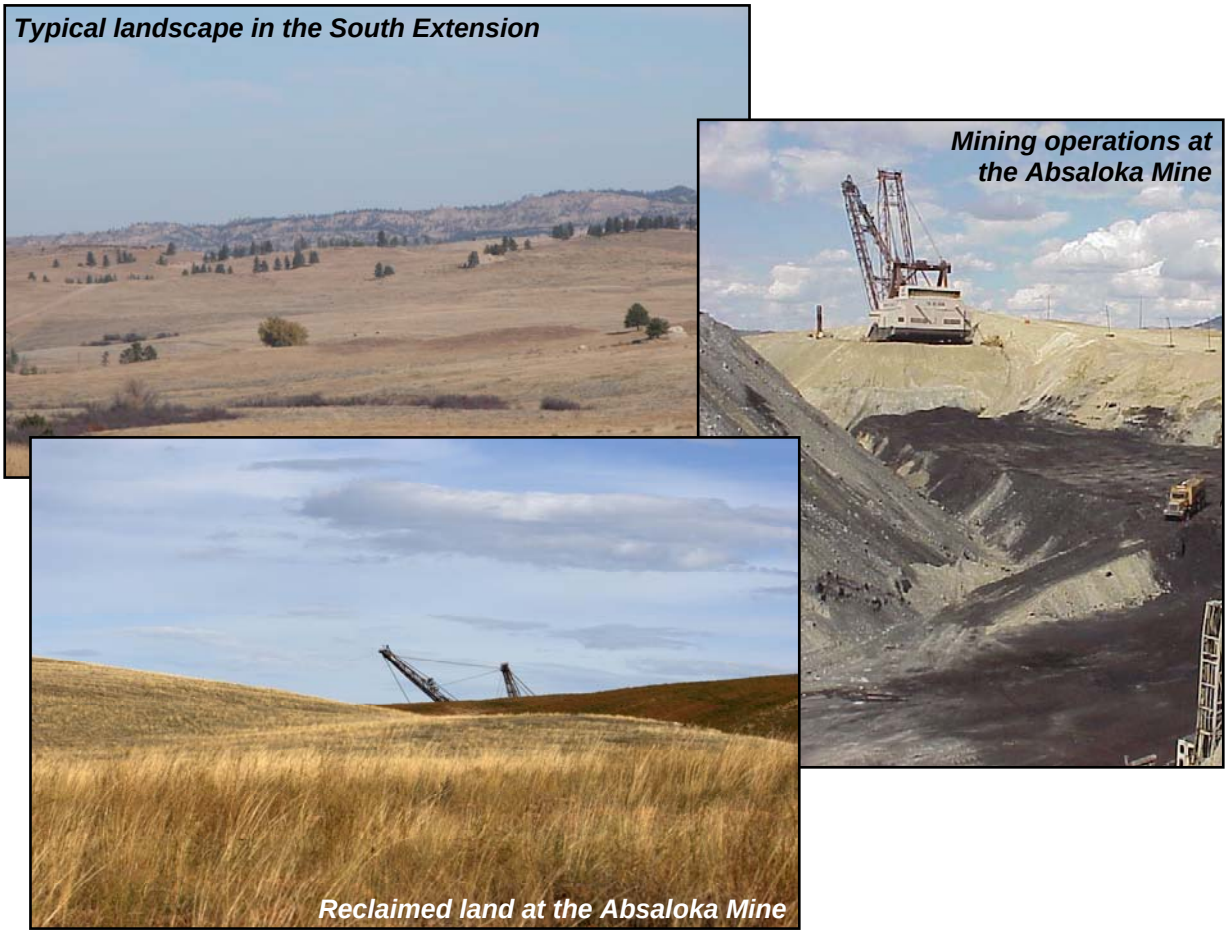
FES08-50

U.S. Department of the Interior
Bureau of Indian Affairs
Rocky Mountain Regional Office

Montana Department of Environmental Quality
Industrial and Energy Minerals Bureau

FINAL
Environmental Impact Statement for the Absaloka Mine Crow Reservation South Extension Coal Lease Approval, Proposed Mine Development Plan, and Related Federal and State Permitting Actions



October 2008

BUREAU OF INDIAN AFFAIRS
MISSION STATEMENT

The mission of the Bureau of Indian Affairs is to enhance the quality of life and to promote economic opportunity in balance with meeting the responsibility to protect and improve the trust resources of American Indians, Indian tribes and Alaska Natives.

MONTANA DEPARTMENT OF ENVIRONMENTAL QUALITY
MISSION STATEMENT

The Department of Environmental Quality's mission is to protect, sustain, and improve a clean and healthful environment to benefit present and future generations.

United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Rocky Mountain Regional Office
316 North 26th Street
Billings, Montana 59101

IN REPLY REFER TO: Environmental, Safety and Cultural Resources Management-620

Dear Reader:

The Bureau of Indian Affairs (BIA) and the State of Montana, Department of Environmental Quality (MDEQ), as joint lead agencies, have prepared this Final Environmental Impact Statement (EIS) to document and disclose the results of an environmental analysis. The EIS analyzes the anticipated impacts associated with an application received by the BIA to lease a tract of Indian owned coal, the Absaloka Mine South Extension, to Westmoreland Resources Inc. (WRI) for the continuation of mining at the Absaloka Mine on the Crow Indian Reservation, and allows the MDEQ to evaluate impacts associated with Absaloka Mine's proposed Tract III Revision. This document was prepared in cooperation with the Crow Tribe, Office of Surface Mining, Reclamation and Enforcement, Bureau of Land Management, and U.S. Environmental Protection Agency. These agencies/entities also have decision-making authority independent of the BIA and MDEQ and are entities from which WRI will obtain separate approvals or permits. The Record of Decision (ROD) associated with this EIS is also available to the reader. The decision was made to select the Proposed Action as described in the EIS. This alternative is the approval of WRI's Indian Mineral Development Act (IMDA) lease with the Crow Tribe for the South Extension tract and approval of all surface use agreements between WRI and the allottee surface owners in the South Extension. A copy of these documents is provided for your review. The Draft and Final EIS, as well as the ROD may also be reviewed via the Internet at www.deq.mt.gov. Copies of the Draft and Final EIS, as well as the ROD are also available for public inspection at:

Bureau of Indian Affairs
Weaver Drive, Bldg. 2
Crow Agency, MT 59022

Bureau of Indian Affairs
Rocky Mountain Regional Office
316 N. 26th St. (room 4433)
Billings, MT 59101

Montana Department of Environmental Quality
Industrial and Energy Minerals Bureau
1520 E. 6th Avenue
P.O. Box 200901
Helena, MT 59620-0901

In accordance with the Council on Environmental Quality Regulations codified at 40 CFR 1506.10 (b), concurrent publication regarding availability of the Final EIS and ROD regarding the selection of a preferred alternative will be published in the *Federal Register* by the BIA and the U.S. Environmental Protection Agency (EPA).

The ROD associated with this analysis and the approval of the IMDA lease between the Crow Tribe and WRI for the in-trust coal, and approval of all surface use agreements between WRI and the allottee surface owners in the South Extension tract for the continuation of mining at the Absaloka Mine on the Crow Indian Reservation, may be appealed. Appeal procedures are contained in the ROD for this analysis, or can be found at 25 Code of Federal Regulations Part 2. Further information can be obtained by contacting Rick Stefanic at 406/247-7911. Copies of the Final EIS and BIA's ROD will be mailed to parties on the distribution list and others who commented on this EIS during the National Environmental Policy Act compliance.

This EIS was prepared pursuant to the National Environmental Policy Act and Montana Environmental Policy Act, as well as applicable regulations and other statutes, to address possible environmental and socioeconomic impacts that could result from this proposal/project. This Final EIS is not a decision document. Its purpose is to inform the public and agency decision makers of the impacts of leasing the Crow Indian coal for the extension of mining at the Absaloka Mine and to evaluate alternatives to this leasing.

If you have any questions or would like additional copies of this Final EIS, please contact Mr. Stefanic at 406/247-7911.

Sincerely,

Edward Parisian
Director, Rocky Mountain Region

ABSALOKA MINE CROW RESERVATION SOUTH EXTENSION COAL LEASE APPROVAL, PROPOSED MINE DEVELOPMENT PLAN, AND RELATED FEDERAL AND STATE PERMITTING ACTIONS FINAL ENVIRONMENTAL IMPACT STATEMENT

Prepared by

WWC Engineering
Sheridan, Wyoming

Under the Direction of

U.S. Department of the Interior
Bureau of Indian Affairs
Rocky Mountain Regional Office
Billings, Montana

Montana Department of Environmental Quality
Permitting and Compliance Division
Industrial and Energy Minerals Bureau
Helena, Montana

and

Cooperating Agencies

U.S. Department of the Interior
Office of Surface Mining
Reclamation and Enforcement
Denver, Colorado

U.S. Environmental Protection Agency
Region 8, Montana Office
Helena, Montana

U.S. Department of the Interior
Bureau of Land Management
Billings Field Office
Billings, Montana

Crow Tribe
Crow Agency, Montana

October 2008

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF APPENDICES

Abbreviations and Acronyms Used in this Document

AAQS	Ambient Air Quality Standards
ARM	Administrative Rules of Montana
BACM	Best Available Control Measures
BACT	Best Available Control Technology
BIA	Bureau of Indian Affairs
BLM	Bureau of Land Management
BMP	Best Management Practices
CAA	Clean Air Act
CBNG	coal bed natural gas
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CHIA	Cumulative Hydrologic Impact Assessment
CH_4	methane
CO	carbon monoxide
CO_2	carbon dioxide
COE	U.S. Army Corps of Engineers
CWA	Clean Water Act
DEIS	Draft Environmental Impact Statement
DOE	Department of Energy
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
ESA	Endangered Species Act
gpm	gallons per minute
IMDA	Indian Minerals Development Act
IPCC	Intergovernmental Panel on Climate Change
MAAQS	Montana Ambient Air Quality Standards
$\mu g/m^3$	micrograms per cubic meter
MCL	maximum contaminant level
MDEQ	Montana Department of Environmental Quality
MEPA	Montana Environmental Policy Act
mg/L	milligram per liter
MLA	Mineral Leasing Act of 1920
mmtpy	million tons per year
MPDES	Montana Pollutant Discharge Elimination System
NAAQS	National Ambient Air Quality Standards
NARUC	National Association of Regulatory Utility Commissioners
NEAP	National Events Action Plan
NEP	National Events Policy
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NPDES	National Pollutant Discharge Elimination System
O_3	photochemical oxidants (ozone)
OSM	Office of Surface Mining Reclamation & Enforcement
Pb	lead
PHC	probable hydrologic consequence
$PM_{2.5}$	particulates finer than 2.5 microns in effective diameter
PM_{10}	particulates finer than 10 microns in effective diameter
ppb	parts per billion

Abbreviations and Acronyms Used in this Document

PRB	Powder River Basin
PSD	Prevention of Significant Deterioration
RFD	Reasonably Foreseeable Development
ROD	Record of Decision
SMCL	secondary maximum contaminant level
SMCRA	Surface Mining Control and Reclamation Act of 1977
SO_2	sulfur dioxide
TDS	total dissolved solids
TMDL	total maximum daily load
tpy	tons per year
TSP	total suspended particulates
TSS	total suspended solids
U.S.	United States
USC, U.S.C.	United States Code
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
WDEQ	Wyoming Department of Environmental Quality
WRI	Westmoreland Resources, Inc.
yr	year

EXECUTIVE SUMMARY

Introduction

This Final Environmental Impact Statement (EIS[1]) adopts the Draft EIS, which was published in March 2008, as the final with amendments that are contained herein in response to public comments. This EIS has been prepared to analyze the environmental and socioeconomic impacts of advancing surface coal mining operations at the Absaloka Mine onto the Crow Indian Reservation and for related federal and state permitting actions.

Westmoreland Resources, Inc. (WRI) has owned and operated the Absaloka Mine, a surface coal mine located in northeastern Big Horn County, Montana, approximately 30 miles east of Hardin, Montana (Figure ES-1), since 1974. The Absaloka Mine is located in the Crow Ceded Area north of and adjacent to the Crow Indian Reservation on what is known as the Tract III Coal Lease. Although the Tract III Coal Lease is outside of the Crow Reservation, the coal estate is actually part of the Reservation and held in trust by the United States for the Crow Tribe. In 2004, WRI entered into an Exploration and Option to Lease Agreement with the Crow Tribe under the Indian Mineral Development Act (IMDA) for a coal reserve area encompassing approximately 3,660 acres on the Crow Indian Reservation, south of and adjacent to the Tract III Coal Lease. WRI exercised its lease option on June 1, 2006, for this coal reserve, which WRI refers to as the proposed Absaloka Mine Crow Reservation South Extension.

Absaloka Mine's current permit area is almost entirely within the Tract III Coal Lease, extending to the Crow Indian Reservation boundary (Figure ES-2). The permit area contains coal reserves that are not yet included within Absaloka Mine's currently approved mining plan. WRI has filed an application with the Montana Department of Environmental Quality (MDEQ) and the Federal Office of Surface Mining Reclamation and Enforcement (OSM) to revise its existing permits to mine these additional reserves (referred to herein as the Tract III Revision). The Tract III Revision area lies completely within the Absaloka Mine's current mine permit boundary, while the proposed South Extension tract is contiguous to and south of the current mining permit boundary. Figure ES-2 shows the location of the Tract III Revision area with respect to the South Extension. WRI wishes to maximize coal recovery and ultimately facilitate an orderly advancement of mining operations into the South Extension. For purposes of this EIS, WRI's proposed Tract III Revision is considered an integral part of the proposed South Extension development plan. These proposals by WRI to extend the mineable coal reserves at the Absaloka Mine would require various approvals and permits by federal and state agencies with Indian trust, coal mine permitting and other regulatory responsibilities.

[1] Refer to page iv for a list of abbreviations and acronyms used in this document.

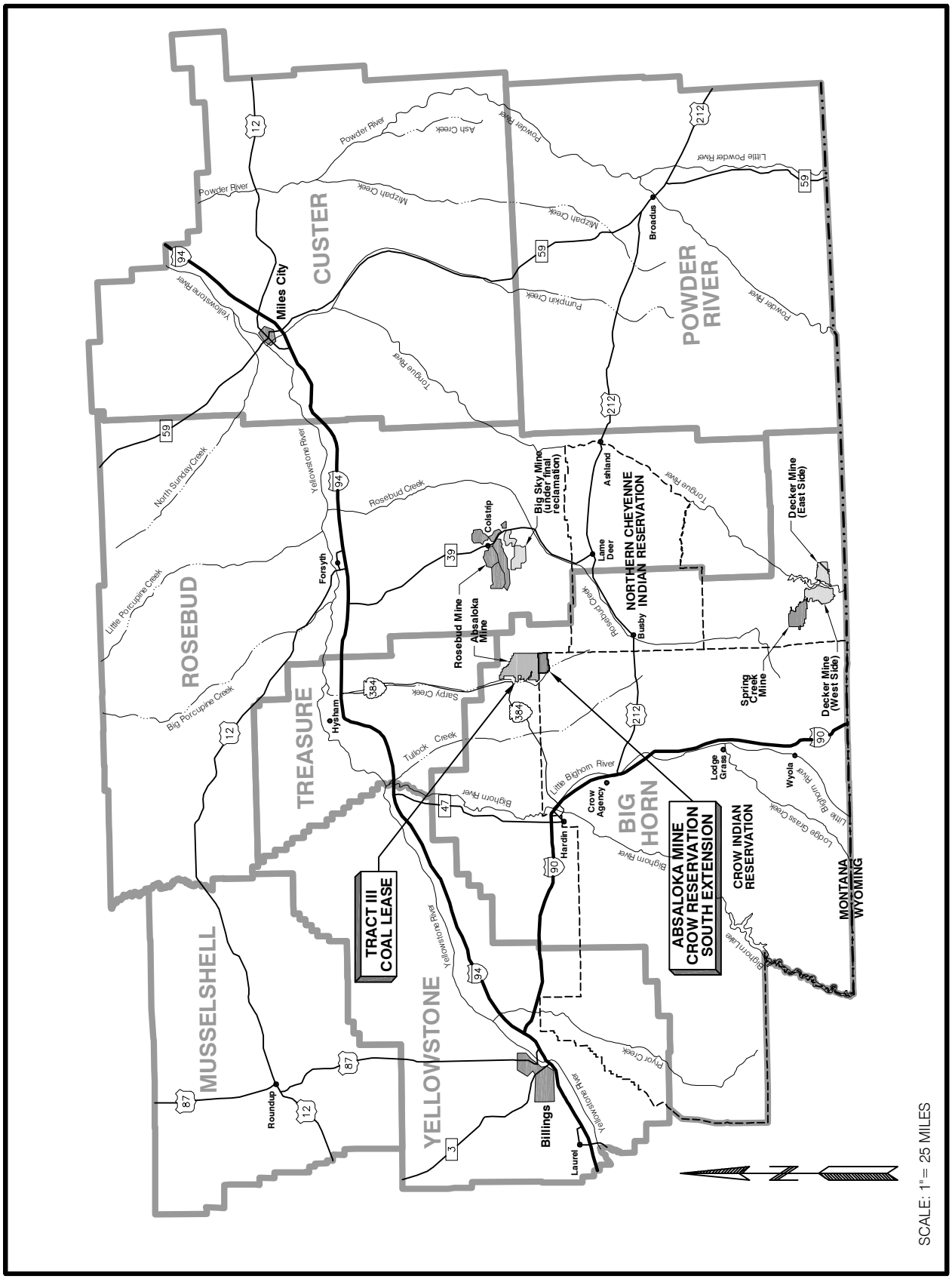


Figure ES-1. General Location Map.

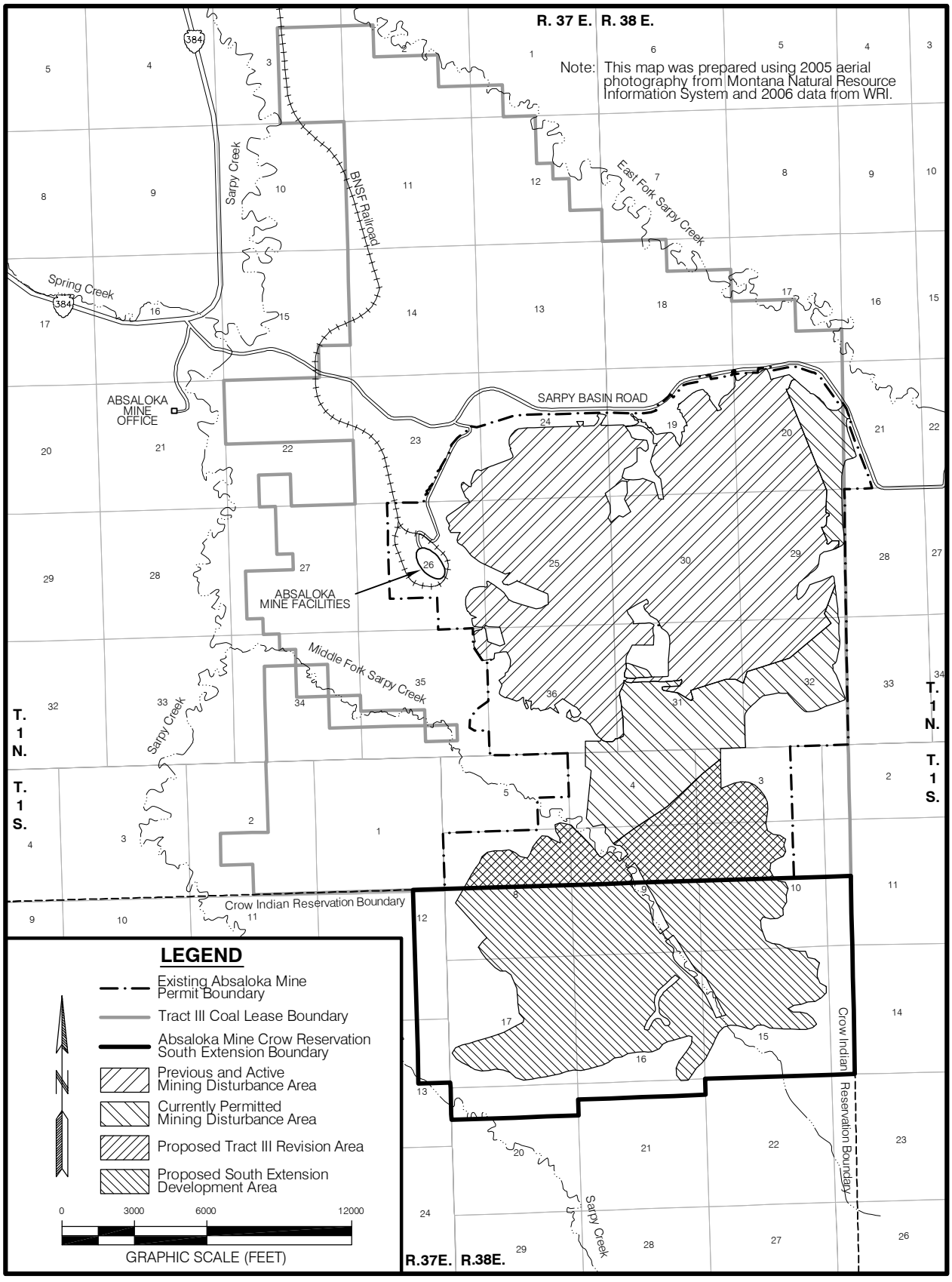


Figure ES-2. Absaloka Mine, Tract III Coal Lease, and Proposed Development Area.

In response to WRI's proposal, the Bureau of Indian Affairs (BIA) must decide whether to approve the IMDA lease for the South Extension. In order to approve the lease, the BIA must fulfill the requirements of NEPA by evaluating the environmental impacts of leasing and subsequently mining the coal reserves within the South Extension. BIA has determined that approval of the South Extension coal lease is a major action, which requires preparation of an EIS.

The preparation of this EIS is a prerequisite for BIA's approval of the IMDA lease and mining of coal reserves in the Tract III Revision and South Extension areas; however, it is not the enabling action that would allow mining to begin. WRI would not be authorized to conduct mining operations by the preparation of this document and BIA's approval of the lease. Prior to conducting any mining-related activities within these two proposed mine development areas, WRI must obtain an approved mine permit revision from MDEQ (with OSM concurrence) for the Tract III Revision and a separate surface mining permit from OSM for the South Extension. OSM is the regulatory authority for surface mining on the Crow Indian Reservation. If the BIA approves the IMDA lease for the South Extension tract and the surface use agreements between WRI and the allottee surface owners in the South Extension, OSM will then have the responsibility for a permit decision on WRI's South Extension mining permit application.

With regard to the proposed Tract III Revision, this EIS analyzes the environmental impacts of mining currently leased coal reserves within the Tract III Coal Lease that is held in trust by the United States for the Crow Tribe, as required by NEPA and MEPA and associated rules and guidelines. With regard to the proposed South Extension, this EIS analyzes the environmental impacts of leasing and mining the coal reserves within the Crow Reservation South Extension lease tract, which are held in trust by the United States for the Crow Tribe, as required by NEPA and associated rules and guidelines. This analysis emphasizes the cumulative impacts that would result from proposed mining in the Tract III Revision and South Extension together.

The currently permitted mining area on the existing Tract III Coal Lease will sustain the current production rate of 6.5 to 7.0 million tons of coal per year only through 2009 since the remaining mineable and marketable coal reserves on that portion of Tract III are limited. Within the Tract III Revision area, approximately 13 million additional tons are potentially mineable and recoverable. Permitting this coal would extend the mine life by two additional years, or potentially through 2011. Approval of the Tract III Revision by MDEQ and OSM, IMDA lease approval by BIA, and OSM approval of the South Extension permit application would add approximately 94 million tons of in-place coal reserves. WRI estimates that 77 million of these tons are recoverable and marketable. This would enable the mine to extend its productive life to 2020 or 2021 at the current production rate of 6.5 to 7.0 million tons per year.

The Absaloka Mine provides substantial benefits to the Crow Tribe in several ways. The Tribe receives income from royalties on the coal production from the Absaloka Mine. These royalties have been primarily distributed to Tribal members as per capita payments. The Tribe also receives production taxes on the coal produced at the mine, at the same rates as the Montana severance and gross proceeds taxes. These tax payments currently comprise the majority of the Tribe's general fund budget. Finally, the majority of the employees of the mine are members of the Crow Tribe, and this mine employment provides some of the best paying jobs in the area. The purpose and benefit of the Proposed Action is to maximize the economic benefit from the coal trust resource by continuing to provide those benefits to the Crow Tribe; as well as allow WRI to continue to access coal reserves, owned by the Crow Tribe, for the sale of coal to customers using it for electric power generation.

The BIA and MDEQ are joint lead agencies responsible for the preparation of this EIS pursuant to their respective authorities under NEPA and MEPA. OSM, Environmental Protection Agency (EPA), Bureau of Land Management (BLM), and the Crow Tribe are cooperating agencies as entities with a permit decision function and/or with special expertise or interest in the proposed project.

Alternatives Description

The alternatives that were analyzed in detail in this EIS were the Proposed Action and two alternatives to that action, including the No Action Alternative.

- **Proposed Action** – The Proposed Action is the approval of Absaloka Mine's Tract III Revision and the approval of the South Extension coal lease. Contingent on the lease approval, the Proposed Action also includes approval of the surface mining permit for the South Extension. In each case, action may consist of approval, approval with stipulations, or disapproval. The Proposed Action, approval of WRI's IMDA lease agreement with the Crow Tribe for the South Extension tract and approval of all surface use agreements between WRI and the allottee surface owners in the South Extension, is the BIA's Preferred Alternative. The Preferred Alternative assumes that the leased coal reserves in the southern portion of the Tract III Coal Lease would be added to the existing Absaloka mine plan and that surface coal mining operations would be allowed to advance on to the South Extension tract located entirely within the Crow Indian Reservation.

