. Why are no alternatives discussed to mitigate these violations of Federal and State law?
- 6) In many places where air quality is discussed, Interior cites new PSD standards which seemingly exempt fugitive dust. The first critical point is that these regulations are interim, and are undergoing litigation and in-house re-evaluation. More importantly, dust will not somehow evaporate as a serious threat to health and property, just because of a cleverly written legal exemption. Dust continues to fill the air in Campbell and Converse Counties, to cover grasses, decrease visibility and exacerbate respiratory problems among the residents. Interior has an obligation and a responsibility to study, develop, and describe appropriate alternatives and to recommend courses of action in any proposal which involves unresolved conflicts concerning alternative uses of available resources," (Sec. 102 (2) B NEPA). Dust is such a "conflict" in this region and mitigation measures must be provided.
- 7) Enclosed please find a "High Country News" article on the "small, temporary fugitive dust sources" (R2-3) due to construction. Map Stuart has experienced TSP levels over 800 ug/m<sup>3</sup> for large areas of land. Many such "insignificant" impacts are adding up. The regional Statement has done an abysmal job of detailing the regional impacts of the growing number of construction sites. It should be noted that construction activities are not necessarily "temporary." The mainline Railroad from Gillette to Douglas is taking over 5 years to build, and spurs can take a year or more.
- 8) Why were vehicle emissions not included in the dispersion models? (R2-3). Again, this Statement is supposed to be a regional accounting of regional impacts. No showing has been made that vehicle emissions are not a significant regional impact.
- 9) Table E3-1 should be thrown out. The regional statement considers impacts within the State of Wyoming - and the State of Wyoming does not recognize Federal Primary Standards. All air quality standards in Wyoming are either the same or stronger than Federal Secondary.



Powder River Basin Resource Council

Sheridan, Wyo. 82801  
 150 W. Brundage  
 (307) 672-5809

Team Leader  
 Bureau of Land Management  
 921 Union Blvd.  
 Casper, Wyo. 82601

12/26/78

Dear Team Leader:

The Powder River Basin Resource Council would like to submit the following comments on the Draft Environmental Statement - Eastern Powder River Coal, made available to the public on October 25, 1978.

The comments are generally divided into two parts. The first section deals with the regional statement. The second addresses the specific Buckskin mine statement.

REGIONAL COMMENTS

- 1) Developments outside of the two-county region should be examined as to their potential to affect the study area. Specifically, coal and uranium development in Johnson, Niobrara, Weston and Crook Counties promises to impact communities in Campbell and Converse Counties.
- 2) Enclosed with these comments please find a listing of all mines presently in operation, under construction, or in the permit process in Campbell County. We noted in our oral comments that Interior had overlooked several mines in their analysis. The facilities not mentioned in the Statement are as follows:
  - A) Peabody Coal Company/Tanhandle Eastern Pipeline Company - North Antelope Mine.
  - B) Pacific Power & Light - Antelope Mine.
  - C) WYD Fuels, Inc.
  - D) Delzer - Ft. Union Mine.
  - E) Mobil Oil - Nojo Caballos.
  - F) Carter Oil/Exxon - South Rawhide.

The exclusion of these facilities has led to an underestimation of coal production by some 40 million tons of coal per year, possibly by 1985. Further, production from such mines as Belle Ayr, North Rawhide, Black Thunder, and Coal Creek is projected to increase substantially - well over the rates reported in the Regional Statement. This will further jeopardize the accuracy of the document.

For purposes of assessing impacts, Interior should not just look to which mines are in the impact statement process. To discover all planned development in the Basin it is necessary to consult with the Wyoming Department of Environmental Quality, Industrial Siting Council, and information gathering groups such as the Powder River Basin Resource Council.

Team Leader  
 12/26/78

Page Three

- 10) Water is another poorly treated subject in this impact statement. Water use is estimated by Interior to be 20 acre-feet per million tons of coal produced. The serious omission here is the average of 217 acre-feet inherent in every million tons of coal which is shipped out of the country. This represents an underestimation of water consumption impact by over a factor of ten. In 1990 the region will be close to 110,000 acre-feet - not 70,450 acre-feet (R1-19) as predicted by Interior.
- It is imperative that Interior tackle this problem in the true spirit of NEPA Sec. 102 (2)(B). What long term coal mining really does to the water resources of the region? What can be done to mitigate the impact of heavy water consumption to an already very dry area?
- 11) The only apparent index used to determine the amount of destruction of wildlife is the elimination of habitat. But the very large kill factors (possibly of more significance than the loss of habitat) are poisoning, car deaths, and domestic "pets." Every attempt should be made by Interior to determine what these losses are, even if it requires rough calculation.
- 12) It would be helpful to discover what the new large electrical loads in the area have done to energy costs. The electrical demand for each additional million tons of coal seems to be close to 1000 KW. (Data developed from 1978 electric usage of area mines, Tri-County Electric Association). Consumption of electricity averages 2.32 KWH per ton produced. (Average from Belle Ayr, Cordero, Jacobs Ranch, North Rawhide, and Black Thunder).
- 13) Gillette, apparently, will require an increase in the capacity of their sewage treatment facilities by 2.6 mgd. The City also needs 7.5 mgd additional capacity in the water treatment system. Further, a seven million dollar "shortfall" is expected by 1990. First, how does the Statement define "shortfall"? What level of services are assumed for 1990? Finally, how does the Statement suggest to alleviate these problems?
- 14) Coal dust loss from unit trains has been ignored. Estimates from the DES for Pronghorn mine, August 1978, show 3 tons of coal are lost per train. (Pg. BIV-4). If 15,705 loaded trains are to leave the Basin every year, the amount of coal dust emitted will be approximately 47,000 tons of coal dust. This is not to say that all will be lost within the confines of the region - but there is a good argument to say a large proportion escapes early in the trip.
- Mitigating efforts such as oiling the railroad cars, or covering them should be seriously studied by Interior.
- 15) The "Regional Activity" map needs to be updated and expanded. The Rochelle holding has been partially re-assigned to include the Peabody North Antelope Mine. The existing and proposed rail spurs as shown are incomplete. 69 KV feeders should be drawn in. All ATP's should be drawn in (some 10.35 square miles, R2-29).
- All state mineral leases should be included on this map. The development of these leases is very critical to the assessment of regional impacts.

- 16) The map on R4-40 should be expanded to include the destination of all coal trains and the power plants which are being served.
- 17) The final statement should include a summary of regional activity and the coincident impacts. Environmental statements rely in large part on the public for their effectiveness. If the general public does not have the time or patience to wade through such lengthy documents, Interior should provide a summary more readable to the people who live in the region.
- 18) It should be noted that a new rail line is envisioned by the CNW railroad to run from Shawnee, Wyoming to Gering, Nebraska. The line is expected to carry coal from the Powder River Basin.
- 19) Consult the enclosed report, "Impact of Coal Transportation on Gillette, Wyoming, and Communities South and East" issued September, 1978.
- 20) Refer to "Federal Coal Leasing in 1985 and 1990, Regional Coal Production Forecast." This DOE publication projects coal production in the Powder River Basin (S.E. Montana, and N.E. Wyoming by their definition) to fall between the three possibilities below:

PROJECTION, 1990 PRODUCTION:	Low: 173.7 Million tons		
	Med: 396.1 " "		
	High: 602.9 " "		

If these figures are to be used to determine the level of leasing of federal coal in the Basin, then the Statement should consider what affects the Medium and High rates will have on the region.

- 21) Finally, the discussion of mitigating alternatives, which begins and ends on page B2-1, is virtually useless. While the Statement points out "alternative sites for surface facilities, mining technology and methods, coal transport methods and rates of production on individual operations were considered where appropriate," it goes on to say, "But no such modifications have been proposed or identified which would significantly reduce the adverse impacts of coal production from the region."

Basically, the Statement has failed in one of its most principal obligations as set forth in Sec. 1500.8 of the Environmental Impact Statement Guidelines. Sec. 1500.8 (a)(4) Content of Environmental Statements reads, "The following points are to be covered: ...Alternatives to the proposed action, including, where relevant, those not within the existing authority of the responsible agency. A rigorous exploration and objective evaluation of the environmental impacts of all reasonable alternative actions, particularly those that might enhance environmental quality or avoid some or all of the adverse

- 26) 5) Alternatives to increase the viability of reclamation are badly needed. The DES states that reclamation will only stabilize at 87 percent of premining levels of productivity. It was also shown that with planned reclamation procedures, large amounts of soil loss will occur due to large precipitation events.
- 27) 6) The discussion on B1J-24 concerning settlement of post-mined land is good. More research, however, is required in this area to better determine what will actually happen to this land after mining and reclamation. There is a large question as to the ability of the returned overburden to hold water in any usable fashion. The question of settling of the land is critical, since if the area is to be farmed at a latter time ponds and depressions would create an unacceptable environment.
- 28) 7) According to FEDCO, an average fugitive dust emission per million tons of coal in the West is 600 tons. Shell has air quality permits to 6 million tons of coal per year. This places the rate somewhere around 3600 tons of dust per year, rather than the projected 1000. The alternative to build a conveyor appears to be a useful mitigating measure and should be seriously considered by Shell. Other alternatives should be detailed to alleviate dust emissions from the mine.
- 29) 8) As in the regional statement, the discussion of alternatives to the mine as proposed is not at all thorough. It has come time for Interior to assume an active responsibility in finding mitigating alternatives to a proposed action which would reduce its impact.

Thank you for the opportunity to comment on the Draft Environmental Statement - Eastern Powder River Coal, and the DES for the Buckskin mine. Please accept the referenced materials which are enclosed, and also a graph entitled "Production Curve For Eastern Powder River Coal Mines" which is to accompany testimony from R. Anderson.

Respectfully,

*REED ZARS*

Reed Zars, for the  
Powder River Basin Resource Council  
28 N. Main  
Sheridan, Wyoming 82801

environmental effects, is essential."

The two supposed alternates presented in the Statement were listed as the "Low-Level Scenario," and the "High-Level Scenario." However, the Low-Level Scenario represents an insignificant drop (2%) in total development from the Probable Level of activity. The High-Level does not discuss any alternatives which could possibly "enhance environmental quality or avoid some or all of the adverse environmental effects" since it follows a 90 percent increase in development and industrialization of the region.

The section on alternatives needs to be given serious attention, creative thought, and lots of time. Ideas for mitigating alternatives, or areas in need of further thought are listed below:

- A) Staggered mining approval after 1990.
- B) Mass transportation of workers.
- C) Alternative methods of reclamation to achieve legal standards.
- D) Discussion on how to best rebuild mined aquifers.
- E) Suggestions to avoid massive wildlife destruction.
- F) Methods to reduce the large amounts of dust generated by industrial activity.
- G) Possibilities to relieve social tensions and psychological depression familiar to energy boom towns.
- H) Thoughts on ways to avoid large spewling shortfalls in municipalities without decreasing the level of services.
- I) Alternative siting of major utilities roads and subdivisions.
- J) More effective ways to upgrade information and utility of regional impact statements.

BUCKSKIN COMMENTS

These comments are specifically directed to the proposed Buckskin mine to be operated by Shell Oil.

- 22) 1) 1.5 miles of alluvial valley floor have been found within the permit boundary of the Buckskin mine. Has Shell shown that the mining and reclamation operations preserve "throughout the mining and reclamation process the essential hydrologic functions of alluvial valley floors?" Sec. 515 (a)(10)(F), SHCRA.
- 23) 2) The impact of 1302 acre-feet of water inherent in the coal being extracted from the land at 6 million tons per year needs to be evaluated.
- 24) 3) Figure R2-3 shows a major portion of the wind passing over Buckskin has already passed over the mine to the south. This further challenges the already abnormally low estimation of air pollution surrounding the mine.
- 25) 4) The final statement should detail the full costs of the facility to facilitate evaluation of tax generation potential.

Letter 42 Responses

- 2. See transcript response #4.
  - 3. See transcript response #5.
  - 4. See transcript response #7.
  - 5. See transcript response #8.
  - 7. The effects of construction on air quality and vegetation are discussed in Chapter 4 of the regional analysis, Soils, Vegetation, and Air Quality. The fact that construction projects (such as the railroad and transmission lines) are short term for each given segment means that they could not be included in the air quality modeling and isopleths, not that they were considered unimportant.
  - 8. See transcript response #10.
  - 9. Table R3-1 compares federal and state air quality standards. Both sets of standards are compared with projected air quality, except where federal standards have no Wyoming counterparts.
  - 11. See transcript response #12.
  - 12. See transcript response #15.
  - 15. Railroad spur and lease holding information was derived from company-submitted mining and reclamation plans and/or lease files. It reflects the best information available to us at the time the ES was written. Feeder power lines are usually constructed within rail spur rights-of-way and hence are not shown separately. Alluvial valley floors would be difficult to map at the scale of Map 1; however, those identified by Hardaway and others (1977) lie within the following lease areas: Belle Ayr, Black Thunder, Buckskin, Caballo, Coal Creek, Cordero, Dave Johnson, Eagle Butte, East Gillette, Jacobs Ranch, Rawhide, Rochelle, and Wyodak. See transcript response #16 in reference to state leases.
  - 18. Please refer to response 29-5.
  - 23. See transcript response #14. The 6-million-ton production figure is derived from Shell's revised mining and reclamation plan. See response 14-3.
  - 26. The 87% figure is no longer valid. See response 14-49.
- Concerning soil losses due to large precipitation events, such losses would be unavoidable under the present mining and reclamation plan if extraordinary rains occur during the reclamation process.

Casper, Wyo  
Jan. 11, 1979

Jillie Elwing  
Team Leader  
Coal ES Team  
Bureau of Land Management  
951 Union Blvd.  
Casper, Wyo. 82601

Dear Mrs. Elwing:

I have studied the Draft Environmental Statement for coal development in the Eastern Powder River Basin. I am a student who is interested in the development of energy resources and what it does to our environment.

I think the project should move forward immediately to prevent an energy crisis in the future. This project will cause certain environmental changes but the benefits will be greater than any changes for the worse.

Respectfully yours,  
Mark Onstott  
1601 Nottingham  
Casper, Wyoming 82601

Letter 43  
No response required.



THE STATE OF WYOMING

ED HERSCHLER  
GOVERNOR

Game and Fish Department

DES #142, Eastern  
Powder River Coal

CHEYENNE, WYOMING 82002

EARL M. THOMAS  
DIRECTOR

January 9, 1979

Mr. Daniel P. Baker, State Director  
Bureau of Land Management  
2515 Warren Avenue  
Cheyenne, Wyoming 82001

Dear Mr. Baker:

We have reviewed the Draft Environmental Statement for proposed development of coal resources in the Eastern Powder River Basin of Wyoming, and offer the following comments and recommendations in the interest of the wildlife resource.

This DES covers an extended region to the north bank of the North Platte River but does not include any potential effects on the river. The North Platte River is an important fisheries resource and riparian habitat which would be impacted by coal mining in the region even if none of it occurs within its drainage. Impacts ranging from increased demands for water-based recreation to increased construction and pollution would result.

On March 9, 1977, the Game and Fish Department transmitted a letter to the BLM concerning proposed planning decisions for Campbell and northern Converse counties. In this letter a ten mile buffer zone was recommended between the North Platte River proper and all surface occupancy. We reiterate and assert that this is a realistic and valid recommendation as we have monitored leaching from a surface mining operation within a two-to-three mile distance of Segoose Reservoir. Leaching can stem from a multitude of controllable practices (slurry pond wash-outs, mining operations, etc.), as well as from natural largely uncontrollable phenomenon such as underground aquifers, etc.

Any concessions to the recommended buffer zone width could pose additional, serious threats to the aquatic resource of the North Platte River and its multiple reservoir complement.

This Department's recent report (Fleischer 1978) to BLM assessed the fisheries and aquatic habitat in the Eastern Powder River region. The following recommendations from that report should be addressed in the ES.

Mr. Daniel P. Baker Page 2 January 9, 1979

1. Rawhide Creek, on the Buckskin Site, be classified as Class III stream instead of the present IV water quality classification.
2. Reclamation-built reservoirs be assessed in view of their fishery potentials and their impacts.
3. Reclamation-built reservoirs with acceptable water quality be developed as early as possible in the mining process into sport fisheries.
4. Aquifer monitoring to assess ground water impacts by coal strip mining.
- \* 5. Avoid aquifer disturbance and implement methods to reclaim aquifers to a pre-mining function.
- \* 6. Instream flows match the historic flows of the region.
- \* 7. Regional water quality be maintained.
8. Mining reclamation measures be in terms of wildlife.
9. Life history and current population studies be performed on the state listed rare species: shovelnose sturgeon, sturgeon chub, goldeye, and silvery minnow, etc.
- \* 10. Stream channels be avoided by mining operations.

The following comments are arranged by chapter, section, and pagination of the DES:

PART I - REGIONAL ANALYSIS (Chapters R1 thru R8)

The combination of the regional analysis of coal development in the area with the site-specific DES for the proposed Buckskin Mine is confusing to the reader. The Buckskin Mine DES is seriously deficient in data and probably should not have been released, even at the risk of not being covered in the regional analysis.