  The area of interest lies to the south of the existing Absaloka Mine operations and is divided into two distinct proposed disturbance areas, the Tract III Revision and the South Extension. For the purpose of this analysis, the combined areas that would be disturbed by removal of the economically mineable coal reserves within the Tract III Revision area and South Extension area are referred to as either the South Extension development area or the proposed development area (Figure ES-3). This alternative assumes that the leased reserves in the southern portion of

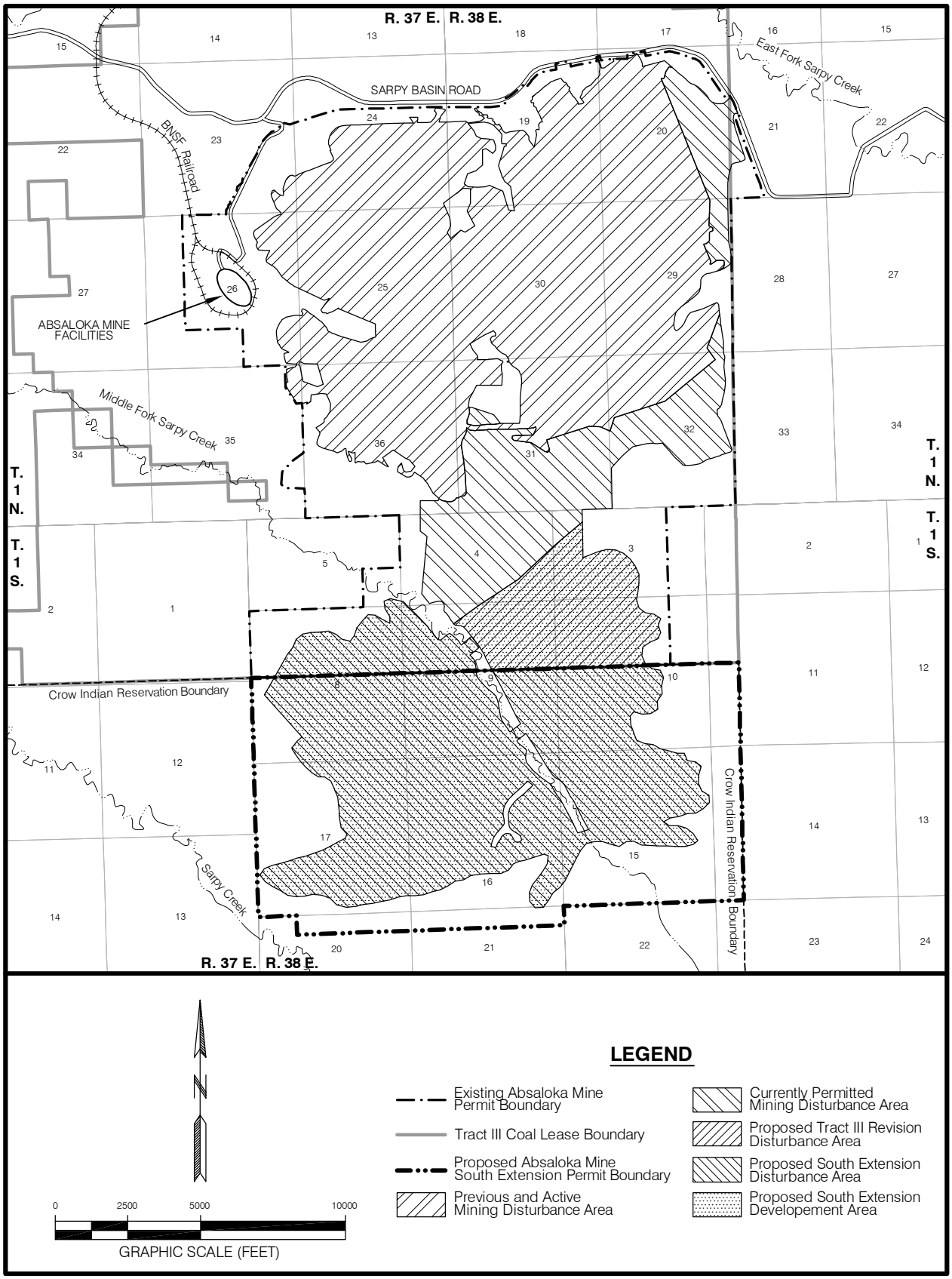


Figure ES-3. Absaloka Mine's Previously and Actively Disturbed Areas, Areas Currently Permitted to be Disturbed, and Proposed Disturbance Areas.

the Tract III Coal Lease would be added to the existing mine plan and that surface coal mining operations would eventually be allowed to advance onto a new tract of land located entirely within the adjacent Crow Indian Reservation.

The South Extension lease tract includes 3,660.23 acres. WRI estimates that the Proposed Action, involving both the Tract III Revision area and the South Extension tract, would add approximately 93.9 million tons of in-place coal reserves, and that approximately 76.6 million of those reserves would be recoverable. The Tract III Revision area would provide approximately 17.4 million of those additional tons, while the South Extension tract would provide approximately 59.2 million additional tons.

Under the Proposed Action, WRI currently estimates that average annual production would be 6.5 to 7.0 million tons. The life of the existing mine would be extended to 2020 or 2021 and employment would be about 171 persons.

The Proposed Action will require various approvals and permits by federal and state agencies with Indian trust and coal mine permitting responsibilities. The following federal and state agency actions would be taken:

- BIA would approve WRI's IMDA lease agreement with the Crow Tribe for the South Extension tract.
- BIA would approve all surface use agreements between the allottee surface owners in the South Extension tract and WRI.
- MDEQ would use this EIS and information included in WRI's permit revision package to approve the advancement of surface mining operations at Absaloka Mine into the Tract III Revision area.
- OSM would use this EIS and information included in WRI's permit revision package to concur with MDEQ approval of WRI's permit revision package for the Tract III Revision.
- OSM would use this EIS and information included in WRI's permit application package to approve the advancement of surface mining operations at the Absaloka Mine from the Tract III Coal Lease into the South Extension tract.
- BLM and other federal and state agencies could use this EIS, the Tract III South permit revision package, and the South Extension permit application package to ensure compliance with the terms of the coal lease agreements, Mineral Leasing Act of 1920 (MLA), NEPA, the Clean Water Act, and other federal laws and their attendant regulations.

- **Alternative 1** – Under Alternative 1, the coal contained within the South Extension tract on the Crow Indian Reservation would not be mined if the BIA does not approve the IMDA lease for the South Extension tract.

Furthermore, because the South Extension includes allotted trust lands, the coal contained within the South Extension tract on the Crow Indian Reservation would not be mined if the BIA does not approve all surface use agreements between the allottee surface owners and WRI. WRI would, however, receive approval from MDEQ and OSM to revise Absaloka Mine's existing mine and reclamation plan to include the Tract III Revision area, and that portion of the coal reserves contained within the Tract III Revision area east of Middle Fork Sarpy Creek would be mined (Figure ES-3).

The Tract III Revision area lies completely within Absaloka Mine's currently approved mine permit area and the existing Tract III Coal Lease area. The coal reserve within the Tract III Coal Lease is held in trust by the United States for the Crow Tribe and is part of the Crow Indian Reservation. The economically mineable coal reserves within the Tract III Coal Lease that are on the west side of Middle Fork Sarpy Creek and north of the Crow Indian Reservation boundary are within Absaloka Mine's currently approved mine permit area. However, this block of coal (approximately 4.5 million tons of recoverable coal) is considered mineable only in conjunction with mining the South Extension tract and would not be included in this alternative.

WRI estimates that Alternative 1, involving just the Tract III Revision area east of Middle Fork Sarpy Creek, would add approximately 15 million tons of in-place coal and that approximately 13 million tons of those in-place coal reserves would be recoverable. Annual coal production would be approximately 6.5 to 7.0 million tons per year, and at that mining rate, the life of the mine would be extended to 2011. Employment would be about 171 persons.

Under Alternative 1, Absaloka Mine's permit area would not change, but the area of permitted disturbance would be increased. The following federal and state agency actions would be taken:

- MDEQ would use this EIS and information included in WRI's permit revision package to approve the advancement of surface mining operations at Absaloka Mine into the Tract III Revision area.
- OSM would use this EIS and information included in WRI's permit revision package to concur with MDEQ approval of WRI's permit revision package for the Tract III Revision.
- BLM and other federal and state agencies could use this EIS and the Tract III South permit revision package to ensure compliance with the terms of the coal lease agreements, MLA, NEPA, and other federal laws and their attendant regulations.
- BIA would not approve WRI's IMDA lease agreement with the Crow Tribe for the South Extension tract.

- OSM would not approve the advancement of surface mining operations at Absaloka Mine from the Tract III Coal Lease into the South Extension tract on the Crow Indian Reservation.

Another alternative (Alternative 3) that was considered but not analyzed in detail is the approval of the South Extension coal lease, approval of all surface use agreements between the South Extension tract's allottee surface owners and WRI, and approval of the necessary permits that would allow surface mining to occur on the South Extension tract. WRI would not, however, receive approval from MDEQ and OSM to revise Absaloka Mine's existing mining and reclamation plan to include the Tract III Revision area, and the coal contained within the Tract III Revision area would not be mined. Geologic factors and Absaloka Mine's current mine plan dictate that the Tract III Revision area be mined as part of the South Extension development plan in order to achieve the most efficient recovery of the coal resource and avoid bypassing approximately 17.5 million tons of recoverable coal. If the Tract III Revision area could not be mined as proposed, the existing mining operation could not advance into the South Extension via the Tract III Revision area, resulting in a probable interruption of mining that would jeopardize WRI's coal supply agreements with its customers. Development of an efficient and economically viable mine plan is considered unlikely without including the Tract III Revision area; therefore, this alternative is not analyzed in detail in this EIS.

Table ES-1 summarizes the projected mine permit and surface disturbance areas, coal production, mine life, and employment for the Absaloka Mine. The environmental impacts of mining would be similar under the Proposed Action and Alternative 1, although differ in areal extent and duration.

Table ES-1. Summary Comparison of Permit Area, Surface Disturbance, Coal Production, and Mine Life for the Absaloka Mine and the South Extension Development Plan.

Item	No Action Alternative (Existing Absaloka Mine)	Added by Proposed Action	Added by Alternative 1
Permit Area	7,110 ac	3,316.9 ac	0 ac
Lease Area	≈ 14,000 ac	3,660.2 ac	0 ac
Surface Disturbance Area	4,835 ac	2,637 ac	385 ac
Coal Removal Area (Post-2007)	360 ac	1,771 ac	268 ac
Recoverable Coal (Post-2007)	14 mmt	76.6 mmt	13 mmt
Coal Mined Through 2007	154 mmt	—	—
Average Annual Post-2007 Coal Production	6 – 7 mmt	6 – 7 mmt	6 – 7 mmt
Remaining Life of Mine (Post-2007)	2 yrs	11 – 12 yrs	2 – 3 yrs
Average Number of Employees	171	0	0

Affected Environment and Environmental Consequences

Critical elements of the human environment that could be affected by the Proposed Action or Alternative 1 include air quality, cultural resources, Native American religious concerns, Threatened and Endangered species, migratory birds, water quality (both surface and ground), wetlands/riparian zones, floodplains, invasive non-native species, and environmental justice. Four other critical elements of the human environment (areas of critical environmental concern, prime or unique farmlands, wild and scenic rivers, and wilderness) are not present in the general analysis area and are not addressed further. In addition to the critical elements that are potentially present in the general analysis area, the EIS discusses the status and potential effects of mining the proposed development plan on topography and physiography, geology and mineral resources, soils, water quantity, alluvial valley floors, vegetation, wildlife, land use and recreation, paleontological resources, visual resources, noise, transportation resources, and socioeconomics.

The affected environment sections of the EIS describe the existing conditions of the physical, biological, cultural, and socioeconomic resources in the general analysis area. The general analysis area includes the lands within and adjacent to Absaloka Mine's current permit area that contain both the Tract III Revision area and the South Extension area. The study area for most environmental resources is generally defined as those lands within Absaloka Mine's current permit area that contain the Tract III Revision area and those lands adjacent to and outside Absaloka Mine's current permit area that WRI anticipates would be contained within the OSM South Extension mine permit.

The environmental consequences sections of the EIS compare the direct and indirect effects to those existing resources that would be associated with implementation of the Proposed Action or Alternative 1 as they relate to WRI's South Extension development plan. The probable environmental consequences of the No Action (Alternative 2) with respect to each of the environmental resources are also considered. Table ES-2 presents a comparative summary of the direct and indirect environmental impacts of implementing the Proposed Action and Alternative 1 as compared to the No Action Alternative. The No Action Alternative assumes completion of currently permitted mining at the Absaloka Mine for comparison to anticipated mining.

The cumulative environmental consequences sections of the EIS summarize the cumulative impacts that are occurring as a result of existing development in the northern Powder River Basin (PRB) and considers how those impacts would change if other projected development in the area occurs and if the South Extension lease is approved and mined and/or the Tract III Revision is approved and mined. For purposes of this analysis, the northern PRB refers primarily to the Montana portion of the PRB. Table ES-3 presents a comparative summary of the cumulative environmental impacts resulting from the implementation of each alternative considered in this EIS combined with

Table ES-2. Summary Comparison of Magnitude[1] and Duration of Direct and Indirect Impacts for the Proposed Action, Alternative1, and the No Action Alternative[2].

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	***MAGNITUDE AND DURATION OF IMPACT***	
RESOURCE NAME	**NO ACTION ALTERNATIVE**	**PROPOSED ACTION and ALTERNATIVE 1**
TOPOGRAPHY & PHYSIOGRAPHY		
Lower surface elevation	Moderate, permanent on existing mine area	Same as No Action on expanded mine area
Permanent topographic moderation, which could result in:		
Microhabitat reduction	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Habitat diversity reduction	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Big game carrying capacity reduction	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Reduction in water runoff and peak flows	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
Increased precipitation infiltration	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
Reduction in erosion	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
Potential enhanced vegetative productivity	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
Potential acceleration of groundwater recharge	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
GEOLOGY AND MINERALS		
Removal of coal	Moderate, permanent on existing mine area	Same as No Action on expanded mine area
Removal and replacement of topsoil and overburden	Moderate, permanent on existing mine area	Same as No Action on expanded mine area
Physical characteristic alterations in replaced overburden	Moderate, permanent on existing mine area	Same as No Action on expanded mine area
Loss of access for development of sub-coal oil and gas resources and other minerals	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Destruction of paleontological resources that are not exposed on the surface	Moderate, permanent on the existing mine area	Same as No Action on expanded mine area
AIR QUALITY		
Particulate Emissions:		
Elevated concentrations associated with average production of 6.5 to 7 mmtpy in compliance with ambient standards	Moderate, short term on existing mine and surrounding area	Same as No Action on expanded mine and surrounding area for 11 to 12 additional years
Potential for human health impacts as a result of exposure to particulate emissions	Minor to moderate, short term on existing mine and surrounding area	Same as No Action on expanded mine and surrounding area for 11 to 12 additional years
NOx Emissions from Machinery:		
Elevated concentrations associated with average production of 6.5 to 7 mmtpy in compliance with ambient standard	Moderate, short term on existing mine and surrounding area	Same as No Action on expanded mine and surrounding area for 11 to 12 additional years
NOx Emissions from Blasting:		
Potential for public exposure and human health impacts as a result	No reported events	No events projected
Visibility:		
Elevated concentrations of fine particulate matter associated with average production of 6.5 to 7 mmtpy	Moderate, short term on existing mine and surrounding area	Same as No Action on expanded mine and surrounding area for 11 to 12 additional years

[1] Refer to Chapter 3 in the Draft EIS for a discussion on magnitude of impacts.
[2] All impacts are assumed to be adverse unless noted otherwise.

Table ES-2. Summary Comparison of Magnitude[1] and Duration of Direct and Indirect Impacts for the Proposed Action, Alternative1, and the No Action Alternative[2] (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	***MAGNITUDE AND DURATION OF IMPACT***	
RESOURCE NAME	**NO ACTION ALTERNATIVE**	**PROPOSED ACTION and ALTERNATIVE 1**
WATER RESOURCES		
Groundwater:		
Removal of coal and overburden aquifers	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Replacement of existing coal and overburden with unconsolidated backfill material	Moderate, permanent on existing mine area	Same as No Action on expanded mine area
Depressed water levels in overburden and coal aquifers adjacent to mine	Negligible, short to long term on existing mine and surrounding area	Same as No Action on expanded mine and surrounding area
Change in hydraulic properties in backfilled areas	Negligible, long term on existing mine area	Same as No Action on expanded mine area
Increase in TDS concentrations in backfilled areas	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Use of subcoal aquifers for water supply	Negligible, short term on existing mine and surrounding area	Same as No Action on expanded mine and surrounding area
Decrease in water supply for groundwater-right holders within the five-foot drawdown area	Negligible, long term on existing mine and surrounding area	Same as No Action on expanded mine and surrounding area
Surface Water:		
Diversion and disruption of surface drainage systems	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Reconstruction of surface drainage systems	Permanent on existing mine areas	Same as No Action on expanded mine area
Increased runoff and erosion rates on disturbed lands due to vegetation removal	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Increased infiltration on reclaimed lands due to topographic moderation	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
Increased runoff on reclaimed lands due to loss of soil structure	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Potential for adverse downstream effects as a result of sediment produced by large storms	Moderate, long term for existing approved mining operation	Same as No Action on expanded mine area
Reduced flow rates from, or physical removal of springs	Moderate, permanent on existing mine area and negligible, short to long term on surrounding area	Same as No Action on expanded mine and surrounding area
Decrease in water supply for surface water-right holders within the disturbance area and downstream	Negligible, short term on existing mine and surrounding area	Same as No Action on expanded mine and surrounding area
ALLUVIAL VALLEY FLOORS		
(MDEQ and OSM have determined that there are no AVFs significant to agriculture on the expanded mine area)		
Removal and restoration of AVFs determined non-significant to farming	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Disruptions to streamflows supplying downstream AVFs	Negligible, short term on existing mine and surrounding area	Same as No Action on expanded mine area

[1] Refer to Chapter 3 in the Draft EIS for a discussion on magnitude of impacts.
[2] All impacts are assumed to be adverse unless noted otherwise.

Table ES-2. Summary Comparison of Magnitude[1] and Duration of Direct and Indirect Impacts for the Proposed Action, Alternative1, and the No Action Alternative[2] (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	***MAGNITUDE AND DURATION OF IMPACT***	
RESOURCE NAME	**NO ACTION ALTERNATIVE**	**PROPOSED ACTION AND ALTERNATIVE 1**
WETLANDS		
Removal of jurisdictional wetlands and loss of wetland function until reclamation occurs	Negligible, short term on existing mine area; jurisdictional wetlands would be replaced as required under Section 404 of the Clean Water Act	Same as No Action on expanded mine area
Removal of non-jurisdictional wetlands and loss of wetland function until reclamation occurs	Negligible, short term on existing mine area; non-jurisdictional wetlands would be replaced as required by MDEQ and OSM	Same as No Action on expanded mine area
SOILS		
Changes in physical properties after reclamation:		
Increased near-surface bulk density and decreased soil infiltration rate resulting in increased potential for soil erosion	Moderate, long term on existing mine area	Same as No Action on expanded mine area
More uniformity in soil type, thickness, and texture	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
Decreased runoff due to topographic modification	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
Changes in biological properties in soils that are stockpiled before reclamation would include:		
Reduction in organic matter	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Reduction in microorganism population	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Reduction in seeds, bulbs, rhizomes and live plant matter	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Changes in chemical properties would include:		
More uniform soil nutrient distribution	Moderate, beneficial, long term on existing mine area	Same as No Action on expanded mine area
VEGETATION		
During mining:		
Progressive removal of existing vegetation	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Increased erosion	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Livestock grazing and wildlife habitat loss	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Potential invasion of non-native plant species	Moderate, short term on existing mine area	Same as No Action on expanded mine area
After revegetation:		
Changes in vegetation patterns	Negligible, long term on existing mine area	Same as No Action on expanded mine area
Reduction in vegetation diversity	Negligible, long term on existing mine area	Same as No Action on expanded mine area
Reduction in shrub density	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Decreased big game habitat carrying capacity	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Decreased habitat for shrub dependent species	Moderate, long term on existing mine area	Same as No Action on expanded mine area

[1] Refer to Chapter 3 in the Draft EIS for a discussion on magnitude of impacts.
[2] All impacts are assumed to be adverse unless noted otherwise.

Table ES-2. Summary Comparison of Magnitude[1] and Duration of Direct and Indirect Impacts for the Proposed Action, Alternative1, and the No Action Alternative[2] (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	***MAGNITUDE AND DURATION OF IMPACT***	
RESOURCE NAME	**NO ACTION ALTERNATIVE**	**PROPOSED ACTION and ALTERNATIVE 1**
WILDLIFE		
Big game displacement from active mining areas	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Increased competition on adjacent undisturbed or reclaimed lands, especially big game	Moderate, short term on adjacent area	Same as No Action on adjacent area
Restriction of wildlife movement, especially big game	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Increased mortality of small mammals	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Displacement of small and medium-sized mammals	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Surface and noise disturbance of active sharp-tailed grouse leks	Moderate, short to long term on existing mine area	Same as No Action on expanded mine area
Disturbance of sharp-tailed grouse nesting habitat during mining	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Loss of sharp-tailed grouse nesting habitat after reclamation	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Abandonment of raptor nests	Negligible, short term on existing mine area	Same as No Action on expanded mine area
Loss of foraging habitat for raptors	Negligible, short to long term on existing mine area	Same as No Action on expanded mine area
Loss of nesting and foraging habitat for other passerine birds of concern	Negligible, short to long term on existing mine area	Same as No Action on expanded mine area
Reduction in waterfowl resting and feeding habitat	Negligible, short term on existing mine area	Same as No Action on expanded mine area
Loss of habitat for aquatic, amphibian and reptile species during mining	Negligible, short term on existing mine area	Same as No Action on expanded mine area
Road kills by mine-related traffic	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Alteration of plant and animal communities after reclamation	Negligible, short term on existing mine area	Same as No Action on expanded mine area
Reduction in habitat carrying capacity and habitat diversity on reclaimed lands	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Potential reduction in microhabitats on reclaimed lands	Moderate, long term on existing mine area	Same as No Action on expanded mine area
THREATENED, ENDANGERED, PROPOSED, AND CANDIDATE SPECIES		
(See Appendices B and C)		
Black-footed ferret	No impact on existing mine area	USFWS has acknowledged that the Proposed Action would have no effect
Least tern		
LAND USE AND RECREATION		
Reduction of livestock grazing	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Reduction of cropland	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Reduction of wildlife habitat	Moderate, long term on existing mine area	Same as No Action on expanded mine area
Restricted access to land for ranching and recreational activities	Moderate, short term on existing mine area	Same as No Action on expanded mine area
CULTURAL RESOURCES		
Sites that are not eligible for NRHP	Ineligible sites may be destroyed without further work	Same as No Action on expanded mine area
Sites that are eligible for NRHP	Eligible sites would be avoided or mitigated through data recovery prior to mining	Same as No Action on expanded mine area
Sites that are unevaluated for eligibility	Impacts to unevaluated sites are not permitted; unevaluated sites would be evaluated prior to mining	Same as No Action on expanded mine area

[1] Refer to Chapter 3 in the Draft EIS for a discussion on magnitude of impacts.
[2] All impacts are assumed to be adverse unless noted otherwise.

Table ES-2. Summary Comparison of Magnitude[1] and Duration of Direct and Indirect Impacts for the Proposed Action, Alternative1, and the No Action Alternative[2] (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	***MAGNITUDE AND DURATION OF IMPACT***	
RESOURCE NAME	**NO ACTION ALTERNATIVE**	**PROPOSED ACTION and ALTERNATIVE 1**
NATIVE AMERICAN CONCERNS	No impact identified on existing mine area	Same as No Action on expanded mine area
VISUAL RESOURCES		
During mining:		
Alteration of landscape by mining facilities and operations	Moderate, short term on existing mine area	Same as No Action on expanded mine area
Following reclamation:		
Smoother sloped terrain	Negligible, long term on existing mine area	Same as No Action on expanded mine area
NOISE		
Increased noise levels	Moderate to substantial, short term on existing mine, surrounding area and occupied dwellings within 2,500 feet of existing mine area	Same as No Action on expanded mine area, no occupied dwellings within one mile of expanded mine area
TRANSPORTATION FACILITIES		
Use of railroad to ship coal	Moderate, for duration of existing approved mining operations	Same as No Action for additional 11 to 12 years
Use of roads and highways to transport coal to power plant near Hardin, Montana	Moderate, for duration of existing approved mining operations	Same as No Action for additional 11 to 12 years
Employees and service contractors use of roads and highways to and from mine site	Moderate, for duration of existing approved mining operations	Same as No Action for additional 11 to 12 years
HAZARDOUS AND SOLID WASTE		
Waste generated by mining operation	Negligible for duration of existing mining operations	Same as No Action for additional 11 to 12 years
SOCIOECONOMICS		
Employment	Moderate, beneficial short term for existing approved mining operations	Same as No Action for additional 11 to 12 years
Revenues from royalties and production taxes to the Crow Tribe	Moderate, beneficial short term on existing mine area	Same as No Action for additional 11 to 12 years
Revenues from WRI income taxes to the state government	Moderate, beneficial short term on existing mine area	Same as No Action for additional 11 to 12 years
Revenues from property taxes to the county government	Moderate, beneficial short term on existing mine area	Same as No Action for additional 11 to 12 years
Economic development	Moderate, beneficial short term on existing mine area	Same as No Action for additional 11 to 12 years
Additional housing and infrastructure needs	No new impact related to existing mine area	Same as No Action for additional 11 to 12 years

[1] Refer to Chapter 3 in the Draft EIS for a discussion on magnitude of impacts.
[2] All impacts are assumed to be adverse unless noted otherwise.

Table ES-3. Summary Comparison of Magnitude and Duration of Cumulative Impacts[1, 2].

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	***MAGNITUDE, TYPE, AND DURATION OF IMPACT***	
RESOURCE NAME	**NO ACTION ALTERNATIVE**	**PROPOSED ACTION and ALTERNATIVE 1**
TOPOGRAPHY & PHYSIOGRAPHY		
Alteration of topography following reclamation of coal disturbance areas	Permanent topographic moderation following reclamation	Same as No Action
Alteration of topography to accommodate coal mining, coal-related, oil and gas, and oil- and gas-related facilities	Long term to permanent, limited changes in discrete scattered areas	Same as No Action
GEOLOGY AND MINERALS		
Recovery of coal resulting in reduction in coal resources and disturbance and replacement of overburden and topsoil	Moderate, long term to permanent	Same as No Action
Surficial disturbance and reclamation on oil and gas well sites and associated facilities	Moderate, long term to permanent	Same as No Action
PALEONTOLOGY		
Coal, coal-related, oil and gas, and oil- and gas-related development disturbance of Fort Union Formation	Permanent potential adverse effects to scientifically significant fossils that are present but not visible prior to disturbance	Same as No Action
AIR QUALITY		
Impacts to Montana near-field receptors:		
24-hour PM_{10}	A maximum modeled impact in one area above NAAQS for the baseline year and both coal production scenarios for 2010	Same as No Action
All other parameters	Modeled impacts in compliance with NAAQS and Montana AAQS	Same as No Action
Impacts to Wyoming near-field receptors:		
24-hour PM_{10}	Modeled impact above NAAQS at some receptors for both coal production scenarios for 2010	Same as No Action
Annual PM_{10}	Maximum modeled impact above NAAQS at one receptor for the upper production scenario for 2010	Same as No Action
All other parameters	Modeled impacts in compliance with NAAQS and Wyoming AAQS	Same as No Action

[1] Cumulative impact discussion in this table and in Chapter 4 of the Draft EIS is based on BLM's PRB Coal Review analyses (BLM 2005a, 2005b and 2006a) and Draft Supplement to the Montana Statewide Oil and Gas FEIS (BLM 2006b).