CHAPTER II - DESCRIPTION OF THE ENVIRONMENT - (Pages R2-1 thru R2-128)  
Vegetation (Pages R2-3B thru R2-43)

A reference to pertinent literature should accompany the statements (page R2-3B) alluding to the influence of fire on the region's vegetation. More quantitative data (dominance, density, etc. by important species) should accompany the qualitative descriptions of vegetative types given. A complete list of species which occur or are thought to occur in the region should be presented within the text or appended.

Mr. Daniel P. Baker Page 3 January 9, 1979

Figure R2-19 (page R2-39) is supposed to illustrate playa grassland, \*\*yet the caption reads "sagebrush-grass vegetation type". Pages R2-40 and R2-41 appear to be out of sequence; they are unrelated to vegetation.

Fish and Wildlife (Pages R2-43 thru R2-67)

A tabular format would have been preferable for listing wildlife species associated with each habitat type. Some quantitative habitat affinity data should have been included (i.e., what percentage of the mule deer in the region occur in riparian areas?). This can be determined from population density and habitat type information.

A complete list of vertebrates which are thought to occur in the region should be within the text or appended.

Several common names given (page R2-43) are insufficiently specific, i.e. chub, bass, meadowlark, chickadee, and avocet. The American Ornithologist's Union has published standardized common names which are used by most ornithologists. They should also be used in environmental impact statements. Several important species have been omitted from their primary habitat types or omitted completely. These include sharp-tailed grouse from sagebrush-grass and riparian; wild turkey from riparian; bobcat from sagebrush-grass, riparian, greasewood, and ponderosa pine; mountain lion from ponderosa pine; and Canada goose from riparian. Species listed for aquatic habitats in the region should include the plains killifish, creek chub, sand shiner, yellow perch, walleye and brown trout. Flathead chub and goldeye were improperly listed. Both occur in the region.

Page R2-44 shows playa grassland covers 250 acres. Map #5 shows about \*\*two townships of this type.

Map 7 (Appendix A) should show sharp-tailed grouse dancing grounds, wild turkey distribution, and distribution of important mammalian predators. Distribution maps for sharp-tailed grouse, gray partridge, sage grouse, pheasant, and wild turkey were provided to the Buffalo Resource Area Office of the Bureau of Land Management in November. These maps were not available for the Draft ES, but should be included in the final statement. There is a new sage grouse strutting ground in Section 27, T18N, R15W, about one mile northwest of one indicated in Map 7 along the upper Dry Fork of the Cheyenne River.

We question the validity of the antelope and mule deer density data in Table R2-9 (page R2-46). Some density data in the table are based upon inaccurate data used in earlier site-specific impact statements. Inclusion of those data here merely perpetuates this inaccuracy. For example, antelope density on the Cuballo Mine is given as 10.65 antelope per square mile.

Recently (August, 1978) an aerial trend count made by our department found 15-20 antelope per square mile on that site. The validity of the DES data must be questioned when the antelope density on the Eagle Butte Mine site is 67.0 antelope per square mile, while on the adjacent Rawhide Mine, it is only 6.0 per square mile. Similar inconsistencies appear in the deer data. In the absence of information showing factors attracting antelope to the Eagle Butte site or keeping them from the Rawhide site, we assume the data are in error.

Recreation Resources (Pages R2-55 thru R2-69)

Hunting (page R2-55)

13 No mention is made in this section of the economic importance of hunting in the Eastern Powder River Basin. A quantitative estimate of the amount of revenue generated within the region by antelope, deer, elk, bird, and small game hunters should be presented. The revenue generated in license fees to the Wyoming Game and Fish Department by hunting in the region should be included, as well as the percentage of lost income as a result of mining.

14 Mention should be made of the fact that the scarcity of public land in the region is a serious hindrance to hunting recreation. Less than 25 percent of the region is accessible for public hunting. The demand for hunting in the region is such that trespass and guide fees are now a significant income source for many landowners. The scarcity of public hunting and increasing use of public lands in Sheridan, Johnson, and northern Matrona counties is perceived negatively by many residents who hunt the region.

Winter Activities (page R2-64)

15 No mention is made in this section of the recreational or economic importance of trapping in the region, particularly trapping of predators such as bobcat and coyote.

CHAPTER IV - ENVIRONMENTAL IMPACTS OF REGIONAL DEVELOPMENT (Pages R4-1 thru R4-58)

Water Resources (Pages R4-17 thru R4-23)

Groundwater (Pages R4-17 and R4-18)

16 Effects of groundwater disturbance on stream flows, subsurface water levels and riparian vegetation are not adequately addressed. Local reversal in flow, whereby recharge areas would become discharge areas, is mentioned. The environmental statement also acknowledges that original groundwater movement would not be restored by reclamation. Furthermore, the statement mentions that ranchers have reported adverse effects from mining and siltation on stream reaches with perennial flow and that at least one well has ceased flowing. These factors point to the importance of defining cumulative effects of mining on groundwater as it relates to streams prior to mining.

Vegetation (Pages R4-23 thru R4-26)

17 Only direct impacts on vegetation are presented in this section. Other impacts which should be discussed quantitatively include losses due to decreases in surface and subsurface water, losses due to dust deposition, and losses due to decreased soil productivity. An additional table to Table R4-C should present acreages replaced by habitat type. This would enable the reader to assess the ability of reclamation to restore pre-mining vegetative communities and return the land to pre-mining uses.

28 Losses of sage grouse, waterfowl, and sharp-tailed grouse should be estimated and presented. We understand that these are now being estimated by the EIS team.

29 No mention is made of the increase in wildlife damage to nearby croplands when wildlife are displaced by development. No mention is made of wildlife losses due to water quality or quantity degradation, such as the elimination of point-sources of water, heavy metal contamination, and loss of habitat due to surface or subsurface water loss. A reference should accompany the estimates of losses of non-game mammal species. Estimates of losses of mammalian predators should be presented.

30 Mammals-Endangered and/or Threatened - The statement, "The black-footed ferret or its habitat is unlikely to be affected by development in the region because prairie dog towns are not found on or near the sites being developed", is inaccurate. Several prairie dog towns have been located on or very near Peabody Coal Company's North Antelope and Schellie Mines, and the Wyodak Mine. Map #7 of Appendix A did not include several locations of prairie dog towns near mines or along the Burlington Northern Railroad right-of-way. Is this an inadvertent oversight of information supplied to the EIS team last year?

Recreation Resources (Pages R4-29 thru R4-33)

Hunting (Pages R4-29 and R4-32)

31 The development proposed will create a virtually contiguous strip of non-huntable lands from the Converse-Campbell county line to a point north of Gillette. Antelope and deer may concentrate on these lands temporarily during the hunting season, decreasing their availability for harvest, reducing hunter success, and reducing control of the antelope populations in local areas. Creation of this strip will further increase the demand for hunting on severely limited public lands in the region.

CHAPTER V - UNAVOIDABLE ADVERSE IMPACTS... (Pages R5-1 thru R5-3)

32 One of the most important impacts regional development will have on the wildlife resources of the Eastern Powder River Basin will be the removal of a significant amount of sagebrush-grass habitat. This habitat will be replaced by a topographically homogeneous grassland community lacking the habitat diversity necessary to support the wildlife dependent on the pre-mining environment. The importance of topographic and habitat diversity should be stressed here. The presence or absence of habitat diversity on reclaimed lands will determine the long-term effect of development on wildlife in the region.

33 No mention is made of the significant impact on wildlife of barriers such as fences, roads, and railroads, which preclude daily or seasonal movement. The barrier to wildlife movement created by the development of nearly contiguous sites over a distance of over 60 miles should be discussed.

18 The possible loss of vegetation and impacts to subsequent consumers due to heavy metal accumulation from mine spoils should be re-emphasized in this section.

19 A quantitative estimate of losses of aquatic vegetation should be presented.

20 No estimates are presented here of the time necessary to replace pre-mining vegetative diversity.

Fish and Wildlife (Pages R4-26 thru R4-28)

21 Table R4-7 does not adequately represent expected losses. We question the validity of game mammal densities used, and thus the validity of siltation table. Sage and sharp-tailed grouse losses should be estimated.

Habitat Loss (Page R4-26)

22 Along with direct habitat losses will be some very serious indirect losses. According to Map 1, Appendix A, planned developments in the region will occur in a narrow strip beginning near Antelope Creek and extending nearly to a point north of Gillette, a distance of approximately 65 miles. This strip, with associated roads, railroads, and other support facilities, serves as a barrier to east-west movement by terrestrial wildlife making daily and seasonal movement to areas of preferred habitat difficult and significantly decreasing the value of that habitat. Each site-specific EIS written in this region has reported that wildlife would be "displaced" to adjacent areas until mining and reclamation for that specific mine was complete. No consideration was given to the fact that there are so many adjacent mines in the region that there is little room for displacement.