[2] All impacts are assumed to be adverse unless noted otherwise.

Table ES-3. Summary Comparison of Magnitude and Duration of Cumulative Impacts[1, 2] (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	***MAGNITUDE, TYPE, AND DURATION OF IMPACT***	
RESOURCE NAME	**NO ACTION ALTERNATIVE**	**PROPOSED ACTION and ALTERNATIVE 1**
AIR QUALITY (Continued)		
Non-regulatory PSD Impacts at Class I and Sensitive Class II Areas:		
Class I Northern Cheyenne Indian Reservation	Modeled impacts above Class I increment levels for 24-hour PM_{10}, annual PM_{10}, 24-hour SO_2, 3-hour SO_2 for baseline year and both coal production scenarios for 2010; above Class I increment for annual NO_2 for upper coal production scenario for 2010	Same as No Action
Class I Washakie Wilderness Area and Wind Cave National Park and Class II Crow Indian Reservation	Modeled impacts above Class I increment levels for 24-hour PM_{10} for baseline year and both coal production scenarios for 2010	Same as No Action
All other Class I and Sensitive Class II modeled receptors	Modeled impacts within Class I increment levels for baseline year and both coal production scenarios for 2010	Same as No Action
Visibility Impacts	199 or more days with a change of 1.0 dv or greater at three Class I areas and seven sensitive Class II areas for the baseline year and both coal productions scenarios for 2010	Same as No Action
GROUNDWATER RESOURCES		
Removal of coal aquifer and replacement with backfill material	Moderate, permanent for mining areas	Same as No Action
Lowering of water levels in aquifers around the mine	No cumulative impacts anticipated	Same as No Action
Water level decline in sub-coal aquifers as a result of all development	No cumulative impacts anticipated	Same as No Action
Change in groundwater quality as a result of all development	No cumulative impacts anticipated	Same as No Action
Overlapping drawdown in the coal aquifer caused by surface mining and CBNG development	No cumulative impacts anticipated	Same as No Action

[1] Cumulative impact discussion in this table and in Chapter 4 of the Draft EIS is based on BLM's PRB Coal Review analyses (BLM 2005a, 2005b and 2006a) and Draft Supplement to the Montana Statewide Oil and Gas FEIS (BLM 2006b).

[2] All impacts are assumed to be adverse unless noted otherwise.

Table ES-3. Summary Comparison of Magnitude and Duration of Cumulative Impacts[1, 2] (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	*MAGNITUDE, TYPE, AND DURATION OF IMPACT*	
RESOURCE NAME	**NO ACTION ALTERNATIVE**	**PROPOSED ACTION and ALTERNATIVE 1**
SURFACE WATER RESOURCES		
Surface disturbance of intermittent and ephemeral streams and scattered ponds and reservoirs as a result of coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short to long term	Same as No Action
Discharge of coal mining and CBNG produced waters into intermittent and ephemeral streams	Moderate, short to long term impacts through potential increase in discharge quantity and water salinity depending on discharge water quality and quantity and method of disposal	Same as No Action
Sediment input into intermittent and ephemeral streams and scattered ponds and reservoirs as a result of coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short to long term	Same as No Action
ALLUVIAL VALLEY FLOORS		
Coal mining disturbance of AVFs determined to be significant to agriculture	Not permitted by regulation	Same as No Action
Coal mining disturbance of AVFs determined not to be significant to agriculture	AVFs disturbed by mining must be restored to essential hydrologic function (No cumulative impacts anticipated)	Same as No Action
SOILS		
Coal mining, coal-related, oil and gas, and oil- and gas-related disturbance and replacement of soil resources	Moderate, short term and long term impacts through accelerated wind or water erosion, declining soil quality factors through compaction, reduced microbial populations and organic matter, and potential mixing of soil zones	Same as No Action
CBNG water disposal impacts to soil resources	Potential short and long term impacts through increase in soil alkalinity depending on SAR levels in water and method of water disposal	Same as No Action
VEGETATION		
Coal mining, coal-related, oil and gas, and oil- and gas-related removal and replacement of native vegetation	Moderate, short to long term impacts due to potential differences in species composition and presence and size of woody species on reclaimed lands	Same as No Action
Coal mining, coal-related, oil and gas, and oil- and gas-related impacts to Special Status Plant Species	Potential incremental loss or alteration of potential or known habitat	Same as No Action

[1] Cumulative impact discussion in this table and in Chapter 4 of the Draft EIS is based on BLM's PRB Coal Review analyses (BLM 2005a, 2005b and 2006a) and Draft Supplement to the Montana Statewide Oil and Gas FEIS (BLM 2006b).

[2] All impacts are assumed to be adverse unless noted otherwise.

Table ES-3. Summary Comparison of Magnitude and Duration of Cumulative Impacts[1, 2] (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	*MAGNITUDE, TYPE, AND DURATION OF IMPACT*	
RESOURCE NAME	**NO ACTION ALTERNATIVE**	**PROPOSED ACTION and ALTERNATIVE 1**
VEGETATION (Continued)		
Coal mining, coal related, oil and gas, and oil- and gas-related dispersal of noxious and invasive species	Potential displacement of native species and changes in species composition	Same as No Action
WETLAND AND RIPARIAN VEGETATION		
Discharge of produced water from mining and CBNG development	Moderate, short to long term creation of wetlands in areas that previously supported upland vegetation	Same as No Action
WILDLIFE		
Direct and indirect coal mining, coal-related, oil and gas, and oil- and gas-related development impacts to game and non-game species, including direct mortality, habitat fragmentation, animal displacement, noise and increased human presence	Moderate, short term	Same as No Action
Coal mining, coal-related, oil and gas, and oil- and gas-related disturbance of game and nongame species habitat during project development and operation	Moderate, short term loss of all types of habitat present in disturbed areas	Same as No Action
Coal mining, coal related, oil and gas, and oil- and gas-related habitat changes after reclamation	Moderate, long term change in habitat with potential changes in associated wildlife populations	Same as No Action
FISHERIES		
Alteration or loss of habitat due to coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short to long term	Same as No Action
Changes in water quality as a result of surface disturbance or introduction of contaminants into drainages caused by coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short to long term	Same as No Action
Changes in available habitat as a result of water withdrawals or discharges related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short term	Same as No Action
SPECIAL STATUS SPECIES		
Direct and indirect coal mining, coal-related, oil and gas, and oil- and gas-related development impacts, including direct mortality, breeding area, nest or burrow abandonment, noise and increased human presence	Moderate, short term	Same as No Action

[1] Cumulative impact discussion in this table and in Chapter 4 of the Draft EIS is based on BLM's PRB Coal Review analyses (BLM 2005a, 2005b and 2006a) and Draft Supplement to the Montana Statewide Oil and Gas FEIS (BLM 2006b).

[2] All impacts are assumed to be adverse unless noted otherwise.

Table ES-3. Summary Comparison of Magnitude and Duration of Cumulative Impacts[1, 2] (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	*MAGNITUDE, TYPE, AND DURATION OF IMPACT*	
RESOURCE NAME	**NO ACTION ALTERNATIVE**	**PROPOSED ACTION and ALTERNATIVE 1**
SPECIAL STATUS SPECIES (Continued)		
Coal mining, coal-related, oil and gas, and oil- and gas-related disturbance of habitat during project development and operation	Moderate, short term loss of all types of special status species habitat present in disturbed areas	Same as No Action
Coal mining, coal related, oil and gas, and oil- and gas-related habitat changes after reclamation	Moderate, long term change in habitat with potential changes in associated populations of special status species	Same as No Action
LAND USE AND RECREATION		
Loss of forage and range improvements and restriction of livestock movement due to coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short term	Same as No Action
Disturbance of developed recreation sites by coal mining, coal-related, oil and gas, and oil- and gas-related development	Negligible, short term	Same as No Action
Reduction or degradation of opportunities for dispersed recreation activities related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short term on existing mine area	Same as No Action
CULTURAL RESOURCES		
Disturbance of cultural resource sites	Moderate, permanent	Same as No Action
TRANSPORTATION AND UTILITIES		
Movement of segments of existing highways, pipelines, or utility transmission lines to accommodate coal mining development	Moderate, long term to permanent, disruptive effects would be minimized	Same as No Action
Increased vehicular traffic on roads and highways due to coal mining, coal-related, oil and gas, and oil- and gas-related development, and associated impacts including traffic accidents, road wear, air emissions, dust, noise, and vehicle collisions with wildlife and livestock	Moderate, short term	Same as No Action
Construction and operation of additional railroad and pipeline facilities and transmission lines to transport coal, oil and gas, and electricity	Moderate, short to long term	Same as No Action

[1] Cumulative impact discussion in this table and in Chapter 4 of the Draft EIS is based on BLM's PRB Coal Review analyses (BLM 2005a, 2005b and 2006a) and Draft Supplement to the Montana Statewide Oil and Gas FEIS (BLM 2006b).

[2] All impacts are assumed to be adverse unless noted otherwise.

Table ES-3. Summary Comparison of Magnitude and Duration of Cumulative Impacts[1, 2] (Continued).

DESCRIPTION OF POTENTIAL IMPACT BY RESOURCE	***MAGNITUDE, TYPE, AND DURATION OF IMPACT***	
RESOURCE NAME	**NO ACTION ALTERNATIVE**	**PROPOSED ACTION and ALTERNATIVE 1**
SOCIOECONOMICS		
Increases in employment related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Significant, short to long term	Same as No Action
Increases in personal income due to employment increases related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Significant, beneficial, short to long term	Same as No Action
Increase in population due to employment increases related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Significant, short to long term	Same as No Action
Expansion of housing supply due to employment increases related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Significant, short to long term	Same as No Action
Increases in school enrollment due to employment increases related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short term	Same as No Action
Need for additional local government facilities and services due to employment increases related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Moderate, short to long term	Same as No Action
Increased federal state and local revenues related to coal mining, coal-related, oil and gas, and oil- and gas-related development	Significant, beneficial, short to long term	Same as No Action

[1] Cumulative impact discussion in this table and in Chapter 4 of the Draft EIS is based on BLM's PRB Coal Review analyses (BLM 2005a, 2005b and 2006a) and Draft Supplement to the Montana Statewide Oil and Gas FEIS (BLM 2006b).

[2] All impacts are assumed to be adverse unless noted otherwise.

the existing and reasonably foreseeable coal, oil and gas, and other developments in the northern PRB.

The environmental consequences of the Proposed Action, Alternative 1 and the No Action Alternative are analyzed in Chapter 3 of the Draft EIS. NEPA and MEPA require all agencies of the federal and state government to include, in every recommendation or report on proposals for legislation and other major federal and state actions significantly affecting the quality of the human environment, a detailed statement by the responsible official on:

i.) the environmental impact of the Proposed Action,
ii.) any adverse environmental effects which cannot be avoided should the proposal be implemented,
iii.) alternatives to the Proposed Action,
iv.) the relationship between local short-term uses of man's environment and the maintenance and enhancement of long-term productivity, and any irreversible and irretrievable commitments of resources which would be involved in the Proposed Action should it be implemented [42 USC § 4332(C)].

Impacts can be beneficial or adverse, and they can be a primary result of an action (direct) or a secondary result (indirect). They can be permanent, long-term (persisting beyond the end of mine life and reclamation) or short-term (persisting during mining and reclamation and through the time the reclamation bond is released). Impacts also vary in terms of significance. The basis for conclusions regarding significance are the criteria set forth by the Council on Environmental Quality (40 CFR 1508.27), MEPA and its implementing rules, and the professional judgment of the specialists performing the analyses. Impact significance may range from negligible to substantial; impacts can be significant during mining but be reduced to insignificant following completion of reclamation.

1.0 INTRODUCTION

This Final Environmental Impact Statement (EIS[1]) has been prepared in accordance with both the National Environmental Policy Act of 1969, as amended (NEPA) and the Montana Environmental Policy Act (MEPA). The Bureau of Indian Affairs (BIA) and Montana Department of Environmental Quality (MDEQ) are the joint lead agencies responsible for the preparation of this EIS under their respective authorities under NEPA and MEPA. The NEPA regulations appear in 40 CFR 1500. As required in Part 1503, this Final EIS responds to comments that were received on the Draft EIS. Under MEPA and in accordance with ARM 17.4.618, MDEQ has determined that the Draft EIS is adopted as a Final EIS with amendments that are contained herein in response to public comments. The intent of the Final EIS is to summarize comments from the public and interested agencies regarding the adequacy and extent of the conclusions and supporting information contained in the Draft EIS. All comments received in response to the Draft EIS were evaluated by the BIA and MDEQ and were considered substantive; however, none of the comments redirected the analysis or required new analysis. NEPA and MEPA require the lead agencies to include in the Final EIS all comments and the agencies' response to those comments.

This Final EIS includes all comments received by the BIA and MDEQ during the comment period for the Westmoreland Resources, Inc. (WRI) Absaloka Mine Crow Reservation South Extension Coal Lease Approval, Proposed Mine Development Plan, and Related Federal and State Permitting Actions Draft EIS (referred to herein as the Absaloka Mine South Extension DEIS). The original comment period for the Absaloka Mine South Extension DEIS encompassed 46 days from March 21, 2008 to May 5, 2008 (NEPA requires a minimum of a 45-day comment period and MEPA require a minimum of a 30-day comment period). The comment period on the Draft EIS was extended to June 4, 2008 in response to the Environmental Protection Agency's (EPA's) request to extend the comment period 30 days so that revised information regarding EPA's proposed National Pollutant Discharge Elimination System (NPDES) permit for the proposed Absaloka Mine South Extension development plan would be available during the Draft EIS comment period. The Absaloka Mine South Extension DEIS published in March 2008 included information for NPDES water discharge alternatives of stormwater runoff and mine drainage associated with the expansion of the Absaloka Mine within the exterior boundaries of the Crow Indian Reservation. On April 2, 2008, EPA received a revised NPDES permit application from WRI and EPA subsequently announced that WRI's draft NPDES permit was available for public comment from May 2 through June 2, 2008.

A total of five comment letters on the Absaloka Mine South Extension DEIS were received by the BIA and MDEQ during the comment period—two letters from the EPA, one letter from the Office of Surface Mining Reclamation and Enforcement (OSM), and two letters from the public. The public was invited

[1] Refer to page iv for a list of abbreviations and acronyms used in this document.

through notices in the *Federal Register* and local newspapers to participate in the identification of issues at a public hearing that was held at the Big Horn County Courthouse, April 23, 2008. No oral statements or written comments were received at the public hearing. Copies of all comments received on the Absaloka Mine South Extension DEIS are included in Appendix A, and a response to each comment is included in Chapter 2 of this Final EIS. The responses include a brief analysis of how the Draft EIS addressed the comment, or when necessary, additional analysis to address the comment. Some comments requested analysis beyond the scope of the EIS or were outside the jurisdiction of BIA and MDEQ.

Availability of the Final EIS will be published in the *Federal Register* by the BIA and EPA. BIA will make a decision on whether or not to approve the Indian Mineral Development Act (IMDA) coal lease in the Crow Indian Reservation for the South Extension tract and the surface use agreements between the allottee surface owners and WRI. OSM and MDEQ will make decisions on whether or not to approve the Tract III Revision, and OSM will make a decision on whether or not to approve the issuance of a new surface mine permit for the South Extension. The BIA's and MDEQ's Records of Decision (RODs) will be mailed to all parties on the mailing list including those who commented on this EIS. The ROD is a concise public notice of the agency's decision, explaining the reasons for the decision and any special conditions surrounding the decision or its implementation. The public and/or the lease holder can appeal the BIA decision to approve or not approve the IMDA coal lease for the tract. The appeal must be filed within 30 days from the date that the Notice of Availability for the ROD is published in the *Federal Register*. The Notice of Availability for the ROD is being published concurrently with the Notice of Availability for the Final EIS, and the decision will become effective after 30 days if no appeal has been filed.

Permit decisions by MDEQ and OSM may be appealed within 30 days; state and federal mining permit decisions are effective immediately upon issuance. Under MEPA rules, MDEQ may make a permit decision after an EIS availability period of 15 days, and under NEPA rules, OSM is subject to the 30-day availability period before a permit decision can be issued.

2.0 PROPOSED ACTION AND ALTERNATIVES

This proposal by Westmoreland Resources, Inc. (WRI[1]) will require various approvals and permits by federal and state agencies with Indian trust and coal mine permitting responsibilities. In response to WRI's proposal, the Bureau of Indian Affairs (BIA) must decide whether to approve the Indian Mineral Development Act (IMDA) lease for a coal reserve on the Crow Indian Reservation. Prior to making a decision on the lease, the BIA must fulfill the requirements of the National Environmental Policy Act (NEPA), which requires the federal agency to involve interested persons and parties in their decision making, consider reasonable alternatives to the Proposed Action, develop measures to mitigate environmental impacts, and prepare an environmental document that discloses the impacts of the Proposed Action and alternatives. This Environmental Impact Statement (EIS), which is the required NEPA document for all federal actions and the required Montana Environmental Policy Act (MEPA) document for all State of Montana actions, analyzes three different alternatives for the South Extension development plan for WRI's Absaloka Mine.

The Proposed Action is the approval of Absaloka Mine's Tract III South permit revision (referred to as the Tract III Revision) and the approval of the Absaloka Mine Crow Reservation South Extension coal lease (referred to as the South Extension). Contingent on lease approval, the Proposed Action also includes approval of the surface mining permit for the South Extension. In each case, action may consist of approval, approval with stipulations, or disapproval. The area of interest lies to the south of the existing Absaloka Mine operations and is divided into two distinct proposed disturbance areas, the Tract III Revision and the South Extension. For the purpose of this analysis, the combined areas that would be disturbed by removal of the economically mineable coal reserves within the Tract III Revision area and South Extension area are referred to as either the South Extension development area or the proposed development area. The Proposed Action assumes that the leased reserves in the southern portion of the Tract III Coal Lease would be added to the existing mine plan and that surface coal mining operations would eventually be allowed to advance on to a new tract of land located entirely within the adjacent Crow Indian Reservation.

NEPA and MEPA require the consideration and evaluation of other reasonable ways to meet proposal objectives while minimizing or avoiding environmental impacts. Thus, the evaluations of a No Action Alternative and a practical range of other "reasonable" action alternatives are required. These alternatives should represent other means of satisfying the stated purpose and need for the Proposed Action, which is to allow WRI's Absaloka Mine continuing access to coal supplies for the sale of coal for electric power generation, and associated benefits to the Crow Tribe, including royalty and tax income and employment.

[1] Refer to page iv for a list of abbreviations and acronyms used in this document.

Alternative 1 considers the potential impacts if the BIA would not approve the IMDA lease for the South Extension tract. The Montana Department of Environmental Quality (MDEQ) and the Office of Surface Mining Reclamation and Enforcement (OSM) would, however, approve Absaloka Mine's proposed Tract III Revision. Under Alternative 1, the coal contained within the proposed South Extension lease tract on the Crow Indian Reservation would not be mined, although that portion of the economically recoverable coal reserves contained within the Tract III Revision area east of Middle Fork Sarpy Creek would be mined. Mining constraints in the area west of Middle Fork Sarpy Creek on the Tract III Coal Lease prevent the coal reserves contained in that area from being mined unless it is developed in conjunction with the mining of the South Extension.

Alternative 2 (the No Action Alternative) considers the potential impacts if the agencies would not approve any portion of Absaloka Mine's South Extension development plan. The BIA would not approve the IMDA lease for the South Extension tract and MDEQ and OSM would not approve Absaloka Mine's application to revise its current mine permit to include mining the coal reserves within the Tract III Revision area. Under the No Action Alternative, the coal contained within both the South Extension tract and the Tract III Revision area would not be mined at this time. Rejection of the South Extension development plan would not affect currently permitted mining activities on the Tract III Coal Lease at the Absaloka Mine. The No Action Alternative assumes only the completion of currently permitted mining activities at the Absaloka Mine.

Another alternative (Alternative 3) was considered but not analyzed in detail. Under Alternative 3, the BIA would approve the IMDA lease for the South Extension and all surface use agreements between WRI and the South Extension tract's allottee surface owners. For the purpose of analysis, this alternative assumes that WRI would eventually receive the necessary permits to mine the South Extension. However, MDEQ and OSM would not approve Absaloka Mine's permit revision to include proposed mining in the Tract III Revision area. Under this alternative, the coal contained within the South Extension could be mined, but the coal contained within the Tract III Revision area would not be mined. Although such a scenario is conceivable, it would result in bypassing important coal reserves on the Tract III Coal Lease with minimal environmental benefit. More importantly, the mine would exhaust its permitted reserves before the South Extension could be developed, resulting in interruption of coal production. In this event, WRI's customers would be lost and a later resumption of mining in the South Extension would be improbable.

The preparation of this EIS is a prerequisite for mining, but it is not the enabling action that would allow mining to begin. Prior to the preparation of this EIS, WRI developed detailed mining and reclamation plans for the South Extension development area showing how the lands would be mined and reclaimed. WRI submitted a permit revision package for review and approval to MDEQ and OSM for the Tract III Revision in November 2006 and a permit

application package for review and approval to OSM for the South Extension in February 2007. These plans were carefully engineered considering the development area's geologic and hydrologic settings and natural resources, as well as the Surface Mining Control and Reclamation Act (SMCRA) and Montana statutes regulating surface coal mining and reclamation operations. OSM is currently reviewing WRI's mining permit application for the South Extension and the Tract III South permit revision application, and MDEQ is presently reviewing the Tract III South permit revision application. The plans that were developed showing how the lands would be mined and reclaimed, and the specific impacts that would occur during mining and reclamation, are addressed in detail in the permit application and revision packages. Specific mitigation measures for the anticipated impacts are described in detail, and are being analyzed by OSM and MDEQ. The following federal and state agency actions would be taken under the respective alternative:

Proposed Action

- BIA would approve WRI's IMDA lease agreement with the Crow Tribe for the South Extension tract.
- BIA would approve all surface use agreements between the allottee surface owners in the South Extension tract and WRI.
- MDEQ would use this EIS and information included in WRI's permit revision package to approve the advancement of surface mining operations at Absaloka Mine into the Tract III Revision area.
- OSM would use this EIS and information included in WRI's permit revision package to concur with MDEQ approval of WRI's permit revision package for the Tract III Revision.
- OSM would use this EIS and information included in WRI's permit application package to approve the advancement of surface mining operations at the Absaloka Mine from the Tract III Coal Lease into the South Extension tract.
- BLM and other federal and state agencies could use this EIS, the Tract III South permit revision package, and the South Extension permit application package to ensure compliance with the terms of the coal lease agreements, the Mineral Leasing Act of 1920 (MLA), NEPA, the Clean Water Act, and other federal laws and their attendant regulations.

Alternative 1

- MDEQ would use this EIS and information included in WRI's permit revision package to approve the advancement of surface mining operations at Absaloka Mine into the Tract III Revision area.
- OSM would use this EIS and information included in WRI's permit revision package to concur with MDEQ approval of WRI's permit revision package for the Tract III Revision.
- BLM and other federal and state agencies could use this EIS and the Tract III South permit revision package to ensure compliance with the

terms of the coal lease agreements, MLA, NEPA, and other federal laws and their attendant regulations.

- BIA would not approve WRI's IMDA lease agreement with the Crow Tribe for the South Extension tract.
- OSM would not approve the advancement of surface mining operations at Absaloka Mine from the Tract III Coal Lease into the South Extension tract on the Crow Indian Reservation.

No Action Alternative

- MDEQ would not approve the advancement of surface mining operations at Absaloka Mine into the Tract III Revision area.
- OSM would concur with MDEQ's decision not to approve the advancement of surface mining operations at Absaloka Mine into the Tract III Revision area.
- BIA would not approve WRI's IMDA lease agreement with the Crow Tribe for the South Extension tract.
- OSM would not approve the advancement of surface mining operations at Absaloka Mine from the Tract III Coal Lease into the South Extension tract.

In addition to the Proposed Action and alternatives, the EIS analyzes the proposed action and alternatives for the EPA to issue a Clean Water Act (CWA) National Pollutant Discharge Elimination System (NPDES) permit for discharges from the proposed expansion of the Absaloka Mine onto Indian country lands, including lands within the exterior boundaries of the Crow Indian Reservation. Based on WRI's discharge permit application, EPA has determined that the proposed expansion of the Absaloka Mine onto the Crow Indian Reservation is a "major alteration", which constitutes a "new source" for NPDES permitting purposes.

Following are brief descriptions of the Proposed Action and alternatives.

2.1 Proposed Action

Under the Proposed Action, BIA would approve the IMDA lease for the South Extension tract and all surface use agreements between WRI and the South Extension tract's allottee surface owners, MDEQ and OSM would approve Absaloka Mine's proposed Tract III Revision, and OSM would approve the mining permit for the South Extension. For the purpose of analysis, under the Proposed Action, all of the mineable and marketable coal reserves contained within both the Tract III Revision area and the South Extension tract on the Crow Indian Reservation would be included in the South Extension development area. The Proposed Action, approval of WRI's IMDA lease agreement with the Crow Tribe for the South Extension and approval of all surface use agreements between WRI and the allottee surface owners in the South Extension, is the BIA's Preferred Alternative. The Preferred Alternative assumes that the leased coal reserves in the southern portion of the Tract III

Coal Lease would be added to the existing Absaloka mine plan and that surface coal mining operations would be allowed to advance onto the South Extension tract located entirely within the Crow Indian Reservation.

With respect to the Tract III Revision, MDEQ will review the permit revision package to ensure that it complies with the permitting requirements and the coal mining operation meets the performance standards of the approved Montana program under SMCRA. MDEQ will also use information included in this EIS in considering approval of the permit revision. OSM must concur with the MDEQ decision on the permit revision. If the BIA approves the IMDA lease for the South Extension tract, OSM will use this EIS and information included in the permit application package to formulate a decision on the application for a new surface mine permit for Absaloka Mine's South Extension on the Crow Indian Reservation. OSM, Bureau of Land Management (BLM), and other federal agencies will review this EIS, the Tract III South permit revision package, and the South Extension permit application package to ensure compliance with the terms of the coal lease agreements, the Mineral Leasing Act of 1920 (MLA), NEPA, and other federal laws and their attendant regulations. BLM must approve the mining plan to ensure maximum recovery of coal for the benefit of the Crow Tribe.

On Tract III, MDEQ enforces the performance standards and permit requirements for reclamation during the mine's operation and has primary authority in environmental emergencies. OSM retains joint responsibility for this enforcement. Within the Crow Indian Reservation, BIA has authority in emergency situations if OSM cannot act before environmental harm and damage occurs. In preparing this EIS, BIA also has a responsibility to consult with and obtain the comments and assistance of other state and federal agencies that have jurisdiction by law or special expertise with respect to potential environmental impacts.

For purposes of environmental analysis, the South Extension development area constitutes the entire area that would be disturbed in order to remove the economically mineable coal reserves within both the Tract III Revision area and the South Extension. The South Extension lease tract includes 3,660.23 acres, the area that would be added to Absaloka Mine's existing permit area would be 3,316.9 acres, and the area of permitted disturbance would be increased by an estimated 2,637 acres. In addition, all environmental commitments and associated mitigation measures that would be imposed through the MDEQ and OSM permitting processes would be in effect for the respective proposed mine development areas.

As currently permitted, Absaloka Mine has sufficient coal reserves to sustain the current level of production (6.5 to 7.0 million tons per year) through 2009. WRI estimates that the Proposed Action, involving both the Tract III Revision area and South Extension tract, would add approximately 93.9 million tons of in-place coal reserves, and that approximately 76.6 million tons of those reserves would be recoverable. The Tract III Revision area would provide

approximately 17.4 million of these additional tons, while the South Extension tract would provide approximately 59.2 million additional tons. With the additional reserves in the Tract III Revision area and the South Extension tract, the life of the existing mine would be extended to 2020 or 2021 and employment would remain at about 171 persons.

Coal reserves within the Tract III Revision area and South Extension would be mined as an integral part of the Absaloka Mine. Since the South Extension development area would be an extension of the existing Absaloka Mine, the existing mine facilities and infrastructure would be the same as those described in the MDEQ Surface Mine Permit 85005 as amended, and the corresponding OSM Surface Mine Permit MT-0007-F, both approved July 5, 2006. Mining methods and equipment would be the same as those currently employed at the mine. No new facility construction, other than necessary roads, power lines, and sediment control features, has been proposed. Coal would be hauled to, processed by, and loaded at the existing coal processing facilities. Existing employment, royalty and tax payments, noise, air emissions, local mine-related traffic, and other associated effects of mining would continue at current levels as mining progresses to the south.

2.2 Alternative 1

Under Alternative 1, WRI would not implement the South Extension development plan on the Crow Indian Reservation if the BIA does not approve the IMDA lease for the South Extension tract. Furthermore, because the South Extension includes allotted trust lands, the South Extension development plan would not be implemented if the BIA does not approve of all surface use agreements between the allottee surface owners and WRI. WRI would, however, receive approval from MDEQ and OSM to revise Absaloka Mine's existing mine and reclamation plan to include the Tract III Revision area. Under Alternative 1, the coal contained within the South Extension tract on the Crow Indian Reservation would not be mined; however, that portion of the coal reserves contained within the Tract III Revision area east of Middle Fork Sarpy Creek would be mined.

The economically mineable coal reserves within the Tract III Coal Lease that are on the west side of Middle Fork Sarpy Creek and north of the Crow Indian Reservation boundary are within Absaloka Mine's currently approved mine permit area. However, this block of coal (approximately 4.5 million tons of recoverable coal) is considered mineable only in conjunction with mining the South Extension tract and would not be included in this alternative. WRI estimates that Alternative 1, involving just the Tract III Revision area east of Middle Fork Sarpy Creek, would add approximately 15 million tons of in-place coal and that approximately 13 million tons of those in-place coal reserves would be recoverable. Annual coal production would continue to be approximately 6.5 to 7.0 million tons per year, and at that mining rate, the life of the mine would be extended to 2011. Employment would remain at about 171 persons.

The Tract III Revision area lies completely within Absaloka Mine's currently approved mine permit area and the existing Tract III Coal Lease area. The coal reserve within the Tract III Coal Lease is held in trust by the United States for the Crow Tribe and is part of the Crow Indian Reservation, but the existing limits of the Absaloka Mine are outside the Reservation boundary and the majority of the surface estate is currently owned by WRI. Under Alternative 1, Absaloka Mine's permit area would not change, but the area of permitted coal removal would be increased by approximately 379 acres, and the area of permitted disturbance would be increased by an estimated 385 acres.

2.3 Alternative 2

Under Alternative 2, or the No Action Alternative, WRI would not implement the South Extension development plan if the BIA does not approve the IMDA lease for the South Extension tract and all surface use agreements between WRI and the South Extension tract's allottee surface owners. Alternative 2 also assumes that WRI would not receive approval from MDEQ and OSM to revise the existing mining and reclamation plan to include mining the Tract III Revision area. Under the No Action Alternative, the coal contained within the South Extension development area would not be mined at this time.

Denial of the Crow Reservation South Extension coal lease and the Tract III Revision would not affect the currently permitted mining activities on the Tract III Coal Lease at the Absaloka Mine. The No Action Alternative assumes completion of currently permitted mining at the Absaloka Mine. The Tract III Coal Lease is approximately 14,000 acres in area and the Absaloka Mine, as currently permitted, includes 7,110 acres. A total of approximately 4,835 acres will eventually be affected by mining the Tract III Coal Lease within the currently approved permit area. Under the No Action Alternative, Absaloka Mine would mine its remaining 14 million tons of in-place coal reserves (as of January 1, 2008) by the end of 2009 at the current 6.5 to 7.0 million-ton annual production rate and average employment would be about 171 persons. The mine would close and final reclamation would be complete by approximately 2012.

2.4 Alternative 3 (Considered but Not Analyzed in Detail)

Under this alternative, as under the Proposed Action, the BIA would approve the IMDA lease for the South Extension tract. The BIA would also approve all surface use agreements between the South Extension tract's allottee surface owners and WRI. For the purpose of analysis, this alternative assumes that WRI would eventually receive the necessary permits that would allow surface coal mining operations to occur on a new tract of land located entirely within the Crow Indian Reservation. Alternative 3 assumes, however, that WRI would not receive approval from MDEQ and OSM to revise Absaloka Mine's existing mining and reclamation plan to include the Tract III Revision area and the coal contained within the Tract III Revision area would not be mined.

Geologic factors and Absaloka Mine's current mine plan dictate that the Tract III Revision area be mined as part of the South Extension development plan in order to achieve the most efficient recovery of the coal resource and avoid bypassing approximately 17.5 million tons of recoverable coal from both the east and west sides of Middle Fork Sarpy Creek.

If the Tract III Revision area could not be mined as proposed, the mineable coal reserves in the South Extension tract would be uneconomical to mine. The existing mining operation could not advance into the South Extension via the Tract III Revision area. Without the timely addition of the Tract III Revision area to Absaloka Mine's mine plan, the mine would soon run out of mineable reserves and be forced to close. There are not enough economically mineable reserves for a stand alone mine plan or a new start mine within just the South Extension tract. In view of these issues, development of an efficient and economically viable mine plan is considered unlikely without including the Tract III Revision area. Therefore, this alternative is not analyzed in detail in this EIS.

3.0 ANALYSIS OF COMMENTS

A total of four entities and individuals submitted comments to the Bureau of Indian Affairs (BIA[1]) and Montana Department of Environmental Quality (MDEQ) during the public comment period on the Draft Environmental Impact Statement (EIS). No comments, written or oral, were received at the April 23, 2008 public hearing. The majority of comments came from the Office of Surface Mining Reclamation and Enforcement (OSM) and the Environmental Protection Agency (EPA) and two comment letters were sent from individual citizens. Comments contained within the letters that were submitted by OSM (one letter) and EPA (two letters) addressed more than one topic or resource area. Those comments that did not request specific analysis or response were duly noted, but no other response was required.

Copies of all comment letters received on the Absaloka Mine South Extension DEIS are included in Appendix A. All comments received are considered to be substantive and are addressed in the following responses. The comment responses have been sorted by the agency and individual citizen who submitted the comment. Where appropriate, responses will direct the reader to section numbers, page numbers, or figure and table numbers in the Draft EIS as published by BIA and MDEQ to address a comment. New tables and narrative analyses are accompanied by a reference to the appropriate insertion point in the Draft EIS. References cited in the Final EIS are listed in Chapter 6. The introductory narrative, including an Executive Summary, has been included to allow this Final EIS to stand alone as a summary of the changes to the Draft EIS. However, the Final EIS does not replace the Draft EIS, which contains the bulk of the analyses used to evaluate the environmental and socioeconomic impacts of the alternatives.

3.1 Responses to OSM's Comments

OSM submitted a single comment letter on the Absaloka Mine South Extension DEIS to the BIA April 12, 2008 stating that no serious flaws in the document or supporting analysis were found and offered three editorial comments.

3.1.1 Comment 1

The Hydrometrics reports (Hydrometrics 2006a and 2006b) that are included in the South Extension permit application package (WRI 2007) contain tabulated summaries of surface water quality analyses of all samples that have been collected from Sarpy Creek and its tributaries at sites within and near the mine's existing permit area and the South Extension development area. Table 3.1-1 lists all historical surface water samples collected in the Sarpy Creek drainage basin to date, beginning in 1973. Of the eight surface water monitoring sites within Westmoreland Resources, Inc. (WRI's) current hydrologic monitoring network, the mean Total Suspended Solids (TSS)

[1] Refer to page iv for a list of abbreviations and acronyms used in this document.

Table 3.1-1. Historical Total Suspended Solids (TSS) Concentrations Determined at Surface Water Monitoring Stations in the Absaloka Mine Area.

Site Number	Stream/ Location	Sample Date or Period of Record	Total Number of Samples	TSS Concentration (mg/L)		
				Min	Max	Mean
SW-1[1]	Sarpy Creek/ Upstream of East Fork Confluence	3-21-75 through 5/7/75	8	35.5	700.5	365.0
SW-2[1]	East Fork Sarpy Creek/ at Mouth	3-13-75 through 5-8-75	10	26.9	2,010.6	744.0
SW-3[1]	Sarpy Creek/ Upstream of Middle Fork Confluence	3-21-75 through 5-7-75	4	55.1	402.1	223.0
SW-4[1]	East Fork Sarpy Creek	3-14-75 through 5-7-75	8	125.5	559.8	363.0
SW-7[1]	Middle Fork Sarpy Creek/ at Mouth	3-21-75 through 5-7-75	5	112.8	239.0	182.0
Westmoreland[2]	Sarpy Creek/ near Absaloka Mine	1-18-74 through 3-19-74	3	1.0	190.0	65.3
Hysham[2]	Sarpy Creek/ Near Hysham, Montana	12-27-73 through 6-11-74	4	6.0	159.0	47.1
G-1[3]	Sarpy Creek/ between East Fork and Middle Fork Confluences	4-3-79 through 3-1-06	54	1.0	116.0	16.0
G-6[3]	Tributary of East Fork Sarpy Creek/ East Coulee	4-18-80 through 1-19-05	31	1.0	220.0	30.7
G-8[3]	East Fork Sarpy Creek/ upstream of Absaloka Mine	4-30-79 through 3-1-06	61	1.0	688.0	29.3
G-10[4]	Middle Fork Sarpy Creek/ downstream of South Ext. area	3-14-03 through 1-20-05	2	123.0	212.0	167.5
G-11[4]	Middle Fork Sarpy Creek/ at downstream South Ext. boundary	1-20-05	1	--	--	82.0

Table 3.1-1. Historical Total Suspended Solids (TSS) Concentrations Determined at Surface Water Monitoring Stations in the Absaloka Mine Area (Continued).

Site Number	Stream/ Location	Sample Date or Period of Record	Total Number of Samples	TSS Concentration (mg/L)		
				Min	Max	Mean
G-12[5]	Sarpy Creek/ upstream of South Ext. area	3-21-06	1	--	--	<10.0
G-13[5]	Sarpy Creek/ stock reservoir adjacent to South Ext. area	1-31-06 through 5-12-06	3	<10.0	98.0	<40.0
G-15[5]	Middle Fork Sarpy Creek/ at upstream South Ext. boundary	3-17-06 through 5-16-06	2	18.0	62.0	40.0

[1] WRI sample site, discontinued after 1975 baseline study (WRI 1975).
[2] USGS sample site, discontinued after 1974 (USGS 1977).
[3] WRI sample site, established in 1979, currently active (Hydrometrics 2006b).
[4] WRI sample site, established in 2002, currently active (Hydrometrics 2006b).
[5] WRI sample site, established in 2005, currently active (Hydrometrics 2006b).

concentration exceeds 100 milligrams per liter (mg/L) at only one location, site G-10. Through 2006, just two TSS samples had been collected at site G-10, which was established in 2002.

The nature of surface runoff and the resulting streamflow events for this region are described in the first full paragraph on page 3-80 of the Draft EIS. All streams within the general analysis area are ephemeral and flow only in response to snowmelt or rainfall events; therefore, the highest percentage of annual runoff typically occurs from March through June. The average annual precipitation for this area is relatively low (approximately 15 inches) and most of the annual precipitation occurs during May and June, so streamflow frequencies and rates tend to decrease after June. Snowmelt and saturated or frozen soils are factors contributing to runoff in the early spring months. Surface water runoff events in response to snowmelt typically occur in March or earlier in the year, particularly if caused by warm Chinook wind conditions that can quickly melt the snow pack. Such runoff events are typically very rapid and are over frozen soils, resulting in low sediment production.

The third full paragraph on page 3-82 of the Draft EIS explains the relationship between water quality and streamflow, in that the concentration of dissolved chemical constituents in a stream generally tends to be inversely related to streamflow and the concentration of suspended solids tends to increase in direct relationship to flow. However, in late winter and early spring, snowmelt runoff is relatively low in both dissolved and suspended solids due to frozen soil conditions, regardless of streamflow rate. At the beginning of a rainfall runoff event and shortly thereafter, the sudden flows tend to flush soil materials from the land surface and increase both the Total Dissolved Solids

(TDS) and TSS content of the runoff and resultant streamflow. Suspended solids concentrations will generally correlate well with discharge, in that the highest concentrations occur during the highest streamflows. Also, the highest concentrations of suspended solids occur during periods of direct runoff when erosion from overland flow and channel scour contribute the most sediment (Lambing 1986).

Runoff in response to intense rainfall rarely occurs in this semi-arid region, and for that reason, very few surface water quality samples have been collected from the ephemeral streams within and around the Absaloka Mine during and immediately following thunderstorm events. Considering the semi-arid climate, the erodible nature of the Fort Union Formation sediments over which the streams flow, and infrequent nature of intense rainfall runoff events in this area, it is reasonable to surmise that considerably higher TSS concentrations than those that have been recorded to date do occur; however, the magnitude of concentrations cannot be verified with the available surface water quality database for Sarpy Creek and its tributaries.

Samples have been collected from these ephemeral streams during the only time that runoff occurs, which is typically during the late winter months when the soils are still frozen. The third paragraph on page 3-84 of the Draft EIS states, "No water quality samples were collected from June 2005 through May 2006 from any of the monitoring sites established in the general analysis area during a streamflow event, but rather, samples that were collected during that period were from water that was pooled or ponded in the stream channel." That statement reiterates the fact that streamflow events in the area are rare and it is not often that surface water quality samples can be collected, particularly during a storm event.

In summary, the TSS concentrations of surface water samples collected from undisturbed streams within and around the Absaloka Mine to date have been relatively low and do in fact average less than 100 mg/L at most of the mine's current and discontinued monitoring sites. However, the language in the Draft EIS should have been qualified by explaining that the Absaloka Mine has limited data for higher TSS values, and that most of the historical TSS analyses do not represent runoff in response to intense thunderstorm events, which would very likely have higher TSS concentrations, indeed ranging from a few hundreds to several thousands of mg/L as OSM's comment points out. WRI recognizes that there are many examples of higher TSS values in ephemeral runoff samples collected at other surface coal mines in the Powder River Basin. The recorded TSS concentrations of ephemeral runoff samples collected within and around the Absaloka Mine have been relatively low, primarily because most of the samples were collected during the only time the streams flowed, which was during late winter months when the soils were still frozen and rapid snowmelt was occurring.

3.1.2 Comment 2

The language in Section 3.5.2.3.1 in the Draft EIS has been revised by EPA to reflect WRI's updated plans for the permit to discharge mine drainage from pre- and post-mining areas and from the active mining area. Refer to EPA's comments on the Draft EIS in their letter dated June 4, 2008, from Mr. Larry Svoboda, EPA Region 8 NEPA Program Director to Mr. George Gover, BIA Superintendent (Appendix A). This letter, which was the second of two comment letters that were submitted by EPA for the Draft EIS, included EPA's recommended changes to Sections 3.5.2.2 through 3.5.2.3.1.6 in the Draft EIS.

The changes recommended by EPA have been incorporated into the Final EIS by reference herein. The language in Section 3.5.2.3.1.3 of the Draft EIS, which is specific to OSM's comment, has been revised in order to make the Final EIS consistent with EPA's draft National Pollutant Discharge Elimination System (NPDES) permit.

WRI submitted a revised NPDES discharge permit application to EPA in April 2008, after the Draft EIS was released for public review. The language in Section 3.5.2.3.1 of the Draft EIS was based on WRI's previous (May 17, 2007) NPDES permit application, which only included information on the water discharge alternatives during pre- and post-mining phases. EPA's currently proposed NPDES permit is for water discharges during the active phase of mining in addition to the pre- and post-mining phases.

The following excerpt from the revised Section 3.5.2.3.1.3 addresses OSM's comment:

> "The Draft EIS prescribed the use of 24 sediment traps (detention ponds) at the edge of the disturbance to detain the 2-year, 24-hour storm event. Internal ponds and sumps when combined with detention ponds as described in the Draft EIS will be designed to detain discharges of mine drainage from the active mining area for the 10-year, 24-hour storm event. Discharges from pre-and post-mining areas will be subject to detention of the 2-year, 24-hour event, and discharges from the active mining area will be subject to detention of the 10-year, 24-hour event. The design and maintenance of ponds/sumps to detain both the 2-year and 10-year events was evaluated in the Draft EIS."

3.1.3 Comment 3

The first paragraph of Section 4.2.4.2 in the Draft EIS states that the use of alternative sediment control BMPs (best management practices) rather than sedimentation ponds may expedite the reestablishment of streamflows *after* mining. EPA's Western Alkaline Coal Mining Subcategory regulation allows the use of BMPs to control runoff and sediment from *reclamation* areas. OSM's comment points out that the statement "Coal mines in the PRB fall under

EPA's Western Alkaline Coal Mine Subcategory regulation (40 CFR Part 434) to control runoff and sediment from reclamation areas" is deficient in that the Subcategory or Subpart regulation number (434.82) was omitted. 40 CFR Part 434 are EPA's Coal Mining Point Source Category regulations, of which there are eight subparts (A through H).

Subpart (or Subcategory) H, the Western Alkaline Coal Mining Subcategory regulation, addresses sedimentation and erosion control issues that are characteristic of the arid and semi-arid coal producing regions of the western U.S. Within Subpart H are the regulations that apply to alkaline mine drainage at western coal mining operations from non-process areas (areas of a coal mine that have been returned to required contour and revegetation work has commenced), reclamation areas, brushing and grubbing areas, topsoil stockpiling areas, and regraded areas where surface water discharge, before any treatment, meets specific requirements. Specifically, 40 CFR 434.82 states,

> "The operator must submit a site-specific Sediment Control Plan to the permitting authority that is designed to prevent an increase in the average annual sediment yield from pre-mined, undisturbed conditions. The Sediment Control Plan must be approved by the permitting authority and be incorporated into the permit as an effluent limitation. The Sediment Control Plan must identify best management practices (BMPs) and also must describe design specifications, construction specifications, maintenance schedules, criteria for inspection, as well as expected performance and longevity of the BMPs."

EPA finds that the use of alternative sediment control BMPs in certain non-process areas can be less harmful to the environment than the impacts resulting from the use of sedimentation ponds to comply with numeric limits. Stating that the reestablishment of streamflows in the Sarpy Creek watershed after mining may be expedited by implementing BMPs was the primary intent for referencing EPA's Western Alkaline Coal Mining Subcategory regulation in the first paragraph of this section.

The first paragraph of Section 4.2.4.2 also refers to regulations that require capture and treatment of all runoff from *mined* lands in sedimentation ponds to meet effluent standards before it is allowed to flow off the mine permit areas *during* mining. As OSM's comment points out, EPA's Alkaline Mine Drainage (which is Subpart D of the Coal Mining Point Source Category) regulations at 40 CFR 434.63 apply to the discharge of alkaline mine drainage from disturbed areas of the PRB during the operational phase of mining. This paragraph was deficient in that EPA's regulation number 40 CFR Part 434.63 was omitted, and these differences in regulations that are related to the protection of surface water resources both *during* and *after* mining was not clarified.

Excerpts from the Hydrologic Reclamation Plan, Section 5.1 of WRI's Absaloka Mine South Extension OSM Permit Application, No. MT-0021-A, are as follows:

> "While active mining is occurring in each small watershed, discharge from the sediment trap is subject to effluent limitations of 40 CFR 434 Subparts D and F. During this phase, temporary supplemental sediment control will be established and maintained such that aggregate capacity with the 2-year, 24-hour sediment trap will be no less than 10-year, 24-hour capacity for portions of the watershed potentially draining off-site until regrading is complete".

and,

> "Once active mining operations have advanced through a watershed and spoils are regraded, the requirements of 43 CFR 434 Subpart H, Western Alkaline Mine Coal Mining, apply during the reclamation phase. Internal temporary sediment traps will be removed, and primary sediment control will be provided by the disturbance edge sediment traps of 2-year, 24-hour capacity".

3.2 Responses to EPA's Comments

EPA submitted two comment letters on the Absaloka Mine South Extension Draft EIS to the BIA, which are dated May 19, 2008 (Letter 1) and June 2, 2008 (Letter 2). Letter 1 contained the majority of EPA's comments, while Letter 2 was a supplement to Letter 1. Comments regarding water resources (Comments 1 through 7), wetlands (Comments 8 and 9), air quality (Comments 10 through 17), environmental justice (Comment 18), and coordination with EPA's NPDES permit (Comment 19) were included in Letter 1. Letter 2 was a supplement to Letter 1, and it contained EPA's recommended changes to the Surface Water section of the Draft EIS that are needed to make the Final EIS consistent with EPA's draft NPDES permit. EPA's second comment in their second comment letter recommended that additional information about global climate change and coal-fired power plant related greenhouse gas emissions be included in the analysis.

3.2.1 Letter 1, Comment 1

The Absaloka Mine has operated since 1974, and in the 34 years of its operation, numerous water quality samples have been collected from both its Montana Pollutant Discharge Elimination System (MPDES) permitted mine drainage outfalls and undisturbed streams in the Sarpy Creek drainage basin. These samples have been analyzed for various purposes, including baseline environmental studies and mine permit monitoring requirements during mining, which includes MPDES discharge monitoring. This accumulation of data was consolidated into a database in 2006 for the purpose of preparing a comprehensive Probable Hydrologic Consequences (PHC) report for the Absaloka Mine, as required by the Montana Department of Environmental Quality (MDEQ) to support mine permitting efforts.

EPA's NPDES discharge permit application requires that available data be submitted by the applicant in Form 2D for any of a list of potential pollutants that the applicant knows or believes to be present. Form 2D specifies that *total* concentrations of "metal toxic pollutants" (as listed in Form 2D, Table 2D-2, Group B) be reported. WRI's April 2008 National Pollutant Discharge Elimination System (NPDES) discharge permit application to EPA included data taken from the mine's historical surface water quality database as average and maximum daily *total* recoverable concentrations for ten pollutants suspected to be present or limited directly by an effluent limitations guideline, new source performance standard, or indirectly through limitations on an indicator pollutant. These ten pollutants included fluoride, nitrate-nitrite nitrogen, sulfate, aluminum, boron, iron, manganese, lead, copper, and zinc. Using these *total recoverable* concentrations that were provided by WRI in Form 2D, EPA's NPDES permit staff recognized reasonable potential to exceed water quality criteria for aluminum, copper, zinc, lead, iron, and manganese. These data represented *total* metal concentrations, not the *dissolved* fractions for which the water quality based effluent limitations in EPA's proposed NPDES discharge permit are based.

EPA developed water quality-based effluent limits in addition to those effluent limits present in the mine's existing MPDES permit that would authorize discharge from the Absaloka Mine South Extension under NPDES using data provided by WRI in Form 2D. The additional limits proposed include those for dissolved aluminum, dissolved lead, dissolved copper, dissolved iron, and dissolved zinc. In response to EPA's draft NPDES Permit for the Absaloka Mine South Extension (Permit No. MT0030783), WRI submitted statistical summary tables of the mine's historical surface water quality analyses data for all samples collected from the mine's MPDES outfalls and all surface water monitoring sites, which represent natural background surface water quality, and requested that the data be made a part of Form 2D in the NPDES Permit Application. WRI requested that EPA's analysis to determine whether each of these pollutants has reasonable potential to exceed EPA's Quality Criteria for Water (EPA 1986) be revisited using the complete and properly sorted data sets, which include *dissolved* metals concentrations, to determine the water quality-based effluent limits in the final NPDES Permit No. MT0030783. WRI also explained within their response to EPA's draft NPDES permit (May 29, 2008 letter from Mr. Darrel Myran, WRI Vice President to Ms. Ellen Bonner, EPA Region 8) that many of the maximum solute values were from MPDES Outfall 001, which controls drainage from the mine's coal processing area in addition to rainfall runoff. Contamination from the galvanized steel discharge culvert at Outfall No. 001 is suspected of being the cause of the high zinc concentrations. If Outfall 001 is excluded, there are very few samples representing storm water outfalls, and some of the metals in question are not represented at all. It is WRI's contention that the available data were not collected with the objective of determining the need for supporting calculation of water quality-based effluent limits. WRI is initiating a surface monitoring program in effort to build a database that would do so.