Carrying Capacity Loss (Page R4-26)

23 Carrying capacity losses in aquatic and terrestrial systems should be presented separately in this section to enable the reader to more adequately assess impacts to each.

24 Only direct losses of carrying capacity are considered. Indirect losses due to movement barriers, disturbance by human activity, and urban growth should be discussed as well.

Fish and Wildlife Population Losses (Pages R4-26 and R4-28)

25 Fish - Only habitat losses are discussed in this section, not population losses. Quantitative population loss estimates should be presented.

26 Wildlife - Some estimates of wildlife losses due to illegal kills, automobile collisions, predation by pets, and poxvirus mortality should be presented.

27 We do not believe that the sage thrasher will be significantly affected. We saw the sage thrasher in the region but it was not censused in any of our bird surveys in 1976. More likely to be affected are Brewer's sparrows (Spizella breweri) or lark sparrows (Chondestes grammacus).

34 As noted in Chapter II, we question the density data used to estimate numbers of wildlife lost, particularly numbers of antelope and deer. Sage and sharp-tailed grouse losses should be estimated and presented.

CHAPTER VI - RELATIONSHIP BETWEEN SHORT-TERM USES... (Pages R6-1 and R6-2)

35 The key to successful revegetation for wildlife is diversity. The loss of vegetative diversity on reclaimed lands, and thus, the loss of obligate fauna for a period of 30 years is not a short-term use. We see no enhancement of "productivity as measured in benefits to people" associated with the permanent loss of 2,200 acres of wildlife habitat. Many people believe that viewing wildlife and hunting are benefits.

36 There is no evidence to support the statement, "Once reclamation is completed, repopulation, at least by small mammals and birds, is expected to be rapid". Repopulation is likely to occur slowly and with significant decreases in density and species diversity.

CHAPTER VII - IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS... (Page R7-1)

37 Quantitative estimates of wildlife losses due to loss of water holes and expansion of urban areas should be presented.

38 Again, we question the estimated losses of antelope and deer. Sage grouse, sharp-tailed grouse, waterfowl, and mammalian predator losses should have been estimated.

39 An estimate of wildlife losses due to illegal kills, movement barriers, and vehicle collisions should be presented.

CHAPTER VIII - ALTERNATIVES (Pages R8-1 thru R8-94)

Regional Alternatives (Pages R8-1 and R8-2)

Fish and Wildlife Mitigation Alternatives

We support all three alternatives.

No Action Alternatives (Pages R8-2 thru R8-45)

Vegetation (Pages R8-7 and R8-28)

40 There should be a table here that illustrates acreages lost and acreages reclaimed by habitat type. A firm estimate of the time necessary to re-establish pre-mining vegetative composition and diversity should be presented. Until wildlife habitat on reclaimed areas equals pre-mining conditions, wildlife density and diversity will remain decreased. Grazing of reclaimed areas should not be permitted until plants achieve sufficient vigor to withstand it. Losses of vegetation due to road and coal dust should be quantitatively estimated.

41 No section on wildlife impacts associated with the "no action alternative" (low-level scenario) has been presented.

High-Level Scenario (Pages R8-45 thru R8-94)

Vegetation (Page R8-72)

42 | Again, there should be a table here that shows acreages lost and acreages reclaimed by habitat type.

Fish and Wildlife (Page R8-72)

43 | Impacts on waterfowl, sage grouse, and sharp-tailed grouse should be quantitatively estimated and included here.

44 | If losses of aquatic habitat will increase five-fold above the low-level scenario, then impacts on species dependent upon riparian habitat will be significant. These losses should be estimated.

45 | Non-game mammal losses should include estimated losses of mammalian predators.

46 | Development associated with the high-level scenario is likely to increase wildlife damage to crops as big game are displaced from mine sites onto nearby private lands.

47 | The degree of development associated with the high-level scenario may have a negative effect on wildlife greater than the habitat loss. Development, in this case, creates an extremely formidable barrier to wildlife movement within the region. This barrier, made up of mines, power plants, and other developments with their associated roads, railroads, power lines, and other support facilities, extends from Glenrock north to Spotted Horse—a distance of over 120 miles. This barrier could effectively bisect wildlife distribution in the Eastern Powder River Basin. It could prohibit seasonal movement to preferred habitat, and significantly impede movement to escape winter storms. Such a barrier could cause catastrophic losses to antelope populations.

Recreational Resources (Page R8-74)

48 | Development predicted by the high-level scenario could have serious effects on hunting in the region. The barrier to movement created by the cumulative effect of numerous mines, plants, and associated facilities may significantly decrease numbers of huntable game due to population losses. In addition, it is possible that the large tracts of non-huntable lands will concentrate deer and antelope during the hunting season, making them unavailable for harvest and decreasing hunter success. The addition of non-huntable areas will result in additional demand for hunting on limited public lands.

SUMMARY

This regional analysis of development in the Eastern Powder River Basin could be improved by additional and improved data on vegetation and wildlife. It underestimates the aesthetic and economic importance of the region's biota. It neglects cumulative and indirect losses to vegetative communities and

obligate fauna. It fails to adequately discuss the possible changes from pre-mining to post-mining flora and fauna. The use of questionable data has resulted in underestimation of wildlife-related impacts. We presume that this will improve as site-specific data collected during the Eastern Powder River EIS contract are included in the Final EIS.

PART II - SITE-SPECIFIC ACTION (Chapters BUI thru BUI9)

CHAPTER I - DESCRIPTION OF THE PROPOSAL (Pages BUI-1 thru BUI-23)

Proposed Action (Pages BUI-1 thru BUI-20)

Surface Facilities/Support Developments (Pages BUI-2 thru BUI-10)

49 | Descriptions of facilities, roads, and railroad spurs within antelope and mule deer range should include fence locations and design. Fences constructed should conform to Wyoming Game and Fish Department Guidelines.

Mining and Process Procedures (Pages BUI-10 thru BUI-15)

50 | We recommend that soil not be stockpiled for more than a few months. Should longer stockpiling be necessary, plant species for temporary stabilization should be selected for establishment vigor and lack of persistence. Many species such as crested wheatgrass are undesirable as permanent cover but often used for temporary stabilization. Seeds of such species are thus introduced onto reclaimed areas via stockpiled topsoil.

Reclaimed Activity (Pages BUI-17 thru BUI-23)

51 | The applicant proposes to reclaim surface-mined wildlife habitat for use as livestock grazing land. The minesite is classified as yearlong antelope range and yearlong mule deer range. It supports a wide variety of game and non-game mammals, birds, and other vertebrates. If this area is reclaimed only for livestock grazing, with "some areas...for wildlife use", we believe the applicant may be in violation of the Surface Mining Control and Reclamation Act (SMCRA) of 1977 due to the change in land use.

52 | The vegetative species planned for reclamation are unsatisfactory. We do not support the use of non-native species in re-seeding wildlife habitat. Species such as sainfoin, chicory milkweed, and caragana are undesirable unless they were present before mining. Mesquitasses are of limited value to wildlife. More native grasses and certainly more shrubs (particularly *Artemisia* spp.) should be planted. Greater vegetative diversity is needed than will be established by the proposed seeding mixture. The proposed mixture will replace a primarily sagebrush-grass site with grassland vegetation.

CHAPTER II - DESCRIPTION OF THE ENVIRONMENT (Pages BUI-1 thru BUI-33)

Water Resources (Pages BUI-8 thru BUI-12)

Groundwater (Pages BUI-8 and BUI-18)

53 | Effects of mining on municipal water supplies are presented, but effects on stream flows, subsurface water levels and riparian vegetation were ignored.

Surface Water (Page BUI-12)

54 | A map showing wildlife watering sources should be presented, as well as a discussion of the importance to wildlife of the pools along Rawhide Creek, the six wells, the five reservoirs, and any other water sources should be included.

Vegetation (Pages BUI-12 and BUI-13)

Terrestrial Vegetation (Pages BUI-12 and BUI-13)

55 | Additional quantitative data should be presented for each vegetative type, including density, dominance, and frequency for important species within each type. This information is extremely important for comparison of pre-mining and post-mining environments.

Fish and Wildlife (Pages BUI-13 thru BUI-16)

56 | The most obvious deficiency within this section is the absence of site-specific data. Information collected by the Wyoming Game and Fish Department (under BLM contract) should be presented in the final EIS. It would be much better if publication were delayed until data were available.