The Draft EIS states that dissolved metals concentrations are typically low in alluvial wells in Middle Fork Sarpy Creek locations; however, dissolved iron and manganese concentrations are above the secondary maximum contaminant levels (SMCLs), or secondary drinking water standards, in nearly every sample collected (pages 3-55 and 3-56). The Draft EIS further states that the levels of potential contaminants such as nitrate, arsenic, selenium, barium, and trace metals (e.g., mercury, lead, chromium, copper, cadmium, zinc) are typically less than the analytical detection limits or are significantly below the maximum contaminant levels – drinking water standards (MCLs) for all water samples that were collected in 2005 and 2006 from alluvial monitoring wells located within and adjacent to the South Extension development area. EPA was given reason to doubt the validity of these statements made in the Draft EIS based upon the water quality data that were submitted in Form 2D to the EPA NPDES permit staff. EPA's comment states, "Lead, copper, and zinc are of particular concern." Table 3.2-1 lists the maximum and mean dissolved lead, copper, zinc, aluminum, iron, and manganese concentrations in all groundwater samples collected from 14 alluvial monitoring wells located within and adjacent to the South Extension development area. Figure 3-9 in the Draft EIS depicts the locations of these wells. The historical alluvial groundwater quality data presented in Table 3.2-1 substantiates statements that are made in the Draft EIS.

Table 3.2-1. South Extension Development Area Alluvial Groundwater Quality – Select Dissolved Metals Concentrations.

WRI Monitor Well No.	Parameter	Number of Samples[1]	Number of Samples Above Detection Limit	Maximum Concentration (mg/L)	Mean Concentration (mg/L)
A-16	Lead (Pb)	4	0	<0.003	--
	Copper (Cu)	4	4	0.002	0.0018
	Zinc (Zn)	4	0	<0.010	--
	Aluminum (Al)	4	0	<0.100	--
	Iron (Fe)	11	5	0.580	--
	Manganese (Mn)	11	7	0.023	0.0119
A-18	Lead (Pb)	4	0	<0.003	--
	Copper (Cu)	4	4	0.003	0.0025
	Zinc (Zn)	11	1	0.030	--
	Aluminum (Al)	4	0	<0.100	--
	Iron (Fe)	11	11	1.260	0.5127
	Manganese (Mn)	11	11	0.560	0.2952
A-20	Lead (Pb)	4	0	<0.003	--
	Copper (Cu)	4	4	0.002	0.0015
	Zinc (Zn)	11	2	0.05	--
	Aluminum (Al)	4	0	<0.100	--
	Iron (Fe)	11	11	0.530	0.1418
	Manganese (Mn)	11	11	0.400	0.3612

Table 3.2-1. South Extension Development Area Alluvial Groundwater Quality – Select Dissolved Metals Concentrations (Continued).

WRI Monitor Well No.	Parameter	Number of Samples[1]	Number of Samples Above Detection Limit	Maximum Concentration (mg/L)	Mean Concentration (mg/L)
A-21	Lead (Pb)	4	0	<0.003	--
	Copper (Cu)	4	4	0.002	0.0018
	Zinc (Zn)	11	0	<0.010	--
	Aluminum (Al)	4	0	<0.010	--
	Iron (Fe)	11	10	0.530	0.0909
	Manganese (Mn)	11	11	0.280	0.2192
A-22	Lead (Pb)	4	0	<0.003	--
	Copper (Cu)	4	4	0.002	0.0013
	Zinc (Zn)	11	1	0.020	--
	Aluminum (Al)	4	0	<0.010	--
	Iron (Fe)	11	1	0.480	--
	Manganese (Mn)	11	11	0.240	0.2183
A-24	Lead (Pb)	2	0	<0.003	--
	Copper (Cu)	2	2	0.011	0.0075
	Zinc (Zn)	7	2	0.17	--
	Aluminum (Al)	2	0	<0.050	--
	Iron (Fe)	7	7	0.600	0.2257
	Manganese (Mn)	7	7	2.320	1.5247
A-25	Lead (Pb)	2	0	<0.003	--
	Copper (Cu)	2	2	0.002	0.0020
	Zinc (Zn)	7	0	<0.010	--
	Aluminum (Al)	2	0	<0.050	--
	Iron (Fe)	7	3	0.040	--
	Manganese (Mn)	7	7	0.400	0.1267
A-34	Lead (Pb)	4	0	<0.010	--
	Copper (Cu)	4	0	<0.010	--
	Zinc (Zn)	4	0	<0.010	--
	Aluminum (Al)	4	0	<0.100	--
	Iron (Fe)	4	0	<0.030	--
	Manganese (Mn)	4	2	0.020	0.0150
A-40	Lead (Pb)	4	0	<0.010	--
	Copper (Cu)	4	0	<0.010	--
	Zinc (Zn)	4	0	<0.010	--
	Aluminum (Al)	4	0	<0.100	--
	Iron (Fe)	4	4	1.220	1.0100
	Manganese (Mn)	4	4	0.800	0.7700
A-46	Lead (Pb)	4	0	<0.010	--
	Copper (Cu)	4	0	<0.010	--
	Zinc (Zn)	4	0	<0.010	--
	Aluminum (Al)	2	0	<0.100	--
	Iron (Fe)	4	2	0.230	0.0900
	Manganese (Mn)	4	3	0.890	0.3575

Table 3.2-1. South Extension Development Area Alluvial Groundwater Quality – Select Dissolved Metals Concentrations (Continued).

WRI Monitor Well No.	Parameter	Number of Samples[1]	Number of Samples Above Detection Limit	Maximum Concentration (mg/L)	Mean Concentration (mg/L)
A-48	Lead (Pb)	4	0	<0.010	--
	Copper (Cu)	4	0	<0.010	--
	Zinc (Zn)	4	0	<0.010	--
	Aluminum (Al)	2	0	<0.100	--
	Iron (Fe)	4	4	2.060	1.3775
	Manganese (Mn)	4	4	1.410	1.3700
B-41A	Lead (Pb)	5	0	<0.010	--
	Copper (Cu)	5	0	<0.010	--
	Zinc (Zn)	5	0	<0.010	--
	Aluminum (Al)	1	0	<0.100	--
	Iron (Fe)	5	5	0.170	0.0490
	Manganese (Mn)	5	5	0.040	0.0180
B36A	Lead (Pb)	4	0	<0.010	--
	Copper (Cu)	4	0	<0.010	--
	Zinc (Zn)	4	0	<0.010	--
	Aluminum (Al)	1	1	<0.100	--
	Iron (Fe)	4	4	<0.030	--
	Manganese (Mn)	4	4	<0.030	--
B43A	Lead (Pb)	6	0	<0.010	--
	Copper (Cu)	2	0	<0.010	--
	Zinc (Zn)	6	0	<0.010	
	Aluminum (Al)	2	0	<0.100	--
	Iron (Fe)	6	6	0.760	0.6050
	Manganese (Mn)	6	6	0.380	0.2800

[1] Most baseline samples were collected in 2005 and 2006, although sampling began in December 2002 at those wells having been sampled up to 11 times.

Source: Hydrometrics 2006a and 2006b

EPA's comment states "the Final EIS should provide further information and discussion regarding the potential for elevated levels of metals to be present in surface waters in the project area, as well as in mine drainage and/or stormwater runoff from the mine." Table 3.2-2 lists the historical mean and maximum dissolved lead, copper, zinc, aluminum, iron and manganese concentrations in all surface water quality samples collected from streams in the Absaloka Mine area that contained total suspended solids (TSS) concentrations greater than 70 milligrams per liter (mg/L). Table 3.2-3 lists the historical mean and maximum concentrations for these same parameters in all surface water quality samples collected from streams in the Absaloka Mine area that contained TSS concentrations less than 70 mg/L. These data, which are a comprehensive representation of background surface water quality in the Sarpy Creek drainage basin, were taken from WRI's statistical summary tables of surface water quality analyses for all samples collected from Absaloka Mine's surface water monitoring sites. As mentioned above, WRI requested these data be made a part of Form 2D in their NPDES Permit Application. Tables 3.2-2 and 3.2-3 satisfy EPA's request that "long-term water quality data

Table 3.2-2. Surface Water Quality – Select Dissolved Metals Concentrations for Samples Having Total Suspended Solids Concentrations Greater Than 70 mg/L.

WRI Surface Water Monitoring Site No.	Parameter	Number of Samples[1]	Number of Samples Above Detection Limit	Maximum Concentration (mg/L)	Mean Concentration (mg/L)
G-1	Lead (Pb)	1	0	<0.01	--
	Copper (Cu)	1	0	<0.01	--
	Zinc (Zn)	3	2	0.03	0.018
	Aluminum (Al)	1	0	<0.10	--
	Iron (Fe)	3	3	0.35	0.23
	Manganese (Mn)	3	3	0.04	0.04
G-6	Lead (Pb)	2	0	<0.01	--
	Copper (Cu)	2	0	<0.01	--
	Zinc (Zn)	4	1	0.02	--
	Aluminum (Al)	2	2	0.40	0.30
	Iron (Fe)	4	4	0.53	0.29
	Manganese (Mn)	4	4	0.07	0.04
G-8	Lead (Pb)	0	--	--	--
	Copper (Cu)	0	--	--	--
	Zinc (Zn)	2	1	0.01	--
	Aluminum (Al)	0	--	--	--
	Iron (Fe)	2	2	0.70	0.40
	Manganese (Mn)	2	2	0.16	0.16
G-10	Lead (Pb)	0	--	--	--
	Copper (Cu)	0	--	--	--
	Zinc (Zn)	2	0	<0.01	--
	Aluminum (Al)	0	--	--	--
	Iron (Fe)	2	2	0.41	0.28
	Manganese (Mn)	2	2	0.09	0.05
G-11	Lead (Pb)	0	--	--	--
	Copper (Cu)	0	--	--	--
	Zinc (Zn)	1	1	0.01	0.01
	Aluminum (Al)	0	--	--	--
	Iron (Fe)	1	1	0.46	0.46
	Manganese (Mn)	1	1	0.03	0.03
G-13	Lead (Pb)	1	0	<0.01	--
	Copper (Cu)	1	0	<0.01	--
	Zinc (Zn)	1	1	0.01	0.01
	Aluminum (Al)	0	--	--	--
	Iron (Fe)	1	1	1.87	1.87
	Manganese (Mn)	1	1	0.03	0.03

[1] Samples were collected between 1986 and 2006.
Source: WRI's historical surface water quality database.

Table 3.2-3. Surface Water Quality – Select Dissolved Metals Concentrations for Samples Having Total Suspended Solids Concentrations Less Than 70 mg/L.

WRI Surface Water Monitoring Site No.	Parameter	Number of Samples[1]	Number of Samples Above Detection Limit	Maximum Concentration (mg/L)	Mean Concentration (mg/L)
G-1, G-4, G-5, G-6, G-7, G-8, G-9, G-10, G-11, G-12, G-13, and G-14	Lead (Pb)	79	7	0.01[2]	0.006
	Copper (Cu)	79	5	0.01[3]	0.005
	Zinc (Zn)	162	72	0.07[4]	0.012
	Aluminum (Al)	79	16	0.60[5]	0.075
	Iron (Fe)	162	140	1.56[6]	0.137
	Manganese (Mn)	161	146	3.80[7]	0.208

[1] Samples were collected between 1979 and 2006.
[2] Maximum sample collected at Site G-8 on June 5, 1979.
[3] Maximum sample collected at Site G-8 on December 3, 1981.
[4] Maximum sample collected at Site G-4 on June 4, 1979.
[5] Maximum sample collected at Site G-1 on April 4, 1988.
[6] Maximum sample collected at Site G-8 on January 21, 2005
[7] Maximum sample collected at Site G-8 on March 29, 2002.

Site G-8 is currently active and located on East Fork Sarpy Creek upstream of the Absaloka Mine.
Site G-4 is discontinued and was located on Middle Fork Sarpy Creek at its mouth.
Site G-1 is currently active and located on Sarpy Creek between East Fork Sarpy Creek and Middle Fork Sarpy Creek confluences.

Source: WRI's historical surface water quality database.

for Sarpy Creek" be included in the Final EIS. These data substantiate that surface waters in the Sarpy Creek drainage basin are relatively high in dissolved iron and manganese concentrations. As stated on page 3-84 of the Draft EIS, total iron and manganese concentrations are significantly high in relation to domestic water use (Hydrometrics 2006b). As for the other trace metals of concern (copper, lead, zinc, and aluminum), dissolved concentrations are typically less than the analytical detection limits or are much below the SMCLs. The MCL for dissolved copper was never exceeded, the dissolved lead concentration exceeded the analytical detection limit (therefore exceeding its MCL, which is zero) a total of seven times at various sites since 1979, and there are no MCLs for zinc and aluminum.

Table 3.2-4 provides the historical mean and maximum concentrations for these metals of concern in all water quality samples that have been collected to date from Absaloka Mine's MPDES outfall sites. These data represent mine drainage and/or stormwater runoff from the mine. Only samples collected from Outfall 001 over the period of record have been analyzed for these six trace metals of concern. All samples collected from Outfall 001, which as stated above represent drainage from the mine's coal processing area in addition to rainfall runoff, have dissolved copper, aluminum, zinc, iron, and manganese concentrations less than their SMCLs, and the dissolved lead concentration exceeded the analytical detection limit (therefore exceeding its

Table 3.2-4. Surface Water Quality – Select Dissolved Metals Concentrations for All Samples Collected From Absaloka Mine's MPDES Outfall Sites.

MPDES Outfall Site No.	Parameter	Number of Samples	Number of Samples Above Detection Limit	Maximum Concentration (mg/L)	Mean Concentration (mg/L)
Outfall 001 (Site G-2)	Lead (Pb)	10[1]	1	0.01	0.007
	Copper (Cu)	10[1]	3	0.01	0.007
	Zinc (Zn)	13[1]	11	0.65	0.218
	Aluminum (Al)	11[1]	1	0.20	0.064
	Iron (Fe)	13[1]	4	0.07	0.028
	Manganese (Mn)	12[1]	6	0.12	0.030
Outfall 001 (Site G-2)	Lead (Pb)	0[2]	--	--	--
	Copper (Cu)	0[2]	--	--	--
	Zinc (Zn)	0[2]	--	--	--
	Aluminum (Al)	0[2]	--	--	--
	Iron (Fe)[3]	3[2]	3	4.37	2.899
	Manganese (Mn)	0[2]	--	--	--
Outfalls 002, 003, 004, 005, 006, 007, 008, and 010	Lead (Pb)	0[1]	--	--	--
	Copper (Cu)	0[1]	--	--	--
	Zinc (Zn)	2[1]	2	0.02	0.015
	Aluminum (Al)	0[1]	--	--	--
	Iron (Fe)	42[1]	38	0.68	0.237
	Manganese (Mn)	2[1]	0	--	--
Outfalls 002, 003, 004, 005, 006, 007, 008, and 010	Lead (Pb)	0[2]	--	--	--
	Copper (Cu)	0[2]	--	--	--
	Zinc (Zn)	0[2]	--	--	--
	Aluminum (Al)	0[2]	--	--	--
	Iron (Fe)[3]	16[2]	16	44.0	7.829
	Manganese (Mn)	0[2]	--	--	--

[1] Samples with Total Suspended Solids (TSS) < 70 mg/L.
[2] Samples with TSS > 70 mg/L.
[3] Total Fe reported rather than dissolved fraction.
Source: WRI's historical surface water quality database.

MCL, which is zero) in one sample. Outfall samples collected from the mine's other MPDES discharge sites have not been analyzed for lead, copper, and aluminum. As indicated by Table 3.2-4, discharge samples having a TSS concentration greater than 70 mg/L have been analyzed for total iron only and no other metals.

Given these historical background surface water quality data for Sarpy Creek and its tributaries in the Absaloka Mine area and the mine's existing outfall water quality data, it can be reasonably assumed that these metals of concern, with the possible exception of iron and manganese, should not be present in elevated concentrations in mine drainage and/or stormwater runoff from the South Extension. Regardless of the monitoring requirements and effluent limitations that EPA sets forth in WRI's NPDES discharge permit, and because discharges from Absaloka Mine's outfalls are so infrequent, WRI intends to initiate a monitoring program at all outfalls in order to better characterize

effluent discharges with respect to metals so that a suitable data record can be established to support future NPDES and MPDES permitting.

EPA's comment stating that the water quality data WRI sent to EPA's NPDES permit staff seem inconsistent with statements made in the Draft EIS that dissolved metals concentrations (with the exception of iron and manganese) are typically low for alluvial groundwater present within the South Extension development area would be understandable if a comparison between the total metals concentrations in background surface waters and existing MPDES outfalls with the dissolved metals concentrations in Middle Fork Sarpy Creek alluvial groundwater was valid; however, it is not a valid comparison for the following reasons:

- EPA is comparing total metals concentrations in surface waters with dissolved metals concentration in alluvial groundwaters. Surface waters typically carry various amounts of suspended particles; whereas ground waters typically have very little or no suspended solids. A chemical constituent in water can be either dissolved in the water or it could be attached firmly to the suspended solids in the water column. A chemical constituent in water can be partly dissolved and partly bound to the suspended solids present. The sum of the dissolved portion and the portion that is bound to the solid particles is the total concentration. For obvious reasons, the concentrations of solutes in surface waters and ground waters cannot be compared unless concentrations reported in the analyses represent amounts "in solution". "In solution" is taken to mean material not removed by filtration (Hem 1970).

- The mining and reclamation plan for the South Extension development area is designed to avoid disturbance to Middle Fork Sarpy Creek and its alluvial deposits by not disturbing a corridor 500 to 600 feet wide that includes the stream channel (Draft EIS, page 3-87). To the extent possible, WRI plans to avoid intersecting saturated alluvial deposits during mining, thus minimizing the potential to impact the alluvial aquifer and intercept alluvial groundwater by the mine excavations (Draft EIS, page 3-71).

- WRI plans to route all groundwater and surface runoff intercepted by the pits in the South Extension to internal sumps for use in dust control on haul roads (Draft EIS, page 3-87). Any discharge of excess water from those internal sumps would occur only at proposed MPDES outfalls located north of the Crow Indian Reservation. NPDES outfalls located within the exterior boundary of the Crow Indian Reservation would discharge only runoff resulting from rainfall or snowmelt. Water routed to these outfalls would have minimal contact time with soil materials, and because soils in the area are alkaline, the potential for the dissolution of metals is minimal.

The maximum and mean total alkalinity, as $CaCO_3$ (calcium carbonate) concentrations, of 158 surface water quality samples collected in the Absaloka Mine area (data from WRI's surface water quality database) are 1,000 mg/L and 430 mg/L, respectively, which indicates that the area's surface waters are very hard. In addition, of 227 surface water quality samples, the mean laboratory pH value is 8.0 and the maximum value is 9.0, indicative of alkaline conditions.

3.2.2 Letter 1, Comment 2

Please refer to the response to Letter 1, Comment 1.

3.2.3 Letter 1, Comment 3

The second to last sentence of the referenced paragraph on page 3-101 of the Draft EIS states, "Development of TMDLs [Total Maximum Daily Loads] has not yet started for the lower Yellowstone watershed, including Sarpy Creek." Because this section addresses water quality standards with respect to discharges from the proposed mining operation, it is appropriate that the following statement be included in this paragraph, as EPA suggests:

> The State of Montana is scheduled to develop a TMDL for nutrients in the lower Yellowstone watershed, including Sarpy Creek, during the life of Absaloka Mine's proposed South Extension development plan.

3.2.4 Letter 1, Comment 4

Table 3.2-5 presents a statistical summary of the nitrogen compound (ammonium, total Kjehldahl nitrogen, and nitrite + nitrate as nitrogen) concentrations in water quality samples collected from Absaloka Mine's surface water monitoring sites. Site locations are described within the table's footnotes. The two single highest concentrations of nitrate + nitrite as nitrogen (both are 5.72 mg/L) occurred in samples collected from monitoring Sites G-6 and G-8. Site G-8 is located on East Fork Sarpy Creek upstream of all mine disturbance and outfalls, while Site G-6 is located on a tributary of East Fork Sarpy Creek downstream of mine Outfall 012, but is also located near where livestock are commonly concentrated during the winter seasons. Twenty-seven and 56 samples from Sites G-6 and G-8, respectively, have been analyzed for nitrate + nitrite as nitrogen, and the mean concentrations of this compound at these sites (both are 0.49 mg/L) are greater than at Site G-1 (0.20 mg/L), which is located on Sarpy Creek immediately downstream of Outfall 001. Samples collected from Sites G-10 and G-11 represent baseline, premining surface water quality conditions for Middle Fork Sarpy Creek in the South Extension development area. As Table 3.2-5 indicates, samples from Sites G-10 and G-11 have been analyzed for nitrate + nitrite as nitrogen only twice and once, respectively. Livestock are commonly concentrated during the winter seasons in the Middle Fork valley near where these two monitoring sites are located, and as these few data indicate, the nitrate + nitrite as nitrogen

Table 3.2-5. Historical Nitrogen Compound Concentrations Determined at Surface Water Monitoring Stations in the Absaloka Mine Area.

Site Number	Nitrogen Compound	Period of Record	Total Number of Samples	Concentration mg/L		
				Min	Max	Mean
G-1[1]	Ammonium (NH_4 – N)	4-3-79 through 6-24-80	12	<0.05	0.68	0.27
	Total Kjeldahl Nitrogen as N	4-3-79 through 6-24-80	12	0.28	1.71	1.13
	Nitrate + Nitrite as N	4-3-79 through 3-01-06	50	0.01	2.78	0.20
G-5[2]	Nitrate + Nitrite as N	3-2-06	1	0.25	0.25	0.25
G-6[3]	Ammonium (NH_4 – N)	4-18-80 through 6-26-80	3	<0.05	0.51	0.26
	Total Kjeldahl Nitrogen as N	4-18-80 through 6-26-80	3	1.26	6.84	3.26
	Nitrate + Nitrite as N	4-18-80 through 1-19-05	27	0.02	5.72	0.49
G-8[4]	Ammonium (NH_4 – N)	4-30-79 through 6-26-80	16	<0.01	1.08	0.19
	Total Kjeldahl Nitrogen as N	4-30-79 through 6-26-80	16	0.45	9.11	1.26
	Nitrate + Nitrite as N	4-30-79 through 3-01-06	56	0.02	5.72	0.49
G-10[5]	Nitrate + Nitrite as N	3-14-03 through 1-20-05	2	0.32	1.22	0.77
G-11[6]	Nitrate + Nitrite as N	1-20-05	1	0.53	0.53	0.53
G-12[7]	Nitrate + Nitrite as N	3-21-06	1	<0.05	<0.05	<0.05
G-13[8]	Nitrate + Nitrite as N	9-29-05 through 5-12-06	4	<0.05	<0.05	<0.05
G-15[9]	Nitrate + Nitrite as N	3-17-06 and 5-16-06	2	<0.05	<0.05	<0.05

Site Locations are as follows:
1 Sarpy Creek, immediately downstream of MPDES Outfall Site 001 (G-2).
2 East Fork Sarpy Creek, adjacent to mine.
3 East Fork Sarpy Creek tributary, adjacent to mine.
4 East Fork Sarpy Creek, upstream of mine.
5 Middle Fork Sarpy Creek, approximately 2 miles downstream of Crow Indian Reservation boundary.
6 Middle Fork Sarpy Creek, near Crow Indian Reservation boundary.
7 Sarpy Creek, upstream of mine and adjacent to South Extension area.
8 Sarpy Creek, stock reservoir upstream of mine and adjacent to South Extension area.
9 Middle Fork Sarpy Creek, upstream of South Extension development area.

concentrations are considerably higher in this area than at Site G-15, which is located upstream of the South Extension development area.

Table 3.2-6 presents a statistical summary of the nitrogen compound concentrations in all water quality samples that have been collected to date

Table 3.2-6. Historical Nitrogen Compound Concentrations Determined at Absaloka Mine MPDES Outfall Monitoring Stations.

MPDES Outfall Site Number	Nitrogen Compound	Total Number of Samples	Concentration mg/L		
			Min	Max	Mean
Outfall 001 (Site G-2)[1]	Ammonium ($NH_4 - N$)	11	0.005	0.47	0.14
	Total Kjeldahl Nitrogen as N	11	0.38	3.47	0.87
	Nitrate + Nitrite as N	22	0.13	12.20	2.83
Outfall 002 (Site G-3)[2]	Nitrate + Nitrite as N	2	0.025	0.08	0.05

Site Locations are as follows:
[1] Dry Coulee Dam site. Mine process water (drainage from coal crushing and loading facilities and water pumped from mine pits) and storm water runoff.
[2] South Coulee below Dam 5 site. Primarily storm water runoff from reclaimed areas.

from Absaloka Mine's MPDES outfall sites. Twenty-two samples from Outfall 001 (Site G-2) have been analyzed for nitrate + nitrite as nitrogen. Both the maximum and mean concentrations (12.20 mg/L and 2.83 mg/L, respectively) of this nitrogen compound are higher in samples from this site than at any of the mine's surface water monitoring sites, as shown on Table 3.2-5. However, as discussed above, the nitrate + nitrite as nitrogen concentrations in samples collected at Site G-1 (50 total) are less than in samples collected at Site G-8 (56 total). These water quality data do not indicate that the concentrations of nitrogen compounds are greater in surface waters sampled downstream of the mine's outfalls than in surface waters sampled upstream of the mine's outfalls.

There has been no evidence of increasing nitrogen compounds observed at any of WRI's monitoring wells. The following paragraph, which is included in Section 3.5.1.1.1 on page 3-56 of the Draft EIS, addresses EPA's concern:

> The highest levels of nitrate + nitrite as nitrogen observed at all of WRI's groundwater monitoring wells, including those completed in the alluvial, overburden, Rosebud-McKay coal seam, interburden, Robinson coal seam, sub-Robinson unit, and backfilled spoils aquifers, occur in samples collected from alluvial wells A-16, A-18, and A-24 (Figure 3-9). The historical maximum concentrations of nitrogen at these three wells ranges from 1.87 to 4.17 mg/L and the historical mean concentrations range from 0.47 to 1.66 mg/L. These three alluvial wells are located in the Middle Fork Sarpy Creek valley, near where livestock are commonly concentrated during the winter seasons. High concentrations of nitrate in shallow groundwater are strongly associated with agricultural land use, particularly in areas with more intensive use of fertilizers and/or places where large numbers of livestock are found (USGS 1999).

3.2.5 Letter 1, Comment 5

EPA is concerned about the potential reduction in Middle Fork Sarpy Creek alluvial groundwater flow rate as a result of mining the South Extension development area. EPA's comment expresses concern about the potential effects to Middle Fork Sarpy Creek resulting from reductions in alluvial groundwater flows. A thorough understanding of recharge to and discharge from the Middle Fork Sarpy Creek alluvial groundwater system within and near the South Extension development area is necessary in order to ascertain and conclude that a loss of alluvial groundwater flow in this area would not result in a discernable impact to Sarpy Creek streamflows downstream of the mine area.

Middle Fork Sarpy Creek is an ephemeral stream. Flow events occur rarely and are only in response to snowmelt and/or rainfall runoff. The hydrologic function of Middle Fork Sarpy Creek is to convey streamflow and provide a component of recharge to its alluvial aquifer. There are no gaining reaches where streamflow is augmented by discharging alluvial groundwater.

The various components of recharge to the Middle Fork Sarpy Creek alluvial groundwater system are described in the following section of the Draft EIS:

> Section 3.5.1.1.1, page 3-54
> Water levels measured from the alluvial monitoring wells show slight seasonal fluctuations, typically less than two feet. Groundwater elevations increase in the spring in response to snowmelt and precipitation runoff, and then decrease throughout the remainder of the year (Hydrometrics 2006a and WWC 2004). A component of recharge to the alluvium is from streamflow infiltration; however, there is also a component of recharge to the alluvium from the subcropping Rosebud-McKay coal seams and overburden (Hydrometrics 2006a and WWC 2004).
>
> Groundwater flow directions in the overburden and Rosebud-McKay coal seams within the general analysis area are toward the aquifers' subcrops beneath Middle Fork Sarpy Creek alluvial valley fill deposits. Overburden and Rosebud-McKay groundwater levels monitored in 2005 and 2006 in the general analysis area indicate that groundwater in these units is flowing toward the drainage bottom and discharging to the alluvium (Hydrometrics 2006a).
>
> In conclusion, Middle Fork Sarpy Creek alluvium upstream of the Crow Indian Reservation boundary receives recharge from streamflow and subcropping aquifers and stores and conveys groundwater downstream. The amount of groundwater flowing downstream through the alluvium of Middle Fork near the Reservation boundary was calculated to be 392 gallons per minute (gpm) in November 2003 (WWC 2004) and 123 gpm in October 2005 (Hydrometrics 2006a).

Discharge from the Middle Fork Sarpy Creek alluvial aquifer is described in the following sections of the Draft EIS:

Section 3.5.1.1.1, page 3-54

Limited recharge occurs to bedrock units that lie beneath the alluvium except where zones of higher permeability bedrock occur. For example, at roughly 5,000 feet downstream of the Crow Indian Reservation boundary, the alluvial groundwater flow gradients become much steeper as the water moves vertically downward to recharge the underlying, sandy sub-Robinson unit that subcrops beneath the valley fill materials, leaving the alluvium essentially dry downstream (WWC 2004).

Section 3.5.1.2.1, page 3-71

The alluvial aquifer is recharged primarily from upstream runoff sources, of which only a small portion would be interrupted and captured during mining by the mine's drainage control measures.

Some interruption of lateral recharge to the alluvium may occur due to the interception of groundwater in the bedrock aquifers by the pits on either side of the Middle Fork Sarpy Creek drainage bottom. Groundwater flow through the alluvium directly north of the reservation boundary has been estimated to be 123 gpm to 392 gpm (Hydrometrics 2006a and WWC 2004). Groundwater flow calculated for the overburden and Rosebud-McKay coal units within the South Extension development area are 11 gpm and 25.5 gpm, respectively (Hydrometrics 2006a). Mining would interrupt recharge from these units to the alluvium; therefore, assuming all flow is abruptly cut off, a maximum reduction in groundwater flow through the Middle Fork alluvial aquifer system of up to 30 percent could occur.

Groundwater flowing through the Middle Fork alluvium provides recharge to the sub-Robinson units immediately downstream of the South Extension development area (Section 3.5.1.1.1). As a result, the alluvium is dry or nearly dry in the lower portion of the Middle Fork Sarpy Creek drainage basin. Therefore, no discernable impacts to the overall Sarpy Creek hydrologic system due to the loss of alluvial groundwater flow during mining are expected.

Section 3.6.1, page 3-108

The 2004 AVF assessment concluded that the unconsolidated stream laid deposits of Middle Fork Sarpy Creek do not provide enough subirrigation to benefit or enhance agricultural activities. Furthermore, the agricultural cropland that does exist does not benefit from natural or artificial flood irrigation. There is essentially no underflow of alluvial groundwater in the unconsolidated stream laid deposits downstream of the 2004 AVF study area. Groundwater that exists within the valley fill deposits in the AVF

study area moves laterally downvalley until contacting the permeable sub-Robinson unit subcropping beneath the valley fill. At that point, the alluvial groundwater moves vertically downward to recharge the sub-Robinson unit, which in effect drains the valley fill and leaves it essentially dry downstream (refer to Section 3.5.1.1.1). Therefore, no essential hydrologic functions, with respect to making the natural flow of groundwater usefully available for agricultural activities, are performed by Middle Fork Sarpy Creek (WWC 2004, Hydrometrics 2006a).

Impacts to the groundwater levels in the overburden and coal aquifers are described, and figures illustrating the extent of modeled life-of-mine drawdown in these two aquifers (Figures 3-10 and 3-11) are included in Section 3.5.1.2.1 of the Draft EIS. These drawdown predictions, as well as the rates of groundwater extractions from these two aquifers during mining, were modeled by Nicklin (2006) and included in WRI's permit applications to the Montana Department of Environmental Quality (MDEQ) and the Office of Surface Mining Reclamation and Enforcement (OSM). Nicklin did not model drawdown impacts to the alluvial aquifer, because any potential mining-related drawdown in the alluvial aquifer would not be due to direct discharge from the alluvium to the mine excavations. However, the following statement is made in the Draft EIS, "Additional groundwater inflow could occur in areas where mining is conducted adjacent to saturated alluvial sediments with water levels above the base of the McKay coal seam. To reduce the potential for dewatering saturated alluvial deposits and increasing pit inflows, WRI plans to employ best management practices (BMPs), such as leaving competent coal between the alluvial deposits and the pits. Localized, short-term dewatering of the alluvium may occur if an excavation unintentionally intersected the edge of saturated alluvial deposits, but WRI would alter mining in that area as necessary to avoid excessive, long-term alluvial dewatering."

As stated in the Draft EIS, "some interruption of lateral recharge to the alluvium may occur due to the interception of groundwater in the bedrock aquifers by the pits on either side of the Middle Fork Sarpy Creek drainage bottom." In effort to address the maximum potential impact of mining on the Middle Fork's alluvial aquifer, the Draft EIS states "assuming all flow is abruptly cut off, the maximum reduction in groundwater flow through the Middle Fork alluvial aquifer system of up to 30 percent could occur." The 30 percent reduction in alluvial groundwater flow is a worst-case scenario and is based on an abrupt and complete loss of all overburden and coal groundwater recharge to the alluvial aquifer over the entire mine life. The 30 percent disruption of alluvial groundwater flow is the ratio of total recharge to the alluvial aquifer from the bedrock units (estimated to be 11 gpm from the overburden plus 25.5 gpm from the coal, for a total of 36.5 gpm) within the South Extension development area, to the conservative estimate of alluvial groundwater flow (123 gpm) at the reservation boundary.

Groundwater flow directions in the overburden and Rosebud-McKay coal seams within the general analysis area are presently toward the aquifers'

subcrops beneath Middle Fork Sarpy Creek alluvial valley fill deposits. The proposed mine pits on both sides of the valley will intercept that groundwater flow before it reaches the aquifers' alluvial subcrops. Therefore, regardless of how wide the no disturbance buffer zone is made, either the open mine pits or the backfilled mine pits will inevitably intercept all overburden and coal seam groundwater that presently flows toward the valley and discharges to the alluvium in the South Extension development area.

In summary, Middle Fork Sarpy Creek alluvium upstream of the Crow Indian Reservation boundary receives recharge from streamflow and subcropping aquifers and stores and conveys groundwater downstream. Assuming a worst-case scenario were to occur, which would be the abrupt loss of all lateral recharge to the Middle Fork Sarpy Creek alluvial aquifer from bedrock aquifers that are mined in the South Extension development area (regardless of the width of the no disturbance riparian buffer zone), there would be a maximum of 30 percent reduction in alluvial groundwater flow out of (downstream/downgradient of) the proposed development area. However, there would be no net effect to the overall Sarpy Creek system due to the loss of alluvial groundwater flow to the sub-Robinson unit, which naturally occurs approximately 5,000 to 6,000 feet downstream of the reservation boundary. Monitored alluvial groundwater levels in that area indicate the alluvium is essentially dry; therefore, alluvial groundwater flow has little or no affect on streamflows in the lower portion of the Middle Fork Sarpy Creek watershed.

MDEQ suspects that the sub-Robinson unit may discharge to the Sarpy Creek alluvium and thus contribute to the base flow of Sarpy Creek at some point downstream of the South Extension development area (McDannel 2008). However, there are no data available to support this hypothetical relationship and it is therefore not included in the EIS.

3.2.6 Letter 1, Comment 6

The following statement, which is included in Section 3.5.1.3 on page 3-76 of the Draft EIS, addresses EPA's concern: "Federal law and Montana regulations require mine operators to provide the owner of a water right whose water source is interrupted, discontinued, or diminished by mining with water of equivalent quantity and quality." In addition, the following is included in Section 4.2.4.1 of the Draft EIS, "Montana State law (MCA 82-11-175) requires coal bed natural gas (CBNG) operators to offer a reasonable mitigation agreement to each person who holds an appropriation right or a permit to appropriate groundwater and for which the point of diversion is within one mile of a CBNG well; or one-half mile of a well that is adversely affected by a CBNG well. These mitigation agreements must address the reduction of loss of water resources and must provide for prompt supplementation or replacement of water from any natural spring or water well adversely affected by the CBNG well."

There would be no adverse impacts to flows in Middle Fork Sarpy Creek as a result of cumulative drawdowns in the Rosebud-McKay coal seam from mining and CBNG development, should it occur very near to the Absaloka Mine in the future. Please refer to the response to Comment 5. Regardless of the time required for groundwater levels to recover due to overlapping drawdowns caused by both mining and CBNG development, alluvial groundwater flow downstream/downgradient of the South Extension development area has essentially no effect on Middle Fork Sarpy Creek streamflows.

3.2.7 Letter 1, Comment 7

No response necessary.

3.2.8 Letter 1, Comment 8

Figure 3-14 in the Draft EIS depicts the wetland areas that were mapped by the U.S. Fish and Wildlife Service (USFWS) using 1980 color infrared aerial photographs of the Middle Fork Sarpy Creek drainage. As stated on pages 3-111 and 3-113 of the Draft EIS, the USFWS mapped potential wetland areas along the length of Middle Fork in 1998 using 1980 photography, and a series of wet years preceding 1980 resulted in a greater areal extent of lush drainage bottom vegetation than was delineated by the 2005 baseline vegetation mapping. This region has experienced a moderate to severe drought cycle that has persisted since 2000, and the recent field surveys of soils and vegetation demonstrate that areas having wetland characteristics do occur, but are much more limited in areal extent than the NWI mapping. As stated in Section 3.7.1 of the Draft EIS, due to the seasonal nature of Middle Fork Sarpy Creek streamflow events, the wetland boundaries and extent of the wetland areas reflects conditions during the specific year and season when they were determined and may vary depending on the recent climatic conditions. Therefore, the NWI mapping was not used to identify potential wetlands occurring along Middle Fork Sarpy Creek and its tributaries, but rather, the 2005 vegetation and soils mapping were used to delineate areas having wetland characteristics.

For the purpose of this analysis, potential wetlands were considered to exist in areas where both herbaceous drainage bottom vegetation and hydric soils occur. Detailed views of those areas are illustrated in Figure 3-15 of the Draft EIS. Figure 3-15 was included to depict where the potential wetlands would be disturbed at the road and dragline crossings over the stream channel, and as stated in Section 3.7.2.1 of the Draft EIS, "only about one acre of potential wetlands, as delineated by the presence of both hydric soils and herbaceous drainage bottom vegetation, would be disturbed at the crossings (Figure 3-15, Details 2 and 4)."

EPA requests that all wetlands outside the riparian no-disturbance corridor that may be impacted by mining the South Extension development area be quantified and disclosed. Excluding the dragline crossings, there is one

additional area of potential wetlands that would be disturbed by mining. That area, which is identified by the presence of both hydric soils and herbaceous drainage bottom vegetation, is approximately 0.4 acre in area and located on an unnamed ephemeral tributary of Middle Fork Sarpy Creek. Detail View 3 in Figures 3-14 and 3-15 in the Draft EIS depict the location and extent of this potential wetland area. Therefore, the last sentence of Section 3.7.2.1 in the Draft EIS should read as follows:

> The 0.9 acre of potential wetlands that would be disturbed by the road and dragline crossings over the channel and the 0.4 acre of potential wetlands that occurs outside the riparian corridor that would be disturbed by mining would be restored when the crossings are removed and during the reclamation of the South Extension development areas, and there would be no net loss of wetlands.

3.2.9 Letter 1, Comment 9

Section 3.7.3 of the Draft EIS discusses the requirement of Clean Water Act (CWA) Section 404 to obtain a permit for the discharge of dredged or fill materials into waters of the U.S. As such, inference is made that WRI would be required to obtain a Section 404 permit from the U.S. Army Corps of Engineers (COE) for the construction of the dragline crossings over Middle Fork Sarpy Creek, should the COE determine that Middle Fork Sarpy Creek is under its jurisdiction as waters of the U.S. The construction of the three road/dragline crossings would require the Absaloka Mine to place culverts and fill materials within the Middle Fork Sarpy Creek stream channel and valley, which infers that WRI would be required to obtain a CWA Section 404 permit should the COE determine that Middle Fork Sarpy Creek is under its jurisdiction as waters of the U.S. EPA requests that more direct language be used; therefore, in response to this comment the following sentence should be added to the end of the first paragraph of Section 3.7.3 of the Draft EIS:

> The construction of the three road/dragline crossings would require the Absaloka Mine to place culverts and fill materials within the Middle Fork Sarpy Creek stream channel and valley. Should the COE determine that Middle Fork Sarpy Creek is under its jurisdiction as waters of the U.S., WRI would in that case be required to obtain a CWA Section 404 permit from the COE for the construction of the dragline crossings over Middle Fork Sarpy Creek.

3.2.10 Letter 1, Comment 10a

No response necessary.

3.2.11 Letter 1, Comment 10b

No response necessary.

3.2.12 Letter 1, Comment 10c

Table 2-4 in the Draft EIS is a summary comparison of magnitude and duration of cumulative impacts. Chapter 4 addresses these cumulative impacts in detail.

The cumulative air quality consequences section begins on page 4-20 in the Draft EIS. The first paragraph of Section 4.2.3 of the Draft EIS describes the various tasks of the Bureau of Land Management's (BLM's) Powder River Basin (PRB) Coal Review. The Task 1A report for the PRB Coal Review documents the modeled PRB air quality impacts of operations during a baseline year (2002) using actual emissions and operations for that year. The Task 2 report for the PRB Coal Review identified reasonably foreseeable development activities for the years 2010, 2015, and 2020. The Task 3A report for the PRB Coal Review evaluates the impacts on air quality and air quality-related values that are projected to occur for the year 2010 using the development levels projected for 2010 and the same model and meteorological data that were used for the baseline year study in the Task 1A report. Impacts for 2015 and 2020 were projected qualitatively based on evaluation of anticipated changes in emissions and on modeled impacts for the 2010 lower and upper production scenarios. Existing and projected emissions sources for the baseline year (2002) and 2010 analyses were identified by BLM within the Montana PRB study area comprised of Rosebud, Custer, Powder River, Big Horn, and Treasure counties.

The cumulative modeled visibility impacts for the baseline year and for the upper and lower coal production scenarios for 2010 for all Class I and Class II areas are described on page 4-23 and are listed in Table 4-6 on page 4-25 of the Draft EIS.

3.2.13 Letter 1, Comment 10d

No response necessary.

3.2.14 Letter 1, Comment 10 (additional)

BLM has committed to carry out additional detailed modeling for the PRB Coal Review; however, no revisions or additions have been made available to the public at this time.

EPA has recognized that there are uncontrollable natural events (i.e., wild fires and high winds) that can cause or significantly contribute to short-term, elevated particulate (PM_{10}) levels. EPA issued a Natural Events Policy (NEP) on May 30, 1996 to address this issue. Since 2001, a number of exceedances of the 24-hour PM_{10} NAAQS have occurred at the coal strip mines in the PRB of Wyoming. The majority of the exceedances were the result of high wind conditions exacerbated by severe drought conditions. In April 2006, the Wyoming Department of Environmental Quality (WDEQ) in a joint effort with Wyoming PRB mining stakeholders developed a detailed Natural Events Action

Plan (NEAP). The Wyoming NEAP was developed under the framework of EPA's NEP and it recognizes that certain National Ambient Air Quality Standards (NAAQS) exceedances due to natural events are uncontrollable. While the NEAP recognizes that certain NAAQS exceedances due to natural events are uncontrollable, best available control technology (BACT) and all practical mitigation measures must be implemented during those events.

Specific goals of the State of Wyoming's NEAP include providing a mechanism for flagging exceedances due to uncontrollable natural events and to provide for excluding flagged data when they meet specific wind speed criteria and mitigation measures are in place. When an exceedance occurs that the mine operator determines is due to a natural event, detailed reporting of contributing factors must be included in a data documentation package that is submitted to the WDEQ requesting exceedance of the 24-hour PM_{10} standard collected at their mine on a specific date be flagged as a natural event under NEAP.

The State of Wyoming's NEAP identifies two categories of control measures designed to prevent exceedances during high wind events in addition to the BACT measures. The first category is a listing of best available control measures (BACM) that the mines can implement on a continuous basis so that they are in place prior to a high wind event. These BACM primarily involve the stabilization of the large contiguous disturbance areas of the PRB mines. The second category of control measures are actions that can be taken during a high wind event. These two categories of control measures are not current requirements in all of the mines' air quality permits, but the WDEQ may require implementation of these control measures and continual evaluation of a mine's activity plans when exceedances are monitored.

EPA's suggestion that additional control measures, such as those implemented at the PRB mines in Wyoming that fall under Wyoming's NEAP, should be added to the Final EIS for the Absaloka Mine is not considered necessary for the following reasons.

As stated in Section 3.4.2.2.1, page 3-39 of the Draft EIS, OSM's Technical Adequacy Review Report of the air quality impact analysis in Mine Permit Application Package No. MT-0021-A found that "according to the results generated from the model, impacts to air quality from mining in the South Extension area will be consistent with historic monitoring results for the Absaloka Mine and will likely be negligible. OSM's review finds that the permit application contains information sufficient to be in accord with the requirements at 30 CFR 750.12(d)(2)(vi)."

As stated in Section 3.4.2.3, page 3-42 of the Draft EIS, WRI has demonstrated from earlier monitoring and recent additional monitoring that ambient air quality concentrations recorded at the mine did not exceed the levels outlined in the initial air quality permits. MDEQ amended the mine's air quality permit (#1418-03) in 1998 to remove the ambient air quality monitoring requirements. The ambient air quality monitoring requirements can be reinstated in the

future if MDEQ determines that it is necessary. Absaloka Mine's current air quality permit includes a commitment to continue employment of BACT on mine-wide emissions and concludes that the NAAQS would be protected through the life of the mine.

Air quality impacts would be similar to those expected from the existing mining operation. There would be no additional sources of fugitive or point source dust. Mining would continue at the current rate, the same geologic materials would be disturbed using the same mining equipment under the same mining methodology. The relative locations of emission sources such as topsoil removal areas, haul roads, and active pits areas would change slightly, but the numbers and types of sources would not. There have been no exceedances at the Absaloka Mine to date, the overall disturbance (unreclaimed) area at the Absaloka Mine is vastly less than the cumulative disturbance area of the large, contiguous mines in the Wyoming PRB, and the meteorological conditions are different at the Absaloka Mine than at the Wyoming PRB Mines in that high winds are not as frequent and prevalent.

3.2.15 Letter 1, Comment 11

The contribution of the Absaloka Mine to cumulative air quality conditions on the Northern Cheyenne Indian Reservation is relatively small. Table 3.2-7 shows the production rates for 2006 for coal mines in the immediate area and for those located in Campbell County, Wyoming. Approximate distances to the nearest Northern Cheyenne Reservation boundary are also shown. The Absaloka Mine is nearest to the reservation, but its production level is a fraction of most of the other mines in the area; it is near the northwest corner of the reservation while the Rosebud Mine is north of the reservation and the other mines are south. The cumulative effects of the Absaloka Mine are relatively small and isolated. These production data for Wyoming were found at website http://www.wma-minelife.com/coal/coalfrm/coalfrm1.htm, and those for Montana were found at website http://www.sourcewatch.org/index.php?title=Montana_and_coal.

"Near field" generally means a receptor that is located within 50 kilometers (approximately 31 miles) of the emitting sources. The information under discussion on page 4-26 of the Draft EIS comes from the BLM's PRB Coal Review Task 1A (BLM 2005c). This BLM study describes the near field as a set of receptors that extends at least 50 kilometers (roughly 31 miles) in all directions beyond the boundaries of the study area. Near-field receptor locations were arranged to obtain the maximum estimated concentrations that resulted from the sources identified for the study. The near field receptor grid was generally spaced at 1 kilometer (0.62 mile) intervals.

The PRB Coal Review Task 1A current air quality baseline study estimated the effects of the sources that were in existence or were permitted to be constructed as of 2002. This date includes the activities at the Absaloka Mine as well as all other coal mining activities in the study area. The increase in

Table 3.2-7. Approximate Distances and Directions from the Nearest Northern Cheyenne Indian Reservation Boundary to Montana and Wyoming PRB Coal Mines, and 2006 Mine Production Rates.

Mine	Approximate Distance and Direction from Northern Cheyenne Reservation Boundary	2006 Production (tons)	Multiple of Absaloka Production
Buckskin	40 miles south	22,768,30	3.3
Rawhide	45 miles south	17,092,993	2.5
Dry Fork	55 miles south	5,860,998	0.9
Eagle Butte	55 miles south	25,355,158	3.7
KFx (second year of production)	60 miles south	87,863	0.01
Wyodak	70 miles south	4,698,473	0.7
Caballo	75 miles south	32,700,000	4.8
Bell Ayr	80 miles south	24,593,035	3.6
Cordero Rojo	90 miles south	39,747,620	5.8
Coal Creek	95 miles south	3,097,584	0.5
Jacobs Ranch	115 miles south	40,000,376	5.9
Black Thunder	120 miles south	92,517,728	13.6
North Rochelle	120 miles south	No data	--
North Antelope/Rochelle	125 miles south	88,527,969	13.0
Decker	15 miles south	7,044,000	1.0
Spring Creek Coal	15 miles south	14,541,000	2.1
Rosebud	10 miles north	12,732,000	1.9
Absaloka	**5 miles northwest**	**6,807,000**	

days of visibility impairment predicted for 2010 is the result of the activities described in detail in the PRB Coal Review study Task 2. These include reasonably foreseeable developments (RFD) in coal and coal-related industries (e.g., railroads and power plants). Non-coal-related industries (e.g., oil and gas, etc.) are also described for the Wyoming PRB study area; however, only coal mine development and coal-related activities are included in the study for the Montana PRB study area. The areas that were assessed for RFD included:

- Coal;
- Power plants;
- Transportation;
- Coal technology;
- Transmission lines;
- Other mines;
- Oil and gas;
- Pipelines;
- Refineries;
- Reservoirs and other water developments;
- Other industrial manufacturing;
- Other development; and
- The relationship among projects.

Neither increased production nor mining activity will occur at the Absaloka Mine; mining will occur in a slightly different location, adjacent to the baseline location.

3.2.16 Letter 1, Comment 12

Comment noted; however, the southeast corner of the South Extension development area is considerably remote and there is no access to this area by the public. Furthermore, the closest available power/utility line is approximately 2 miles from the southeast corner of the South Extension. MDEQ can reinstate ambient air quality monitoring by the Absaloka Mine in the future if the department determines that it is necessary, and if so, an appropriate location for the monitoring site would be determined at that time.

3.2.17 Letter 1, Comment 13

With all due respect, EPA's comment is partially inconsistent with respect to the six principal air quality pollutants (also called the "criteria pollutants") that are listed in their NAAQS table at website http://epa.gov/air/criteria.html and their listing of the six criteria pollutants at website http://epa.gov/ttn/naaqs/. Particulate matter, which includes both PM_{10} and $PM_{2.5}$, is one of the six criteria pollutants. However, the sentence in the Draft EIS that is referenced in EPA's comment does need to be revised as such:

These six pollutants are carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), particulate matter (PM_{10} and $PM_{2.5}$), ozone (O_3), and sulfur dioxide (SO_2).

3.2.18 Letter 1, Comment 14

Table 3-4 in the Draft EIS has been updated and is contained herein as Table 3.2-8. Ozone background concentrations have been added and other background concentrations have been revised.

Tables 3-6 and 3-7 in the Draft EIS have also been revised to reflect measured data for background concentrations and are contained herein as Tables 3.2-9 and 3.2-10.

Typographical errors that were discovered in Table 3-9 in the Draft EIS have been corrected and that table is contained herein as Table 3.2-11.

Revisions made to Tables 3-4, 3-6, 3-7, and 3-9 in the Draft EIS did not result in any revisions to the narrative in the Draft EIS that references these tables.

3.2.19 Letter 1, Comment 15

Please refer to the response to Comment 14.

Table 3.2-8. (Revised version of Table 3-4 in the Draft EIS) Assumed Background Air Pollutant Concentrations, Applicable AAQS, and PSD Increment Values (in µg/m³).

Criteria Pollutant	Averaging Time[1]	Background Concentration	Primary NAAQS[2]	Secondary NAAQS[2]	MAAQS	PSD Class I Increments[3]	PSD Class II Increments[3]
Carbon monoxide	1-hour	3,336[4]	40,000	40,000	26,000	---	---
	8-hour	1,381[4]	10,000	10,000	10,000	---	---
Nitrogen dioxide	1-hour	53[5]	---	---	564	---	---
	Annual	4[5]	100	100	94	2.5	25
Ozone	1-hour	153[5]	235[10]	235[10]	196	---	---
	8-hour	143[5]	147	147	---		
Sulfur dioxide	1-hour	32[6]	---	---	1,300	---	---
	3-hour	19[6]	---	1,300	---	25	512
	24-hour	8[6]	365	---	262	5	91
	Annual	3[6]	80	---	52	2	20
PM_{10}[7]	24-hour	37[8]	150	150	150	8	30
	Annual	12.8[8]	---	---	50	4	17
$PM_{2.5}$[7]	24-hour	16[9]	35	35	35	---	---
	Annual	5.5[9]	15	15	15	---	---

1 Annual standards are not to be exceeded; short-term standards are not to be exceeded more than once per year. 1-hour SO_2 standard not to be exceeded more than 18 times in one year.