57 | A complete list of vertebrates known or thought to occur on the site should be presented.

Wildlife species important in the big sagebrush habitat type

58 | We suggest the addition of vesper sparrow and northern grasshopper mouse, and the deletion of sage thrasher. Within the silver sagebrush type, we recommend the addition of vesper sparrow, Brewer's sparrow, and western meadowlark, and deletion of horned lark. Within the riparian type, we recommend the addition of mourning dove, western meadowlark, red-winged blackbird, cliff swallow, barn swallow, and meadow vole. Quantitative habitat affinity information should be presented.

59 | Non-game bird density data from K. Oakes work at Coal Creek is not representative of the Buckskin site. Nearly all densities we calculated during our bird census work on the Buckskin site were more than twice 1.57 birds per acre.

60 | Raptor nesting has been observed on the Buckskin site. One active red-tailed hawk nest was observed there and two great horned owls nested on-site in 1978.

61 | Mourning dove density on the Buckskin site was 14-29 per square mile in July, 1978. Doves and waterfowl are not the only game birds on the site. Gray partridge, sharp-tailed grouse, and sage grouse were all observed on or near the Buckskin site in 1978.

62 | Density data for game and non-game mammals are presented here with no reference to the source of the data.

Winter densities of antelope and mule deer should have been presented. During the winter of 1976-77 there were at least 500 antelope in the general area of the proposed Buckskin mine site. These antelope moved into the area to five miles southwest of the proposed mine site, their movement stopped by Rawhide Village Park. Approximately 200 remained north of the proposed site on the Morrel Ranch. While deep, crusted snow presented, the mine site and vicinity provided critical winter range for these antelope. Those 200-300 antelope which moved south of the proposed mine site crossed the proposed mine access road, the mine site and/or the proposed railroad spur route. To prevent antelope from backing up against access road and railroad spur fences, those fences should be constructed to allow antelope passage (Wyoming Game and Fish Department Guidelines for Fence Construction of Livestock-Antelope Range). Mule deer movement occurs in the rough hills between the proposed Buckskin mine and Wyoming Highway 59, in the proposed path of the railroad spur. This area is seldom used by antelope. The railroad spur should remain unfenced or fence construction should follow Department guidelines for fencing on livestock-deer range to minimize hazards to mule deer movement.

Fishery (Page BUI-15)

64 | Fathead minnow were collected and identified from this portion of Rawhide Creek on October 10, 1978.

Amphibians and Reptiles (Page BUI-16)

65 | Are density estimates used here documented?

Recreation Resources (Page BUI-16)

66 | There is no mention of the importance of hunting to the recreational needs or economic base of Campbell County, and no mention of the scarcity of public land for hunting.

67 | No attempt is made in Chapter II to recognize wildlife habitat as a legitimate and important use of the site. Failure to recognize this existing land use will result in misdirected reclamation planning, thus limiting wildlife use of the post-mining environment.

CHAPTER III - ENVIRONMENTAL IMPACTS OF THE PROPOSAL (Pages BUI-31 thru BUI-46)

Topography (Pages BUI-37)

68 | Estimates of the effect on the flora and fauna of lowering the entire minesite by 75 feet should be presented.

69 | Figure BUI-9 (Page BUI-16) is extremely misleading. It gives the casual reader the impression that the reclaimed minesite will blend in well with surrounding areas. For, the contour line interval within the boundary of the site is 2 feet, while outside the boundary, it is 20 feet. This figure should be corrected, explained more thoroughly within the text, or deleted.

Soils (Pages BU3-17 and BU3-18)

70 How long will it take to redevelop soils on-site? If the productivity of reclaimed soils limits the effectiveness of revegetation, then steps should be considered to improve that productivity. The proposed action should not limit post-mining land use by decreasing the ability of the site to produce vegetation. If the site cannot be reclaimed to support the previous carrying capacity and its original use it should not be mined.

Water Resources (Pages BU3-18 thru BU3-24)

Groundwater (Pages BU2-8 and BU3-18)

71 Effects of mining on municipal water supplies are presented, but effects on stream flows, subsurface water levels and riparian vegetation were ignored. Surface Water (Pages BU3-23 and BU3-24)

72 If watering sources now available on the site are not restored during mining and no new sources are made available, a serious loss of habitat will occur. Water sources on the site after mining should be equal to those present before mining.

Vegetation (Pages BU3-24 thru BU3-27)

73 Impacts of the proposed action on vegetation are likely to be very serious. According to information presented in Chapter II, approximately 65 percent of this site is big sagebrush and silver sagebrush habitat types. Proposed reclamation plans will replace this with a grassland community, as noted in Chapter I. In addition, a 13 percent decrease in soil productivity may limit the success of revegetation.

74 The impacts of dust deposition and surface water losses on vegetation should be discussed quantitatively in this section.

75 In conjunction with Table BU3-11 (Page BU3-26) should be another table illustrating acreages reclaimed by habitat type. The reader could then more clearly assess the impacts of the proposal on vegetation.

76 If aquatic vegetation cannot be restored along the drainages of Spring Draw and Rawhide Creek, habitat for waterfowl and non-game shorebirds will be seriously depleted on this site.

Fish and Wildlife (Pages BU3-27 thru BU3-29)

77 As noted in our comments on Chapter II, the absence of site-specific information is conspicuous. The lack of well-collected, site-specific inventory data makes an accurate assessment of the impacts of the proposed action impossible.

Fishery (Page BU3-27)

78 As fish have been documented in Rawhide Creek, mining of this site would eliminate any fish present. Degradation of the Rawhide Creek drainage could also adversely affect fisheries habitat downstream in the Little Powder River.

79 The statement (Page BU3-27) that "...mule deer movement is not restricted by fences" is inaccurate. Mule deer movement, particularly during winter and spring, is often seriously impeded by fences. Any fences constructed on the site should conform to Wyoming Game and Fish Department guidelines for fencing on antelope and mule deer range.

80 We disagree with the "minor" impact predicted on non-game and game birds in Table BU3-12 (Page BU3-28). The loss of sagebrush on the site and its subsequent replacement by grassland, will seriously affect birds who depend on this habitat type for food, cover, and courtship display sites. Such an impact on this site is major. We disagree with the "minor" impacts predicted on non-game and game mammals. Mammal populations are often less dense and certainly less diverse in grassland than in sagebrush-grass habitat. Fishery impacts are listed as "none". This is incorrect as there would be "minor" impacts on non-game fisheries. Serious reductions in density and diversity of most species may be expected if reclamation plans now proposed are carried out.

81 Population losses shown in Table BU3-13 (Page BU3-29) are not accurate for the Buckskin site. The estimated 1.57 songbirds per acre is too low, as we previously mentioned. The estimated 130.5 doves per square mile on the site is too high. We found 14-29 per square mile. Waterfowl losses should include all species, rather than just mallards. Losses of gray partridge and sharp-tailed grouse should be included.

82 Impacts on predators on the site have been underestimated. Impacts on prey species (small mammals, song birds, and invertebrates) mainly determine impacts on predators. If prey species decline in abundance and variety so will predators. These losses will occur if revegetation for wildlife is not accomplished.

Recreation Resources (Page BU3-30)

83 We disagree with the statement that "On the Buckskin site itself, recreational opportunities are negligible now, and would be little changed by mining". Although the site is privately owned, the opportunity to obtain permission and hunt, photograph, or view wildlife does exist. This opportunity will be seriously reduced after mining.

84 Nowhere in Chapter III is there any mention of impacts on land use. Unless wildlife habitat is recognized as an existing use, the proposed action will have very significant effects on land use. The present use of this land is wildlife habitat and livestock grazing. It should be reclaimed for those uses.

CHAPTER IV - MITIGATING MEASURES (Pages BU4-1 thru BU4-20)

We support the placement of rockpiles to provide some topographic and habitat diversity. They will not replace existing habitat, but they will increase the cover available in the proposed post-mining grassland habitat.

We support the restoration of reservoirs to provide wildlife watering sources, paving of the access road to reduce road dust and deposition of

dust on vegetation, and the use of fences designed to prevent wildlife losses, and suggest conformation to Wyoming Game and Fish Department guidelines on fencing.

We suggest the following procedures be added to the list of mitigating measures:

- \* 1. The use of snow fencing to increase available moisture on revegetated areas.
- \* 2. Soil surface treatment (tillage, pitting, gouging, etc.) to increase survival of young plants in revegetation and catch snow, increasing available moisture.
- \* 3. Mulching to provide protection for young shoots and to increase available moisture.
- \* 4. The use of topsoil or vegetation patches as methods of re-establishing native vegetation. We recommend that a significant portion of the vegetation cover on the reclaimed area be native shrub species preferred by wildlife. The use of commercially available shrub seedlings should be considered.
- \* 5. The use of buses to transport employees. This may reduce illegal kills and wildlife-automobile collisions.