2 Primary standards are designed to protect public health; secondary standards are designed to protect public welfare.

3 All NEPA analysis comparisons to the PSD increments are intended to evaluate a threshold of concern and do not represent a regulatory PDS Increment Consumption Analysis.

4 Data collected by Amoco at Ryckman Creek for an 8-month period during 1978-1979 summarized in the Riley Ridge EIS (BLM 1983) and presented in the PRB Coal Review Study Task 1A (BLM 2005c).

5 Data collected at Thunder Basin National Grassland, Campbell County, Wyoming for 2006; reported in EPA AIRDATA.

6 Data collected at Morning Star and Badger Peak, Rosebud County, Montana for 2004; most recent data reported in EPA AIRDATA.

7 On October 17, 2006, EPA published final revisions to the NAAQS for particulate matter that took effect on December 18, 2006. The revision strengthens the 24-hour $PM_{2.5}$ standard from 65 to 35 µg/m³ and revokes the annual PM_{10} standard of 50 µg/m³.

8 Non-exceptional event data collected within the South Extension area in 2006.

9 Data collected at Belle Ayr Mine, Campbell County, Wyoming for 2006; reported in EPA AIRDATA.

10 Applicable only for special Early Action Compact areas.

Table 3.2-9. (Revised version of Table 3-6 in the Draft EIS) Ambient Standards Analysis On or Near the Crow Indian Reservation.

Pollutant	Averaging Period	Peak Modeled Concentration (Mining Year 2020) (µg/m³)	Background Concentration[1] (µg/m³)	Predicted Ambient Concentration (µg/m³)	NAAQS (µg/m³)	Percent of NAAQS	MAAQS (µg/m³)	Percent of MAAQS
PM_{10}	24-hr	34.7	37.0	71.7	150	47.8	150	47.8
	Annual	5.3	12.8	18.1	---	---	50	36.1
$PM_{2.5}$	24-hr	6.9	16.0	22.9	35	65.5	35	65.5
	Annual	1.0	5.5	6.5	15	43.7	15	43.7
SO_2	1-hr	13.0	32.0	45.0	---	---	1,300	3.5
	3-hr	7.7	19.0	26.7	1,300	2.1	---	---
	24-hr	2.5	8.0	10.5	365	2.9	262	4.0
	Annual	0.4	3.0	3.4	80	4.2	52	6.5
NO_X	1-hr	227.8	53.0	208.8	---	---	564	49.8
	Annual	5.8	4.0	9.8	100	9.8	94	10.5
CO	1-hr	50.2	3,336	3,386.2	40,000	8.5	26,000	13.0
	8-hr	15.7	1,381	1,396.7	10,000	14.0	10,000	14.0

[1] Background concentrations are estimated from one year of ambient PM_{10} monitoring data collected within the proposed development area. These data were adjusted for the impacts of the Sarpy Creek and Pine Ridge Fires, which affect the data for at least the second half of July 2006.

Source: Bison Engineering 2008

Table 3.2-10. (Revised version of Table 3-7 in the Draft EIS) Ambient Standards Analysis On the Northern Cheyenne Indian Reservation.

Pollutant	Averaging Period	Peak Modeled Concentration (Mining Year 2011) (µg/m³)	Background Concentration[1] (µg/m³)	Predicted Ambient Concentration (µg/m³)	NAAQS (µg/m³)	Percent of NAAQS	MAAQS (µg/m³)	Percent of MAAQS
PM_{10}	24-hr	1.26	37.0	38.3	150	25.5	150	25.5
	Annual	0.08	12.8	12.9	---	---	50	25.8
$PM_{2.5}$	24-hr	0.25	16.0	16.3	35	46.4	35	46.4
	Annual	0.02	5.5	5.52	15	36.8	15	36.8
SO_2	1-hr	1.28	32.0	33.3	---	---	1,300	2.6
	3-hr	0.71	19.0	19.7	1,300	1.5	---	---
	24-hr	0.094	8.0	8.1	365	2.2	262	3.1
	Annual	0.006	3.0	3.0	80	3.8	52	5.8
NO_X	1-hr	32.20	53.0	85.2	---	---	564	15.1
	Annual	0.092	4.0	4.1	100	4.1	94	4.4
CO	1-hr	7.15	3,336	3,343.1	40,000	8.4	26,000	12.9
	8-hr	0.91	1,381	1,381.9	10,000	13.8	10,000	13.8

[1] Background concentrations are estimated from one year of ambient PM_{10} monitoring data collected within the proposed development area. These data were adjusted for the impacts of the Sarpy Creek and Pine Ridge Fires, which affect the data for at least the second half of July 2006.

Source: Bison Engineering 2008

Table 3.2-11. (Revised version of Table 3-9 in the Draft EIS) Class I PSD Increment Modeling Results On the Northern Cheyenne Indian Reservation.

Pollutant	Averaging Period	Modeled Concentration (Mining Year 2011) ($\mu g/m^3$)	Class I Increment Standard	Percent Class I Increment Consumed
PM_{10}	24-hr	1.3	8	15.8
	Annual	0.08	4	2.0
SO_2	3-hr	0.71	25	2.9
	24-hr	0.094	5	1.9
	Annual	0.006	2	0.3
NO_X	Annual	0.092	2.5	3.7

Source: Bison Engineering 2007

The Primary/Secondary NAAQS for ozone (75 ppb or 147 $\mu g/m^3$) was effective as of May 27, 2008, after the Draft EIS was published and made available for review. This value is included in Table 3.2-8.

3.2.20 Letter 1, Comment 16

The monitoring data collected at the Absaloka Mine is neither required to be nor is it submitted to the Montana Department of Environmental Quality (MDEQ). The Exceptional Event Rule was not effective during the time of the data collection or at the time of the data analysis.

The days impacted by wildfire were estimated based on the Smoke Alert Archives information for the fire season of 2006. These data are available at website http://www.deq.state.mt.us/FireUpdates/updates.asp. Official concurrence was obtained from MDEQ via e-mail for the entire fire season of 2006. The agency review resulted in the dates shown below being designated as smoke-impacted exceptional events.

Exception Date	Measured PM_{10}	Exception Date	Measured PM_{10}	Exception Date	Measured PM_{10}
7/13/2006	34	8/2/2006	23	9/5/2006	24
7/14/2006	62	8/3/2006	21	9/6/2006	21
7/15/2006	119	8/15/2006	42	9/7/2006	31
7/16/2006	42	8/16/2006	32	9/8/2006	46
7/17/2006	31	8/17/2006	25	9/9/2006	22
7/18/2006	39	8/22/2006	22	9/10/2006	24
7/23/2008	65	8/24/2006	38	9/11/2006	26
7/28/2006	72	8/25/2006	26	9/12/2006	25
7/30/2006	101	8/26/2006	30	9/13/2006	39
7/31/2006	56	8/30/2006	69	9/14/2006	42
		8/31/2006	28		

With the removal of these data from the database, the 98th percentile of the data, 37µg/m3, was selected as the appropriate 24-hour average background concentration for the Absaloka Mine. The annual average concentration, 12.8 µg/m3, was determined by averaging the four quarterly averages of the non-exceptional 24-hour data for the collection period.

3.2.21 Letter 1, Comment 17

The EIS does not address the impacts of burning coal to generate electricity (emissions of greenhouse gases, mercury and other hazardous substances, creation of solid waste, etc.) in detail, because the ability of coal-fired power plants to continue operations is not dependent on a decision by BIA to approve the IMDA lease for the South Extension and/or decisions by MDEQ and OSM to approve the Tract III Revision permit application or the South Extension permit application. It is true that coal produced by the Absaloka Mine is currently being burned to generate electricity and is contributing to U.S. mercury emissions as a result. It is also true that, if a decision is made to lease the Crow Indian owned coal included in the South Extension and the mine permit applications are approved and if that coal is sold to generate electricity when it is mined, emissions of mercury attributable to coal from the Absaloka Mine would occur for a longer period of time. It is not true that a decision by BIA to reject the IMDA lease for the South Extension and/or decisions by MDEQ and OSM to not approve the mine permit applications would have the effect of proportionately reducing mercury emissions caused by burning coal, now or in the future.

Coal is an important component of the U.S. energy supply due to its abundance. The U.S. has the world's largest known coal reserves, estimated to be approximately 264 billion tons. Coal is burned in power plants to generate electricity in response to demand from consumers and businesses and in compliance with existing policies, rules, and regulations. Eliminating one source of coal would not affect that demand and there are numerous other sources which can supply the coal, if the demand for the energy is there and compliance with the policies, rules, and regulations can be achieved.

Mercury is a naturally occurring element that is present in all coals. The proportion of mercury contained in the coal that is emitted at combustion is a function of the chemical form of mercury in the coal and the nature of the combustion and pollution control systems employed. Mercury emitted into the air eventually is deposited on land and water surfaces where elemental and inorganic mercury may be converted to methyl mercury, an organic form that bio-accumulates in the aquatic food chain and as a consequence may concentrate in fish at levels sufficient to cause human health concerns. Specifically, methyl mercury contained in fish consumed by a pregnant mother can adversely affect neurological development of her fetus (EPA 2008a).

According to EPA (1997), U.S. emissions of mercury in 1995 were estimated at 158 tons, of which 87 percent or 134 tons came from waste and fossil fuel

combustion sources. WRI has no information regarding mercury emissions or coal ash analysis from electric power generating stations burning coal from Absaloka Mine. Based on core data, coal in the South Extension contains an average of about 0.05 milligrams per kilogram (mg/kg) of mercury on a dry basis. This means that each one million tons of coal mined would contain about 75 pounds of elemental mercury, or about 525 lbs of mercury per year at an annual production rate of 7.0 million tons. This is equivalent to about 0.19 percent of the 1995 estimate of mercury emissions originating from combustion sources in the U.S. Not all of this mercury would be emitted since portions would be retained in coal ash and captured by air emission control systems.

According to the EPA, coal-fired power plants account for more than 40 percent of all U.S. anthropogenic (human-caused) mercury emissions. However, these emissions contribute little to the global mercury pool. EPA estimated that mercury emissions from U.S. coal-fired power plants account for about one percent of the global total (EPA 2008b). EPA estimates that 83 percent of the mercury deposited in the U.S. originates from international sources, with the remaining 17 percent coming from the U.S. and Canada (EPA 2006). Currently, some 1,030 million tons of coal are consumed annually for the generation of electricity in the U.S. (DOE 2007); therefore, the 7.0 million tons of coal produced from the Absaloka Mine annually represents approximately 0.7 percent of the coal used for power generation, which would represent about 0.007 percent of the global mercury emissions.

A detailed discussion of the environmental impacts of mercury is beyond the scope of this EIS. The subject is quite complex, and information is available at EPA's web site at http://www.epa.gov/mercury/report.htm.

3.2.22 Letter 1, Comment 18

Forty-six percent of the surface of the South Extension lease tract is Crow Trust land (32 percent Tribal owned and 14 percent allotted Indian owned) and 54 percent is owned by non-Indians. Crow Indians who own land within the South Extension lease boundary do not live on those lands and voluntarily negotiated surface use agreements with the mining company. With the exception of the Crow Trust lands, the surface estate within and surrounding the Absaloka Mine is privately owned by non-Indians. Indian-owned surface outside the reservation boundary is extremely limited. There are no public surface lands within the proposed South Extension development area. The current lessees of Crow Trust land within the proposed development area will be displaced while the coal is being mined and the land is reclaimed. The public in general would not be affected by the proposed development plan since they do not currently have access to the area. Unless authorized by the Crow Tribe and the State of Montana, hunting within the Crow Reservation is limited to tribal members only, and hunting would not occur within the proposed development area during mining and reclamation.

The map that was enclosed with EPA's comment depicting the area within and around the Absaloka Mine does not provide an accurate representation of surface ownership or resident populations. The current surface ownership within and adjacent to the South Extension development area is discussed in Section 3.11 and depicted on Figure 3-19 of the Draft EIS. The lands within a 3-mile radius of the Absaloka Mine, including the proposed South Extension, are depicted on EPA's map as being occupied by 14 to more than a 50 percent minority population. Within this area of concern, those lands that are immediately adjacent to the exterior limits of the Crow Reservation are depicted on EPA's map as having a 14 to 50 percent minority population, and those lands that are within the Crow Reservation are depicted as having over a 50 percent minority population. While it is true that more than 50 percent of the residents living within the Crow Indian Reservation are minorities and have low incomes, there are no minorities (Crow tribal members or otherwise) living within the general analysis area of this EIS. The Absaloka Mine is located in a remote area that is frequented primarily by the local ranching community and mine employees. No tribal members (either Crow or Northern Cheyenne) reside within several miles of the Absaloka Mine. All of the currently occupied residences located within and near the Absaloka Mine and South Extension development area are shown on Figure 3-8 of the Draft EIS. With the exception of those that reside at the "multiple residence areas", located in Section 16, T.1N., R.37E., who mostly work at the Absaloka Mine or the Spring Creek Café, all other residences shown on Figure 3-8 are the homes of non-Indian ranchers.

As stated in Section 3.17.6 of the Draft EIS, no disproportionately high or adverse human health or environmental effects (specifically to tribal lands, treaty rights, and trust responsibilities) are currently falling on minority or low-income populations as a result of current mining activities at the Absaloka Mine. Consequently, implementation of the proposed South Extension development plan would extend the current health and environmental justice effects created by the Absaloka Mine, but not adversely affect the environmental considerations in the area. Various sections of the EIS that are pertinent to the environmental justice analysis are discussed briefly and referenced below. These individual sections detail the existing environment, analyze the environmental and socioeconomic impacts of the proposed development plan, and support the conclusion that there are no disproportionate impacts on minority, low-income and Tribal populations.

Based on the analyses contained in Sections 3.4 and 4.2.3, impacts to air quality from mining in the South Extension would be consistent with historic monitoring results of the Absaloka Mine and will likely be negligible. Particulate emissions data indicate that there have been no exceedances of current air quality standards. There would not be additional sources of fugitive dust, and the relative locations of emission sources would change but the numbers and types of sources would not. Air quality modeling results indicate that the projected mine activities would be in compliance with annual and short-term National Ambient Air Quality Standards (NAAQS) and Montana

Ambient Air Quality Standards (MAAQS) for the life of the mine at the permitted mining rate of 11 million tons per year. WRI proposes to continue mining at a rate of approximately 7.0 million tons per year. Public exposure to particulate emissions from surface mining operations is most likely to occur along the publicly accessible roads and highway that pass near the area of mining operations. Occupants of dwellings in the area could also be affected; however, there are just two occupied dwellings on or within one mile of the South Extension development area and one non-mine related business (Spring Creek Café) within 4.6 miles of the proposed development area (Figure 3-8 within the Draft EIS). The occupants (who are non-Indian) of the two dwellings would relocate prior to mining.

With respect to the anticipated impacts to groundwater resources, the coal and overburden aquifers in the pit areas would be removed during mining and replaced with backfill. Groundwater levels in the coal and overburden aquifers adjacent to the mine pits would be depressed. The anticipated extent of the lowered overburden and coal potentiometric surfaces are discussed in Section 3.5.1 and depicted on Figures 3-10 and 3-11, respectively, in the Draft EIS. Groundwater level drawdowns in the coal and overburden are expected to last for many years after mining while the backfilled pit areas are resaturating, but as shown by these figures, drawdowns are not expected to extend much beyond the boundary of the proposed South Extension development area thereby not impacting adjacent landowners. The Absaloka Mine's groundwater monitoring data indicate that after reclamation the backfill readily resaturates and yields groundwater of sufficient quality for livestock watering and wildlife use.

Impacts to surface water resources by the proposed development plan are discussed in Section 3.5.2 in the Draft EIS. In summary, changes to the overall flow and water quality characteristics of Middle Fork Sarpy Creek and Sarpy Creek during and after mining are expected to be negligible and essentially undetectable. A slight reduction in downstream flow rates may occur during mining and no negative impacts to surface water quality would be expected. To date, affects to surface water quality from mining are considered imperceptible and affects from future mining activities are expected to be similar. The proposed mine plan for the South Extension development area avoids disturbance of the Middle Fork Sarpy Creek stream channel; therefore, restoration of surface drainage flow patterns as part of the reclamation plan would be expedited. Reclamation at the Absaloka Mine has been successful at reestablishing drainage flow patterns and is an on-going process.

As addressed in Section 3.14 in the Draft EIS, there would be no disproportionate noise impacts as a result of the proposed South Extension development plan. Mining activities (particularly blasting) would occur nearly 5 miles from the nearest public facilities and over a mile from the closest occupied dwelling, which is owned by a non-Indian rancher (Figure 3-8 in the Draft EIS).

The transportation facilities near the Absaloka Mine that are currently used by some minority, low-income and tribal populations would not change due to the proposed South Extension development plan. The amount of coal transported daily to the Hardin Generating Station via Highway 384 would not change, although mining the proposed development area would extend the impacts of that coal hauling to the power plant by 3 to 12 years, depending on which alternative is selected. Vehicular traffic to and from the mine via Highway 384 would also continue into the future for the same extended period of time, depending on which alternative is selected. The proposed development plan would impact no pipelines or power/utility transmission lines.

Wastes produced by current mining activities and how they are handled in accordance with procedures described in the approved mine permit are addressed in Sections 2.6 and 3.16 of the Draft EIS. Since the existing mine office, shop, warehouse, and coal processing facilities would not be relocated, most of the wastes requiring disposal would continue to be generated on the Tract III Coal Lease. All wastes that would be generated in the course of mining the proposed development area would be handled in accordance with existing regulations using the procedures currently in use and in accordance with the approved waste disposal plans described in the Absaloka Mine's approved mine permits.

The Absaloka Mine is located on the traditional cultural territory of the Crow Tribe, and the South Extension development plan would extend the mining operation onto the present day Crow Reservation. The Cultural Resources section of the Draft EIS (Section 3.12) details consultation with indigenous tribes and the participation of Crow tribal representatives on the cultural resource inventories and site evaluations. Based on recent cultural resource inventories and site evaluations, no Native American heritage, traditional cultural, special interest, or sacred sites have been formally recorded to date within the proposed development area. Cultural properties that are determined to be eligible for the National Register of Historic Places will be avoided or a data recovery plan will be implemented prior to disturbance. The plan has been developed in consultation with the Crow Tribal Historic Preservation Office.

The social and economic impacts of the proposed project on the Crow Tribe are most pertinent to the environmental justice analysis and have been disclosed in detail within the socioeconomics section (Section 3.17) of the Draft EIS. The social and economic effects of the proposed project on the minority or low-income populations are considerable and widespread. The Absaloka Mine is the greatest source of income to the Crow Tribe. Aggregate coal royalty and taxes paid to the tribe was $16.6 million in 2006. Under the Proposed Action, potential additional tribal revenues approximate $200 million through 2021. The May 5, 2008, employment record for the mine indicates that 116 (111 Crow or Crow-related) of the 156 mine employees have minority status, which speaks directly to the issue of environmental justice. The average annual wage (over $80,000 in 2006) per employee paid by the Absaloka Mine is considerably

higher than the average annual wage earned per job on the Crow Indian Reservation (approximately $28,000 in 2005). The human environment for many minority people of the Crow Nation would not be served best if the mine is not allowed to continue to operate. People who are prosperous have the means required to protect and enhance their environment.

Elected officials of the Crow Tribe have approved of an agreement with WRI to mine Indian owned coal on the Crow Indian Reservation. These elected officials who are responsible for the well-being of all Tribal members recognize that implementation of the proposed South Extension development plan would extend the current health and environmental effects created by the Absaloka Mine, but not adversely affect the environmental justice considerations in the area. The Crow Tribe was consulted regarding Environmental Justice as it relates to the Proposed Action, and the July 8, 2008 response from the Crow Tribal Chairman, Carl Venne, is included as part of this response.

3.2.23 Letter 1, Comment 19

A letter addressed to Mr. Greg Davis, EPA Region 8 Storm Water Coordinator, was sent by Mr. Edward Parisian, BIA Director, Rocky Mountain Region, on May 28, 2008, confirming the lead agency for National Environmental Policy Act (NEPA) compliance associated with this federal action is the BIA. The letter confirmed that BIA is the lead federal agency for purposes of compliance with the NHPA and the ESA. A copy of this letter was sent to the U.S. Fish and Wildlife Service (Mark Wilson, USFWS Field Supervisor) to serve as written notification of BIA's responsibility. The letter states, "Pursuant to 36 CFR 800.2(a)(2), BIA is the lead federal agency for purposes of compliance with NHPA, including the execution of the *Memorandum of Agreement* [prepared pursuant to 36 CFR 800.6(a)] for submittal to the National Advisory Council on Historic Preservation, for *Cultural Resource Protection and Archeological Data Recovery in Westmoreland Resources' Absaloka Mine Permit Area South Extension on the Crow Indian Reservation*.

3.2.24 Letter 2, Comment 1

EPA's second comment letter on the Draft EIS, sent to the BIA June 4, 2008, supplemented its first comment letter that was sent May 19, 2008. The second letter included two additional comments, the first of which is EPA's recommended changes to the Surface Water section that are needed to make the EIS consistent with EPA's draft NPDES permit associated with the expansion of the Absaloka Mine within the exterior boundaries of the Crow Indian Reservation.

On April 2, 2008, WRI sent EPA a revised NPDES permit application for the South Extension development plan, which necessitated changes to the proposed NPDES permit. On May 2, 2008, EPA announced that a revised NPDES permit was available for public comment through June 2, 2008. As a result, EPA requested that the public comment period on the Draft EIS be

CROW TRIBE
EXECUTIVE BRANCH

Post Office Box 159 –BACHEEITCHE Ave.
Crow Agency, Montana 59022
P: 406.638.3700/3715 F: 406.638.3881

Crow Country

Carl E. Venne, Chairman
Cedric Black Eagle, Vice-Chairman
Scott Russell, Secretary
Darrin Old Coyote, Vice-Secretary

July 8, 2008

To Whom It May Concern:

The Bureau of Indian Affairs has provided its draft response to the Environmental Protection Agency's comment #18 regarding the Environmental Justice (EJ) section of the EIS for the extension of Westmoreland Resources' Absaloka Mine.

The Crow Tribe fully supports and endorses the response that BIA has prepared to this comment. There are very few, if any, negative impacts on the membership of the Crow Tribe, because no Tribal members live near the Mine and any impacts from the Mine extension are minimal and well-controlled.

On the other hand, the continued operation of the Absaloka Mine will provide very substantial positive impacts on the Tribe and its members, through continued Tribal-member employment at the Mine, tax and royalty income received by the Crow Tribe, and other benefits to the local Reservation economy.

Sincerely,

Carl E. Venne, Chairman

extended 30 days (until June 2, 2008) so that information regarding EPA's proposed NPDES permit for the South Extension development plan would be available during the Draft EIS public comment period. The language in the Draft EIS was based on WRI's previous NPDES permit application, which only included information on water discharges during pre-mining and post reclamation. On May 29, 2008, EPA received additional information from WRI regarding the draft NPDES permit and EPA subsequently revised the draft NPDES permit. The draft NPDES permit and the EIS language, which was revised by EPA to reflect the draft NPDES permit, includes additional information on water discharges during the active mining phase. Sections 3.5.2.2 and 3.5.2.3, as revised by EPA, are included in Appendix B.

3.2.2 Letter 2, Comment 2

EPA's second comment in their second comment letter on the Draft EIS recommended that additional information about global climate change and coal-fired power plant related greenhouse gas emissions be included in the analysis.

Burning coal to produce power produces carbon dioxide (CO_2), which is believed to be a contributing factor in global warming. The EIS identifies global warming as an issue of concern and identifies greenhouse gases emitted by coal-fired power plants (which currently include water vapor, carbon dioxide, methane, nitrous oxide, and ozone) as contributing to global warming. It also estimates the percentage of greenhouse gas emissions that can be attributed to burning the coal that is produced from the Absaloka Mine to generate power. The EIS does not address the impacts of burning coal to generate electricity (emissions of greenhouse gases, mercury and other hazardous substances, creation of solid waste, etc.) in detail, because the ability of coal-fired power plants to continue operations is not dependent on a decision by BIA to approve the IMDA lease for the South Extension and/or decisions by MDEQ and OSM to approve the Tract III Revision permit application or the South Extension permit application. It is true that coal produced by the Absaloka Mine is currently being burned to generate electricity and is contributing to U.S. anthropogenic CO_2 emissions as a result. It is also true that, if a decision is made to lease the Crow Indian owned coal included in the South Extension and the mine permit applications are approved and if that coal is sold to generate electricity when it is mined, emissions of greenhouse gases attributable to coal from the Absaloka Mine would occur for a longer period of time. It is not true that a decision by BIA to reject the IMDA lease for the South Extension and/or decisions by MDEQ and OSM to not approve the mine permit applications would have the effect of proportionately reducing greenhouse gas emissions caused by burning coal, now or in the future. Coal is burned to generate electricity in response to demand from consumers and businesses and in compliance with existing policies, rules, and regulations. Eliminating one source of coal would not affect that demand and there are numerous other sources which can supply the coal, if the demand for the energy is there and compliance with the policies, rules, and regulations can be achieved.

In response to EPA's comment recommending that CO_2 emissions produced by electric power generation from the burning of coal that would be produced from the Absaloka Mine be presented in million metric tons per year CO_2 equivalents, and that the section [Section 3.18 in the Draft EIS] briefly explain the environmental impacts of global climate change with a discussion of appropriate mitigation measures, Section 3.18 is revised and included as Appendix C.

3.3 Responses to Individual Citizens Comments

Two letters from individual citizens were submitted during the public comment period: one from E. Mellion and I. Ihaza, dated May 1, 2008, via e-mail message to MDEQ, and one from Helen Aki, dated May 2, 2008, addressed to BIA (Appendix A).