CHAPTER V - UNAVOIDABLE ADVERSE IMPACTS (Pages BU5-1 thru BU5-2)

86 Greater emphasis should be placed on the impacts to wildlife habitat associated with the proposed action. Existing diverse wildlife habitat will be replaced by a grassland monotype of limited value to wildlife. Aquatic habitat along Rawhide Creek and Spring Draw will be destroyed and not adequately reclaimed. Fauna associated with both terrestrial and aquatic habitat will be lost, and pre-mining land uses will not be restored.

87 If a 40-240 acre lake will eventually form on the site, and that lake is not of greater value than the terrestrial habitat lost, the pit should be filled.

88 We question the accuracy of the wildlife numbers estimated to be affected by the proposed action.

CHAPTER VI - RELATIONSHIP BETWEEN SHORT-TERM USES... (Page BU6-1)

89 This section seriously underestimates the long-term significance of the loss of floral and faunal diversity on the site. Habitat for all species which depend on the diverse communities on the site will be seriously degraded. Until pre-mining vegetative composition is restored on the site, we do not believe that most species will reinvade the area at levels comparable to those prior to development.

CHAPTER VII - IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS... (Page BU7-1)

90 This section does not adequately present irreversible, long-term losses to vegetative diversity and wildlife populations associated with the proposed action. We believe that losses to nearly all wildlife species will be greater than Table BU3-13 indicates. We do not believe that wildlife populations will reattain pre-mining levels, given proposed reclamation plans. The loss of flora and fauna on the Buckskin site will be irreversible and irrefreivable unless the area is recognized as wildlife habitat and reclaimed as such.

CHAPTER VIII - ALTERNATIVES... (Pages BU8-1 thru BU8-2)

...Approve Mining and Reclamation Plan After Modification (Pages BU8-2 and BU8-3)

Fish and Wildlife Mitigation Alternatives

We support all three mitigations proposed in this section and suggest further steps be taken to lessen impacts (see above, Chapter IV - Mitigating Measures).

SUMMARY

This is a poor site-specific assessment, largely due to lack of data. We assume that this will be improved in the Final EIS. This assessment fails to recognize an important use of the area (wildlife habitat), proposes reclamation practices of questionable benefit to wildlife, and underestimates serious long-term consequences of the proposed action. We do not believe it constitutes an adequate assessment of environmental impact because it is incomplete.

If we can be of further assistance on this project, do not hesitate to contact us.

Sincerely,  
*M. Donald Dexter*  
M. DONALD DEXTER, ASSISTANT DIRECTOR  
WYOMING GAME AND FISH DEPARTMENT

WDD/HBB/mlc

cc: State Planning Coordinator  
Game Division,  
Fish Division  
Communications Division  
Planning Division

Julie Elfving, Team Leader  
January 12, 1979  
Page 2

Letter 44 Responses

\* Information requested in this comment is included in the final ES. The fish and wildlife sections, in particular, were extensively revised in accordance with data collected by the Wyoming Game and Fish Department for BLM.  
\*\* The final ES has been corrected.

3 Page R4-26 entitled "Fish & Wildlife Population Losses" - There is a statement that Little Thunder Creek contains non-game species of fish including Carp, White Sucker, etc.  
RESPONSE--This is misleading since Little Thunder Creek is ephemeral and, therefore, could not support a fish population on a continuous basis.

4 Page R8-2, section entitled "Fish & Wildlife Mitigation Alternatives" - The statement is made that the goal of reclamation should be to achieve the highest possible wildlife carrying capacity at the earliest possible date regardless of cost.  
RESPONSE--This statement appears to set wildlife carrying capacity as the highest priority in reclamation of the lands that have been mined. We do not agree with that statement. The lands at present are subject to multiple use with livestock grazing being the first priority because of its impact on the local economy of the area. We believe that the use after reclamation should be consistent with the use prior to mining, and therefore, the first priority would be to reestablish domestic livestock grazing while at the same time attempting to reestablish wildlife carrying capacity--but certainly not regardless of cost.

5 Page R4-35 entitled "Livestock Grazing" - The statement is made that there is a potential for chronic poisoning of livestock from heavy metals released during mining. This is followed by a statement that neither the ground-level concentrations of gaseous pollutants nor deposition rates of particulate pollutants are known. Therefore, the extent of any adverse effects on domestic and wildlife grazers cannot be predicted.  
RESPONSE--These statements were taken from a report completed in 1976 for Atlantic Richfield. At the time the work was done, there was little information available. Currently, there are several mines operating in the area, and there is no indication of any poisoning by the release of heavy metals. In addition, considerable work has been done in air quality modeling including deposition in the Eastern Powder River Basin by companies applying for mining permits in that area.

The above subject is also discussed on page R8-28.

Sincerely,  
*D. K. McSparran*  
D. K. McSparran  
Manager  
DKM:cae

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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REG. DIV. 1  
1405 PINEBLAKE STREET  
DENVER, COLORADO 80202

January 12, 1979

Julie Elfving, Team Leader  
Bureau of Land Management  
951 Union Boulevard  
Casper, Wyoming 82601

RE: Draft Environmental Statement--Eastern Powder River Coal

Dear Ms. Elfving:

Although the period for comment has expired, we are submitting comments which we feel should be considered if time allows. We feel that there are some incorrect or incomplete statements in the draft. Our comments will be given by page and paragraph.

1 Page R-36 - The section entitled "Vegetation and Wildlife" contains a statement that the Bald Eagle Protection Act of 1969 prohibits mining operations in any area where such activities would molest or disturb bald and/or golden eagles and/or their nests.

2 RESPONSE--Public Law 95-616 which was passed by Congress late in 1978 and entitled "Fish & Wildlife Improvement Act of 1978" contains a provision in Section 9 which allows the Secretary of the Interior to promulgate regulations for the taking of golden eagle nests which interfere with resource development or recovery operations. This change should be noted in the final statement.

3 R3-11 entitled "State of Wyoming" - This section contains a statement that the Department of the Interior is negotiating a cooperative agreement with the State of Wyoming.

RESPONSE--This agreement has now been signed and should be so noted in this section.

JAN 19 1979  
Ref: BW-EE

Coal E. S. Team  
951 Union Boulevard  
Casper, Wyoming 82601

Attn: Ms. Julie Elfving

Dear Ms. Elfving:

The Region VIII office of the Environmental Protection Agency has reviewed the draft environmental impact statement for the Eastern Powder River Region of Wyoming and the proposed mining and reclamation plan for the Buckskin mine and offers the following comments for your consideration.

- 1. We have noted Interior Department's commitment to revise mining plans in final EIS's in accordance with the Office of Surface Mining's (OSM) regulations and prior to such approval, Interior shall submit a supplemental EIS for those plans that have undergone significant change in the environmental impacts of the proposed mining operation. However, we strongly suggest that revisions to the proposal be completed before the final EIS is published.
- 2. The DES contains inadequate analysis with respect to the identification of a potential alluvial valley floor in Rawhide Creek. The EIS should include more complete information with respect to alluvial valley floor identification. If such an area is present on or near the Buckskin Mine site, the presence and extent of farming and the essential hydrologic functions of such areas should be documented. This should include a determination by the Soil Conservation Service as to the presence or absence of prime farmland in the region and specifically on the Buckskin site.
- 3. In general, the data presented on the flow conditions in the various aquifers is incomplete. It does not provide an adequate picture of the impacts on the individual aquifers. There is a need for some specific data on each individual aquifer in order to present a better picture of the before mining flow conditions. This information should then be used to establish a more detailed description of the post mining flow pattern.

4 | 4. The draft EIS did not contain any discussion on the practices or controls used to minimize generation of fugitive dust.

According to the procedures EPA has adopted to rate the adequacy of draft environmental impact statements, the draft EIS for the Eastern Powder River Region will be listed in the Federal Register as ER-2. This means that we have significant reservations concerning the environmental effects of some of the discussed aspects of the draft EIS. Further, we believe the draft EIS does not contain sufficient information for either other agencies nor the public to fully assess environmental impacts. We are requesting that you provide EPA and others with the additional information requested in this letter and the attached detailed comments in the final EIS.

We appreciate the opportunity to review this draft EIS and request that you provide us with five copies of the final EIS for our review. If you have any questions, please contact Dennis Sobocki of my staff at (FTS) 327-4831.

Sincerely yours,

*[Signature]*  
Regional Administrator

Enclosure

Regional Groundwater Comments:

8. The description of the ground-water conditions in the Foxhills Sandstone, the Lance Formation, the Fort Union Formation and the Wasatch, is inadequate. The water level data, for instance, is not very meaningful since the water levels used were from wells which do not necessarily penetrate equivalent units. The resulting map could be in error by several orders of magnitude. It is true that there is very little data on wells which penetrate only one formation, but the proposed mining of the coal is of such an extent that it would seem justified to put down a fairly extensive series of test holes to allow a better picture of the ground-water movement in each of the units to be established. Test wells could penetrate all units with blank casing and then perforated starting at the bottom. The unit in question could be tested and then sealed with concrete allowing the overlying unit to be tested after it is perforated with no interference from the lower or upper units.

Data should be collected that will allow a much better picture of the major sources of recharge for the various units and their relationship to the existing water quality and the direction of groundwater movement. This type of study should be planned in conjunction with any future regional EIS's in this area that might result from the proposed Federal coal leasing program.

9. There should be an improved description done on the existing water quality in the various formations. The data on water quality would appear to be more related to the particular perforated interval of a given sampling well than the geologic conditions of a specific formation. It would appear to be more difficult to make a meaningful statement about post mining groundwater quality changes without having a good pre-mining data base that is representative of individual aquifers.

10. The section on the impact of mining on the groundwater quality of the underlying units is inadequate. It is difficult to imagine that the smashed up waste rock will produce water that is equivalent to that found in the alluvium. Grinding up what was a consolidated formation greatly increases the potential for various elements to go into solution. It would seem appropriate to present a little data on the type of composition of the host rock and have an analysis as to the possible leachate that could be generated. There should be a discussion as to the possibility that mining could create a large regional depression which could have water standing in it. If such an occurrence is possible, then a discussion of the resulting groundwater and surface water quality efforts would be in order.

There is no reliable data presented to substantiate the claim that various metals which may go into solution as water moves through the

Detailed Comments

5 | 1. We are completing the Region VIII Best Available Control Technology policy for strip mines and a copy will be sent to your office in the near future. Enclosed is a copy of Region VIII's Interim Policy Paper on the Air Quality Review of Surface Mining Operations.

2. It is a misuse of both your time in writing and our time in reviewing a regional EIS on a mine plan that is not responsive to current federal regulations. It is also unacceptable as a means of complying with the National Environmental Policy Act of 1969.

6 | 3. The determination made on BU 2-17 that "prime farmland as defined by SBCRA does not exist on the site," appears to be premature, since such a determination should be made by the Soil Conservation Service.

7 | 4. Given the loss in soil productivity to 87% of present levels (BU 3-18 and BU 4-17), the potential exposure of material containing chemicals harmful to plants and animals by mining (BU 3-17), the arid nature of the region and its cyclical 1 yr, 2 yr, and 3 yr long droughts occurring every 7 years, 25 years, and 143 years respectively (BU 2-1), and the present topsoil depth of only 10" with potential losses if exposed during floods (BU 4-17), it seems questionable whether long-term reclamation will, in fact, be possible. It appears that since "any soil amendments such as fertilizer or organic matter can only result in a temporary increase in productivity" (BU 4-17) further measures must be taken to insure not only short-term, but long-term reclamation.

8 | 5. There has not been sufficient study done of Rawhide Creek to determine if it is an alluvial valley floor or not. If Rawhide Creek is an alluvial valley floor, the contours for reclamation discussed may not be acceptable. Also, the planned diversion for Rawhide Creek may not be adequate to handle the 100-year flood.

9 | 6. Would the ponding discussed on BU 3-24 be acceptable to the Wyoming Department of Environmental Quality (DEQ)? Given the potential leaching characteristics of such ponds and its possible effects on water quality, it must be remembered that under the Interim OSM regulations, no interior drainage is permitted unless the water quality and quantity are suitable for post mining use. Therefore, we suggest that the post mining topography be altered to account for subsidence and eliminate these internal drainages. Alternatively, if one is formed or approved by the Wyoming DEQ, no additional ponds should be allowed until the water quantity and quality are determined to be acceptable for livestock grazing.

10 | 7. The BLM should pursue current information on the Buckskin mine plan that is available with both USGS and OSM. Additional hydrological information is contained in this new information.

spoils will not eventually degrade the quality of underlying formations for a large distance. Without meaningful data on the present flow condition and the existing quality, it is not possible to predict the amount or rate of degradation other than to say that something will happen.

11. The final EIS should present detailed maps on the post mining recharge areas and post mining flow patterns in the various aquifers. There should be a discussion on the types of contaminants that could migrate out of the various spoil piles and the possible rate of movement of such elements. There should also be some discussion as to the measures which might be taken to minimize such movement.

Buckskin Groundwater Comments

12. The description of the flow of groundwater in the coal should be expanded. The storage coefficient for the coal seems very low to describe what the specific field of the coal would be during actual dewatering of the coal. We would expect a greater volume of water per volume of coal to drain out of the coal than 0.0006. If the storage coefficient of the coal was obtained by pump test, it is likely that the storage coefficient reflects artesian conditions in the coal. There should be some discussion on the amount of water in storage in the coal.

13. There should be additional data presented on the thickness and extent of the alluvial aquifer near Rawhide Creek. This should also include data on the depth of water.

14. There is not enough data on the flow characteristics in the sandstone overburden. This should be defined in a clearer manner and a water table map included.

15. The section on impacts should have some explanation as to the assumptions made on the extent of the cones of depression in the coal and the alluvium. There should be a detailed description of the impact on the alluvium aquifer caused by overburden removal. In addition, it does not seem reasonable to expect the flow characteristics of the overburden waste to have the same flow characteristics as the coal, since much of the flow in the coal is probably along fractures. There should be some documentation to verify this statement.

#### Letter 46 Responses

1. The concerns of EPA are recognized. The ES contains a caveat which says that the plan described in the ES will be revised in accordance with Office of Surface Mining (OSM) regulations, and, when this is done, the plan will be reviewed for compliance by OSM. The caveat also states that prior to approval of a revised plan, an updated environmental assessment will be done. If there have been significant changes in the environmental impacts of the proposed mining operation described in the ES from those of the plan submitted for approval to OSM, then a determination will be made as to whether a supplemental ES will be required to comply with the National Environmental Policy Act of 1969. This procedure will allow adequate evaluation and public review of the mining and reclamation plan that has been brought into compliance with OSM regulations. This procedure is being used for the current regional coal ES and is not planned for use in future analysis of mining and reclamation plans.

2. An area of alluvial valley floor is present in and near the Buckskin Mine site (see Figure BU2-4) according to the Geological Survey (Williams 1978). The area designated as alluvial valley floor (Qfa on Figure BU2-4) is cultivated (see Figure BU2-8). The text in Chapter 2 of the site-specific analysis has been revised to indicate this, as well as the fact that the Soil Conservation Service has not made a determination that prime farmland exists on the site.

3. The concept of individual aquifers on a regional scale is misleading. Actually, the aquifers are permeable sandstone and coal beds and lenses of very limited areal extent that can be traced no more than a few miles in any direction. Disruption of a local aquifer by a coal mining operation may have little or no effect on nearby aquifers or on the regional aquifer system. However, in a stratigraphic sequence. Although it is possible to treat the overall sequence as a generalized aquifer system, the data are not available from which to appraise the physical and hydrological properties of the individual aquifers, which, in the region, probably number in the hundreds and possibly in the thousands.

4. Fugitive dust control techniques are discussed in Chapter 4 (Table BU-1) and Chapter 8 of the site-specific analysis. Humid conditions would be realized either with chemicals or by watering. The access roads would be paved to reduce dust emissions.

5. Thank you for the information.

6. See response 46-2.

7. See response 14-49.

8. The alluvial valley floor question is treated in response 46-2.

The contours for reclamation would most probably not be acceptable; one possible alternative is discussed in comment and response 46-9. The planned diversion design (Shell Oil Company, May 1977) indicated a capacity to handle a much smaller flood than that from a 100-year storm. Mitigating measure (F) in Chapter 4 of the site-specific analysis discusses the Wyoming State Engineer's requirements for handling runoff from back-to-back, 100-year storms. (Unfortunately, there is no way to determine the frequency of 100-year floods; there appears to be no connection between the 100-year flood and the 100-year storm.)

9. The postmining topography could be surcharged with 3 to 10 feet of extra soil in the low areas along the stream bed to provide a guaranteed, sloped-overbank floodplain high enough to prevent formation of a depression after all settling has occurred. The text states that before any permanent impoundment can be left on reclaimed land, determinations of water quantity and quality must be made, and the impoundment must be part of the approved reclamation plan.

10. See responses 14-1 and 14-3 concerning the revised mining and reclamation plan.

11. As stated in Chapter 2 of the regional analysis, Water Resources, the Fox Hills, Lance, Fort Union, and Mesach formations are lithologically similar and thus have similar water-bearing properties. On a regional basis, they collectively function as a hydrologic unit, exhibiting a recognizable pattern of occurrence that shows recharge areas, direction of groundwater movement, and the approximate integrated hydraulic gradient. On a local basis, all formations but the Fox Hills Sandstone are composed dominantly of interbedded sandstone, siltstone, shale, and coal beds of limited areal extent (see Figure R2-7). Individual aquifers, with the exception of the Wyodak-Anderson coal bed, probably can be traced no more than a few miles before grading laterally into siltstone or shale. Considerable question exists as to the practical, if not the economic, feasibility of attempting to test this myriad of locally permeable strata. Certainly such an undertaking is not within the scope of this ES. A well testing individual permeable zones above the Pierre Shale, such as that proposed in the comment, was recently completed by the Geological Survey near Arvada just west of the region. Preliminary data indicate that a maximum difference of head of about 50 feet was found in this hole.

12. Existing data on groundwater quality in the region currently do not permit any correlation with geologic conditions of a specific formation, or with perforated interval, depth below surface, etc., because most samples collected and analyzed in the past are not representative of single identifiable aquifers of known areal extent. Because formations underlying the region to a depth of several thousand feet are all of continental origin, the quality of water obtained from sandstone beds and lenses is generally similar. A parallel statement can be made for water obtained from coal beds. Water quality data collected in the future can be selected to provide a good preliminary data base, but such an undertaking was beyond the scope of this ES.

13. Because of the characteristically low vertical permeability in the interbedded sandstone, siltstone, shale, and coal strata in the region, it is highly unlikely that the quality of groundwater in aquifers underlying the mined coal beds would be adversely affected to any measurable extent.

Observations show a wide range in water quality in the alluvial aquifers, but for the most part, water from this source is very hard and commonly contains in excess of 3,000 milligrams per liter (mg/l) dissolved solids. Similarly, leachate from spoil materials can be expected to range widely in dissolved solids concentrations, but generally should not contain more than 4,000 mg/l. Considering the region as a whole, water from the alluvium may not be significantly better than water from reclaimed spoil materials.

Analyses of the host rock alone would provide no indication of the quality of the leachate from these rocks following mining, because solubility of many

chemical compounds depends on local factors such as pH, and oxidizing-reducing conditions.

The reclaimed topography is described in Chapter 4 of the regional analysis. Mine reclamation plans that greatly increase internal drainage, or create lakes on major drainages, have not been approved in the past, and OSM regulations requiring restoration of the approximate original contour should limit any such conditions in the future. It should be noted, however, that natural areas of internal drainage, some as large as a square mile, currently exist within the area of ongoing and proposed mines.

Although mine plans probably will not be approved where increased internal drainage is proposed, the possible occurrence of this problem at the Buckskin Mine site is discussed in Chapter 3 of the site-specific analysis, Water Resources.

As stated in Chapter 2 of the regional analysis and shown in Table R2-7, trace metals do not occur in significant amounts in groundwater in the region. The high pH of the water and the presence of sulfides, which inhibit the solubility of the trace metals, have been verified by all groundwater studies in the area.

14. Information from which to prepare detailed maps of postmining flow patterns is not currently available. Groundwater models being prepared independently for the Bureau of Mines and the Geological Survey should provide this information at a future date.

Data are not currently available to allow an expanded discussion of contaminants from spoil materials beyond the general discussion of salinity, trace elements, and organic compounds presented in the ES. The Environmental Protection Agency has let a contract for the design of a water quality monitoring program in the Powder River Basin. Their report is expected to be completed in March 1979.

Any measure that may be taken to minimize the leaching and movement of contaminants from spoil materials depends on local hydrologic and geologic conditions, as well as the types of contaminants present. Because of the wide variation in these factors within the region, any discussion of possible mitigating measures is beyond the scope of a regional ES.

15. The low storage coefficients reported in the ES are generally indicative of confined (artesian) conditions and are useful in predicting the spread of the cone of depression to points distant from a mine. Once mining is initiated, the confined conditions change to water-table conditions, and inflow to the mine reflects the specific yield of the coal aquifer. Analyses, however, show that most water in the coal is tied up in a gel-like state and also occurs as a part of the molecular structure of the coal. Specific yields, therefore, are characteristically low and do not seem to be easily predicted from well tests. Experience shows that the specific yield of coal aquifers ranges widely depending on the extent of local fracturing, but as a rule probably does not greatly exceed 0.01.

16. To date, Shell Oil Company has not completed a comprehensive drilling program to determine local conditions of groundwater occurrence or the extent of the alluvial aquifer underlying Rawhide Creek. That data must be obtained, however, and included in the revised mining and reclamation plan that will be submitted to meet OSM regulations. The data will also be considered prior to any mining and reclamation plan approval.

17. Water-level contours in the Buckskin Mine area are essentially the same for both the coal and overburden sandstone aquifers (Figure R4-10). The small differences apparent from available data do not warrant inclusion of a separate map for the sandstone overburden for this area. Elsewhere in the region, available data are not adequate from which to prepare overburden water-level maps.

18. The text states that the lowering of water levels in the overburden (which includes alluvium) and coal aquifers would depend on the areal extent and thickness of the aquifers. These are the principal constraints used in the appraisal. No assumptions were made for local areas because of the wide variety of conditions that exists within the region.

The impact of overburden removal on the alluvial aquifer depends on local conditions and mining methods. It cannot be generalized for the region beyond the discussion presented in Chapter 4 of the regional analysis, Water Resources.

The text, based on studies by Rahn (1976), states that the reclaimed spoil would probably transmit water almost as well as the aquifers it replaces. This is not the same as concluding that the flow characteristics in the reclaimed spoil would be essentially the same as those in the coal. Flow conditions would be different, but emphasis in the ES is placed on the water-yielding characteristics of the reclaimed spoil vs. the original aquifers rather than on the detailed mechanics of how water moves through these rocks before and after disturbance.



**Texas Energy Services, Inc.**

a Kaneb company  
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Philip L. White  
Via Faxmail

January 22, 1979

United States Department  
of the Interior  
Bureau of Land Management  
Casper District  
951 Union Blvd.  
Casper, Wyoming 82601

Attn: Ms. Julia B. Elfving, Team Leader  
and Associate ES Team Members

Re: Texas Energy Services'  
written testimony, dated  
November 30, 1978 - Environ-  
mental Statement, Eastern  
Powder River Basin Coal

By way of clarifying my January 19th conversation, with Mr. Bob Armstrong, regarding our written testimony of November 30, 1978, I am submitting the following additional information in hope of delineating Texas Energy Service's position.

The intent of our November 30th, letter, attached hereto which addressed the Draft Eastern Powder River Environmental Statement was two fold. First it sought to familiarize members of the ES Team with our intent to develop the Rourke-Arax Property with the acquisition of a federal lease and return substantiate same. Secondly, it sought to address our exclusion from the statement as an interested firm, seeking to establish itself in the Basin.

Specifically we sought, and still seek, the following:  
Delineation of our holdings on the Regional Activities, Map 1, Appendix A;  
Inclusion in Figures R8-10 and Table R8-26, pages R8-56 and R8-57; and else-  
where as appropriate.

As per your inquiry and my response, we did not seek then, nor do we seek now, site-specific action, environmental assessment as per Shell's plans to develop its Buckskin property addressed in the statement. In reference to site specific categorization, we addressed same only as it pertained to our attempted designation as such in the Wyoming, Casper District, 1977 Eastern Powder River Basin MFP.

We seek to correct the above misunderstanding and secure recognition of our plans to develop the Rourke-Arax property in a manner similar to those firms which have expressed a like interest and had their plans incorporated

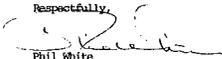
in the statement.

Our concern stems from the startup plans outlined under the preferred alternative in the draft programmatic and our interpretation of those plans. It is our understanding that initial leasing will be based upon existing land use plans and environmental statements, specifically the Eastern Powder River Coal, Environmental Statement addressed herein.

As a small firm we can ill afford to miss out on the first lease offering some two years from now and have to await the next lease offering four years hence - a total of six years from now.

Thank you for your consideration.

Respectfully,

  
Phil White

Attachment

cc: J.J. Kocian  
M.L. Kusin