3.3.1 Comment from Individual Citizen (Mellion and Ihaza)

The EIS analyzes the anticipated impacts associated with an application received by the Bureau of Indian Affairs (BIA) to lease a tract of Indian owned coal to the existing Absaloka Mine for the continuation of mining, based on the observed impacts that have occurred and the knowledge that has been gained from mining and reclamation practices, mitigation measures, and monitoring of surface mining that has been conducted in the area for more than 30 years. BIA does not authorize mining operations by approval of the Indian Minerals Development Act (IMDA) lease agreement between Westmoreland Resources, Inc. (WRI) and the Crow Tribe. Prior to conducting any mining-related activities, WRI must obtain an approved mine permit revision from the Montana Department of Environmental Quality (MDEQ) and the Office of Surface Mining Reclamation and Enforcement (OSM) for the Tract III Revision and a separate surface mining permit from OSM for the Absaloka Mine South Extension. MDEQ is the joint lead agency with BIA on this EIS, and OSM is a cooperating agency. Both MDEQ and OSM have reviewed this EIS to ensure that the analyses are adequate and consistent for their needs when the MDEQ Surface Mine Permit Major Revision Application (No. 00181 for Permit No. 85005) and the OSM Surface Mine Permit Application (No. MT-0021-A) are evaluated for approval.

As stated within Section 3.9.1 of the Draft EIS, approximately 63 percent of the South Extension development area is comprised of native plant communities, with the remainder consisting of agricultural types. The current land use in the area within and around the Absaloka Mine, including the proposed development area, is described in Section 3.11.1 of the Draft EIS. Grazing land for livestock is the primary land use, and all native and non-native plant communities are used for that purpose. Grazing land, pastureland (for grazing or occasional hay production), cropland (primarily dryland alfalfa and small grains), and associated support facilities (stock reservoirs, roads, buildings, etc.) are the predominant land uses of the area. Potentially harvestable stands of ponderosa pine that occur in the area are not presently managed for timber

production, rather, the ponderosa pine stands are managed primarily as grazing land. Livestock grazing, and to a lesser extent wildlife habitat, would be displaced while the area is being mined and reclaimed. The planned postmining land uses are grazing land with some cropland. Reclaiming mined land to a topographic configuration that is as near as possible to its approximate original contour and its premining uses is a permitting mandate.

Wildlife habitat is a joint pre-mining land use because wildlife cannot be excluded from the area. Wildlife habitat (topography and vegetative cover) would be altered somewhat after reclamation. In the short term, the reduction in shrub density in particular would cause a decrease in carrying capacity for some species and a decrease in vegetation diversity. Grassland dependant species however would benefit from the increased grass cover and production. Trees and shrubs would gradually become reestablished on the reclaimed land, but the topographic changes would be permanent. Microhabitats may be reduced on reclaimed land due to a more subdued topography.

As stated in Section 3.9.2.1 of the Draft EIS, the objective of the mine's reclamation plan, which emphasizes establishment of native grassland vegetation types to support grazing by livestock, is to establish grassland that is diverse, effective and permanent. Overall, native plant communities would increase in extent and agricultural types would be similar in extent after reclamation is complete.

The Draft EIS is misquoted by the reviewer's comment and consideration of the complete discussion given in the document was not mentioned. While it is true that the "survival and establishment of certain vegetation types planted in reclamation at the Absaloka Mine has been inconsistent to date", it is misleading unless an explanation is given that the "certain vegetation types" are woody plant seedlings. The Draft EIS explains, and as anyone knows who has attempted to plant a seedling tree or shrub in an area frequented by rodents, rabbits, and deer, the plant will probably not survive. The reviewer does not mention the discussion in the Draft EIS that explains Absaloka Mine's reclamation strategy for long-term woody plant establishment (page 3-131 in the Draft EIS).

While it is true that "the plants found on the Absaloka Mine and South Extension development area are important historically and currently to Native Americans" (Section 3.9.4 of the Draft EIS), not all 70 species of plants historically used by the Crow Indians that were identified by Snell (2006) occur within the proposed development area. Furthermore, it is likely that the use of these plant resources on private lands within and adjacent to the Crow Indian Reservation by Native Americans is currently quite limited (WESTECH 2006).

Regardless of the success of the post-mining vegetative cover and its diversity, following the release of the reclamation bond, the surface owner has the right to manipulate the reclaimed vegetation. There are no public surface lands within the proposed development area.

3.3.2 Comment from Individual Citizen (Helen Aki)

The purpose of the EIS is to inform the public and the state and federal government decision makers of the environmental and socioeconomic impacts of leasing and subsequently mining the coal reserves within Absaloka Mine South Extension by an existing mine and to evaluate alternatives to the proposal. This EIS does not however address the socioeconomic status of the Crow Tribe and its members after mine closure because there are no federal or state actions proposed for this area after the Absaloka Mine has been reclaimed.

The Crow Tribe, as a sovereign nation, decides what will become of the coal royalties and production taxes derived from the Absaloka Mine. A future revenue stream associated with clean energy investment, as suggested by Ms. Aki, may or may not be pursued by the tribe after mine closure. Furthermore, as depicted on Figure 3-19 of the Draft EIS, 54 percent of the land surface of the South Extension area is owned by non-Indian fee owners.

The area within and around the Absaloka Mine is rural rangeland, and as stated in Section 3.11 of the Draft EIS, grazing land for livestock is the primary land use. Following reclamation, the land would be suitable for grazing by domestic livestock or occasional hay production, which are the historic land uses. In compliance with state and federal regulations, mined areas would be reclaimed as specified in the approved mining and reclamation plan to support the anticipated post-mining land uses of grazing land, pasture land, and crop land, which are the premining land uses.

The BIA understands that there is growing concern for the development of renewable energy resources and recognizes that this area's sunny climate is favorable for solar energy production. However, a solar development project on the reclaimed South Extension of a magnitude suggested by this comment would require a major change in land use. A federal action of this nature would most likely require BIA to conduct a NEPA analysis disclosing the associated environmental impacts in the project area, as well as the power transmission line corridor.

As addressed in Section 3.12 of the Draft EIS, there would be no loss of undocumented cultural resources as a result of the Proposed Action or Alternative 1. Impacts to eligible or unevaluated cultural resources cannot be permitted without mitigation or evaluation.

4.0 DESCRIPTION OF PUBLIC INVOLVEMENT

The Bureau of Indian Affairs (BIA[1]) and Montana Department of Environmental Quality (MDEQ) are joint lead agencies responsible for the preparation of this EIS pursuant to their respective authorities under the National Environmental Policy Act (NEPA) and the Montana Environmental Policy Act (MEPA). The Office of Surface Mining Reclamation and Enforcement (OSM), Environmental Protection Agency (EPA), Bureau of Land Management (BLM), and the Crow Tribe are cooperating agencies as entities with a permit decision function and/or with special expertise or interest in the proposed project.

Under NEPA and MEPA, the federal and state agencies are required to integrate environmental values into their decision making processes by considering the environmental impacts of their proposed actions and alternatives to those actions. Public involvement in those processes is particularly important in providing input on what issues should be addressed and in commenting on the findings in the agencies' EIS document. Several opportunities are provided to the public to participate in the process by attending the public scoping meeting, submitting written comments on the Draft EIS directly to the lead agencies during the public review period, and attending the public hearing on the Draft EIS where oral comments are presented to the agencies involved. These opportunities for public involvement were provided by BIA and MDEQ during the preparation of the EIS for the Absaloka Mine Crow Reservation South Extension.

The BIA published a Notice of Intent to prepare an EIS and Notice of Scoping in the *Federal Register* for the proposed expansion of the Absaloka Mine onto the Crow Indian Reservation on November 28, 2006. The publication announced the time and location of a public scoping meeting and requested public comment on BIA's proposed approval of the Indian Mineral Development Act (IMDA) lease agreement for a coal reserve area on the Crow Indian Reservation and the associated mine permitting process. The BIA also published notices of public scoping meetings in the local newspapers (the Big Horn County News and the Billings Gazette) on November 9 and 16, 2008 and on December 7 and 14, 2008.

Public scoping meetings were held on November 16 and December 14, 2006, at the Big Horn County Courthouse in Hardin, Montana. The scoping meeting that was held in November was attended by eight private citizens, five representatives from OSM, one representative from MDEQ, and three employees from the Absaloka Mine. WRI orally presented information about its mine and its need for additional coal. The presentation was followed by a question and answer period, during which four oral comments were made. BIA, MDEQ, and WRI were present to field comments from the public. There was no attendance by private citizens or representatives from the federal and state agencies other than the BIA and MDEQ at the scoping meeting that was

[1] Refer to page iv for a list of abbreviations and acronyms used in this document.

held in December. The scoping period extended from November 28, through December 26, 2006, during which time BIA and MDEQ received written comments from three entities: the Northern Cheyenne Tribe's Air Quality Division and two individual citizens.

The Absaloka Mine South Extension Draft EIS was distributed on March 21, 2008. Fifty four copies were printed and mailed to parties on the BIA distribution list (Table 5-4 in the Draft EIS), including the public libraries in Hardin and Crow Agency, Montana and the BIA offices in Crow Agency and Billings, Montana. An electronic copy of the document in PDF format was posted on the MDEQ website to provide a broader distribution. This mailing and website posting opened the comment period for the Draft EIS. A notice announcing the availability of the Draft EIS was published by the BIA in the *Federal Register* on March 21, 2008. A 46-day comment period on the Draft EIS commenced with publication of BIA's March 21 notice of availability and ended on May 5, 2008. The BIA published a notice of public hearing on the Draft EIS in the *Federal Register* on April 2, 2008. The BIA also published a notice of public hearing in the local newspapers (the Big Horn County News and the Billings Gazette) on April 16 and 23, 2008. BIA's *Federal Register* notice and local press notices announced the date and time of the public hearing, which was held on April 23, 2008, at 7:00 p.m. at the Big Horn County Courthouse in Hardin, Montana. The purpose of the public hearing was to solicit public comments on the Draft EIS. The public hearing was attended by representatives from WRI, BIA, MDEQ, OSM, and the Crow Tribe. Three private citizens attended the hearing. No comments, written or oral, were received at the April 23 public hearing. A court reporter typed a transcript of the public hearing and it is available for public review.

The comment period on the Draft EIS was extended to June 4, 2008 in response to the Environmental Protection Agency's (EPA's) request to extend the comment period 30 days so that revised information regarding EPA's proposed National Pollutant Discharge Elimination System (NPDES) permit for the proposed Absaloka Mine South Extension development plan would be available during the Draft EIS comment period. The Absaloka Mine South Extension DEIS included information for NPDES water discharge alternatives of stormwater runoff and mine drainage associated with the expansion of the Absaloka Mine within the exterior boundaries of the Crow Indian Reservation. On April 2, 2008, EPA received a revised NPDES permit application from WRI and EPA subsequently announced that WRI's draft NPDES permit was available for public comment from May 2 through June 2, 2008.

A total of four entities and individuals submitted five comment letters to BIA and MDEQ during the public comment period on the Draft EIS. The majority of comments came from agencies (OSM and EPA) and two comment letters were sent from individual citizens. Comments contained within the letters that were submitted by OSM (one letter) and EPA (two letters) addressed more than one topic or resource area. Those comments that did not request specific analysis or response were duly noted, but no other response was required.

Copies of all comment letters received on the Absaloka Mine South Extension DEIS are included in Appendix A.

In accordance with the Council on Environmental Quality (CEQ) Regulations codified at 40 CFR 1506.10 (b), availability of the Final EIS and BIA's Record of Decision (ROD) regarding the selection of a preferred alternative and approval or disapproval of the IMDA lease for the in-trust coal and the surface use agreements will be published in the *Federal Register* by the BIA and EPA. BIA will also post the availability of the Final EIS and ROD in the local newspapers: the Big Horn County News and the Billings Gazette. Copies of the Final EIS and BIA's ROD will be mailed to parties on the distribution list and others who commented on this EIS during the National Environmental Policy Act (NEPA) process. The BIA's decisions must be appealed within 30 days from the date the Notice of Availability for the ROD is published in the *Federal Register*. The decisions can be implemented after that time if no appeal is received. The Notice of Availability for the ROD is being published concurrently with the Notice of Availability for the Final EIS [40 CFR 1506.10 (b)], and BIA's decisions will become effective after 30 days if no appeal has been filed (25 CFR Part 2).

At least 15 days after the Final EIS is available, MDEQ will make a decision to either approve or disapprove WRI's Tract III Revision application and publish its ROD, which contains MDEQ's written findings. Copies of MDEQ's ROD will be mailed to parties on the mailing list and others who commented on this EIS. WRI or any person with an interest that is or may be adversely affected may appeal the decision to the Board of Environmental Review within 30 days after the ROD is issued. The Tract III Revision permit decision remains in effect during any subsequent appeal periods.

After a 30-day availability period for the Final EIS, and the MDEQ has either approved or disapproved WRI's Tract III Revision application, OSM must either concur or not concur with MDEQ's permitting decision. Members of the public and other potentially affected parties may file an appeal within 30 days of OSM's decision. OSM's permitting decision remains in effect during any subsequent appeal periods.

After a 30-day availability period for the Final EIS, and the BIA has either approved or disapproved the IMDA lease for the South Extension and the accompanying surface use agreements, OSM can make its decision on WRI's proposed federal mine permit application to extend the existing Absaloka Mine area to the south onto the IMDA lease area. Members of the public and other potentially affected parties may file an appeal within 30 days of OSM's decision. OSM's permitting decision remains in effect during any subsequent appeal periods.

5.0 DISTRIBUTION LIST

Parties on the distribution list will be sent copies of the Final Environmental Impact Statement (EIS[1]) when it is completed and the Bureau of Indian Affairs (BIA) will publish a notice of Availability for the Final EIS. After a 30-day availability period for the Final EIS, BIA will make a separate decision to approve or not approve the Indian Minerals Development Act (IMDA) lease for the in-trust coal and the surface use agreements and a Record of Decision (ROD) will be signed. Copies of BIA's ROD will be mailed to parties on the distribution list and others who commented on this EIS during the National Environmental Policy Act (NEPA) process. After a 15-day availability period for the Final EIS, Montana Department of Environmental Quality (MDEQ) will make a decision to either approve or disapprove Westmoreland Resources, Inc.'s (WRI's) Tract III Revision application and publish its ROD, which contains MDEQ's written findings. Copies of MDEQ's ROD will be mailed to parties on the mailing list and others who commented on this EIS.

This EIS was distributed to federal agencies, state officials and agencies, local governments, interest groups, industry representatives, and individuals for their review and comment. Table 5.0-1 is the BIA's distribution list.

[1] Refer to page iv for a list of abbreviations and acronyms used in this document.

Table 5.0-1. BIA Distribution List.

Federal Agencies
BLM, Billings, MT
BLM, Miles City, MT
BIA, Billings, MT
BIA, Crow Agency, MT
EPA Region 8, MT Office
OSM Western Region, Denver, CO
OSM, Casper, WY
U.S. Fish & Wildlife Service, Helena, MT

State Officials
Governor of Montana Brian Schweitzer

State Agencies
Montana Office of the Governor
Montana Dept. of Environmental Quality
Montana Board of Oil and Gas Conservation
Montana Environmental Quality Council

Local Agencies and Government
Big Horn County, Montana Planning Board
Rosebud County, Montana Commission

Tribal Organizations and Individuals
Chairman, Crow Tribe Executive Branch
Northern Cheyenne Tribal Council

Educational Institutions/Organizations
Little Bighorn College, Crow Agency, MT
Big Horn County Library, Hardin, MT

Companies/Businesses
Burlington Northern Santa Fe Railroad Co.
Consol, Inc., Exploration & Land Dept.
Decker Coal Company
P&M Coal Mining Company
Spring Creek Coal Company
Western Energy Company
Westmoreland Coal Company
Westmoreland Resources, Inc.
WWC Engineering

Press
Big Horn County News
Billings Gazette

Individuals
Ron Crum
Leslie Best
Cecil Noyes
Ellis Millar
E. Mellion
I. Ihaza
Helen Aki

6.0 REFERENCES CITED

Associated Press, 2007, "Market Spotlight: Coal Producers", by Samantha Bomkamp. December 5, 2007. Available from website on the Internet: http://www.forbes.com.

Bernstein, L., P. Bosch, O. Canziani, Z.Chen, R. Christ, O. Davidson, W. Hare, S. Huq, D. Karoly, V. Kattsov, Z. Kundzewicz, J. Liu, U. Lohmann, M. Manning, T. Matsuno, B. Menne, B. Metz, M. Mirza, N. Nicholls, L. Nurse, R. Pachauri, J. Palutikof, M. Parry, D. Qin, N. Ravindranath, A. Reisinger, J. Ren, K. Riahi, C. Rosenzweig, M. Rusticucci, S. Schneider, Y. Sokona, S. Solomon, P. Stott, R. Stouffer, T. Sugiyama, R. Swart, D. Tirpak, C. Vogel, and G. Yohe, 2007, Climate Change 2007: Synthesis Report, Summary for Policymakers. Intergovernmental Panel on Climate Change Fourth Assessment Report November 17, 2007. Available from website on the Internet: http://www.ipcc.ch/ipccreports/index.htm.

Biello, David, 2007, "New Power Plant Aims to Help Coal Clean Up", in Scientific American, December 19, 2007. Available from website on the Internet: http://www.sciam.com/article.cfm?id=new-power-plant-may-help-coal-clean-up.

Bison Engineering, Inc., 2007, Absaloka Mine Air Quality Impact Analysis. Prepared for Westmoreland Resources, Inc. January 2007.

_____, 2008, Responses to EPA comments on the Absaloka Mine South Extension Draft EIS, July 2008.

Bureau of Land Management (BLM), 1983, Riley Ridge Natural Gas Project Draft Environmental Impact Statement, Sublette, Lincoln, and Sweetwater Counties, Wyoming. BLM State Office, Cheyenne, Wyoming.

_____, 2005a Task 2 Report for the Powder River Basin Coal Review – Past, Present and Reasonably Foreseeable Development Activities. Prepared for the BLM Wyoming State Office, BLM Wyoming Casper Field Office, and BLM Montana Miles City Field Office by ENSR Corporation, Fort Collins, Colorado. December 2005. Available from website on the Internet as of August 2008: http://www.blm.gov/wy/st/en/probrams/energy/Coal-Resources/PRB-Coal/prbdocs.html.

_____, 2005b Task 3D Report for the Powder River Basin Coal Review – Cumulative Environmental Effects. Prepared for the BLM Wyoming State Office, BLM Wyoming Casper Field Office, and BLM Montana Miles City Field Office by ENSR Corporation, Fort Collins, Colorado. December 2005. Available from website on the Internet as of August 2008: http://www.blm.gov/wy/st/en/probrams/energy/Coal-Resources/PRB-Coal/prbdocs.html.

_____, 2005c Task 1A Report for the Powder River Basin Coal Review – Current Air Quality Conditions. Prepared for the BLM Wyoming State Office, BLM Wyoming Casper Field Office, and BLM Montana Miles City Field Office by ENSR Corporation, Fort Collins, Colorado. September 2005. Available from website on the Internet as of August 2008: http://www.blm.gov/wy/st/en/probrams/energy/Coal-Resources/PRB-Coal/prbdocs.html.

_____, 2006a, Task 3A Report for the Powder River Basin Coal Review – Cumulative Air Quality Effects. Prepared for the BLM Wyoming State Office, BLM Wyoming Casper Field Office, and BLM Montana Miles City Field Office by ENSR Corporation, Fort Collins, Colorado, February 2006. Available from website on the Internet as of August 2008: http://www.blm.gov/wy/st/en/probrams/energy/Coal-Resources/PRB-Coal/prbdocs.html.

_____, 2006b, Draft Supplement to the Montana Statewide Oil and Gas Environmental Impact Statement and Amendment of the Powder River and Billings Resource Management Plans. December 2006. Available from website on the Internet as of August 2008: http://www.blm.gov/eis/mt/milescity_seis.

U.S. Department of Energy (DOE), 2006, Energy Information Administration, "Emission of Greenhouse Gases in the United States 2005", November 2006. Available from website on the Internet as of November 2007: http://www.eia.doe.gov/fuelcoal.html.

_____, 2007, Energy Information Administration, "U.S. Coal Supply and Demand", by Fred Freme, April 2007. Available from website on the Internet as of November 2007: http://www.eia.doe.gov/cneaf/coal/page/special/feature.html.

_____, 2008a, International Energy Outlook 2008, Energy Information Administration Report #DOE/EIA-0484(2008). Available from website on the Internet as of July 2008: http://www.eia.doe.gov//oiaf/ieo/highlights.html.

_____, 2008b, Annual Energy Outlook 2008, Energy Information Administration Report # DOE/EIA-0383(2008). Available from website on the Internet as of June 2008: http://www.eia.doe.gov/oiaf/aeo/pdf/overview.pdf.

U.S. Environmental Protection Agency (EPA), 1986, Quality Criteria for Water 1986 (the "Gold Book"), Office of Water Regulations and Standards, EPA 440/5-86-001, May 1, 1986. 447 p. Available from website on the Internet: http://www.epa.gov/waterscience/criteria/library/goldbook.pdf.

_____, 1997, Mercury Study Report to Congress. Available from website on the Internet: http://www.epa.gov/mercury/report.htm.

_____, 2006, "EPA's Roadmap for Mercury". Executive Summary, EPA-HQ-OPPT-2005-0013. Available from website on the Internet as of July 2008: http://www.epa.gov/mercury/roadmap.htm.

_____, 2008a, Basic information about mercury. Available from website on the Internet as of July 2008: http://www.epa.gov/mercury/about.htm.

_____, 2008b, Clean Air Mercury Rule. Basic information available from website on the Internet as of July 2008: http://www.epa.gov/air/mercuryrule/basic.htm.

_____, 2008c, EPA's Climate Change website on the Internet, as of July 2008: http://www.epa.gov/climatechange/index.html.

_____, 2008d, EPA's Greenhouse Gas Reporting Rule. Available from website on the Internet as of July 2008: http://www.epa.gov/climatechange/emissions.ghgrulemaking.

FutureGen, 2008, General information obtained from FutureGen Alliance website on the Internet as of July 2008: http://www.futuregenalliance.org.

Hem, J.D., 1970, Study and Interpretation of Chemical Characteristics of Natural Water, Second Edition, U.S. Geological Survey Water-Supply Paper 1473. 363 p.

Hydrometrics, 2006a, Tract III South Extension Baseline Water Resources Data Report. Prepared for Westmoreland Resources, Inc. September 2006.

_____, 2006b, Exhibit I-36, Comprehensive Analysis of Probable Hydrologic Consequences. Westmoreland Resources, Inc. Absaloka Mine, Big Horn County, Montana. Prepared for Westmoreland Resources, Inc. November 2006.

James, Revis, 2007, Electric Power Research Institute. "Electricity Technology in a Carbon-Constrained Future", and "The Power to Reduce CO_2 Emissions: The Full Portfolio". February and August 2007. Available from website on the Internet: http//www.epri.com.

Lambing, J.H., 1986, Hydrology of Area 48, Northern Great Plains and Rocky Mountain coal provinces, Wyoming and Montana: U.S. Geological Survey Water Resources Investigations Open File Report 84-141.

McDannel, Angela, 2008, Montana Department of Environmental Quality Groundwater Hydrologist, Coal and Uranium Program. July 31, 2008

personal communication with Greg Hallsten, EIS Coordinator, MDEQ Director's Office.

National Association of Regulatory Utility Commissioners (NARUC), 2008a, Committee on Energy Resources and the Environment, Resolution on State Regulatory Policies Toward Climate Change, adopted November 14, 2007. Available from website on the Internet as of July 2008: http://www.naruc.org/committees.cfm?c.

_____, 2008b, Capgemini Study: State Regulators Express Concern Over Carbon Uncertainty, Energy Demand, June 2, 2008. Available from website on the Internet as of July 2008: http://www.naruc.org/Story/default.cfm?r=8.

Nicklin Earth and Water, Inc. (Nicklin), 2006, Final Summary Report Absaloka Mine Ground-water Model Crow South Extension. Prepared by Nicklin Earth and Water, Inc. for Westmoreland Resources, Inc., October 2006.

PEW Center on Global Climate Change (PEW), 2008a, Global Warming Basics Introduction. Available from website on the Internet as of July 2008: http://www.pewclimate.org/global-warming-basics/about.

_____, 2008b, Analysis of the Lieberman-Warner Climate Security Act of 2008. Available from website on the Internet as of July 2008: http://www.pewclimate.org/analysis/l-w.

Snell, A.H., 2006, A Taste of Heritage, Crow Indian Recipes and Herbal Medicines. University of Nebraska Press, Lincoln. 191 p.

U.S. Geological Survey (USGS), 1977, Final Environmental Statement, Proposed 20-Year Plan of Mining and Reclamation, Westmoreland Resources Tract III, Crow Indian Ceded Area, Montana, May 31, 1977.

_____, 1999, The Quality of our Nation's Waters – Nutrients and Pesticides. Circular 1225. Reston, Virginia, 1999.

WESTECH Environmental Services, Inc., 2006, Native American Use of Plants in the Vicinity of the Absaloka Mine, Big Horn County, Montana. A report prepared for Westmoreland Resources, Inc., Hardin, Montana. April 2006.

Westmoreland Resources, Inc. (WRI), 1975, Environmental baseline studies for Crow Indian coal leases, Hydrology section: 72 p., 6 pl.

_____, 2007, OSM Permit Application Package No. MT-0021-A, Absaloka Mine – South Extension. Submitted February 2007.

WWC Engineering (WWC), Alluvial valley floor assessment for Middle Fork Sarpy Creek in the vicinity of the Absaloka Mine Tract III South Amendment Area. Prepared for Westmoreland Resources, Inc., March 2004.

APPENDIX A

Written Comments Received by BIA and MDEQ
During the Public Comment Period

Letter from Office of Surface Mining Reclamation and Enforcement

United States Department of the Interior

OFFICE OF SURFACE MINING
Reclamation and Enforcement
P.O. Box 46667
Denver, Colorado 80201-6667

IN REPLY REFER TO:

April 21, 2008

MT0021A-S01

Mr. Rick Stefanic
Bureau of Indian Affairs
Billings Area Office
316 N 26th Street
Billings, MT 59101

Re: Draft EIS Review Comments
Absaloka South Mine & Southern Most Extension of Absaloka North Mine
OSM Project Tracking Code: MT-0021-A-S-01
ARMS[1] Number: 08/03/24-06

Dear Rick:

The Office of Surface Mining Reclamation & Enforcement (OSM), participating as a cooperating agency with the Bureau of Indian Affairs (BIA) in the preparation of an Environmental Impact Statement (EIS) for the pending Absaloka Mine actions, has completed a review of the Draft EIS provided to us by WWC Engineering on March 24, 2008. This draft was titled "Draft Environmental Impact Statement for the Absaloka Coal Mine Crow Reservation South Extension Coal Lease Approval, Proposed Mine Development Plan, and Related Federal and State Permitting Actions". Our review indicates that the draft EIS is well organized and written. The document adequately describes the purpose and need for the proposed action and alternatives considered. It is currently anticipated that the final EIS will serve OSM's NEPA needs in preparing the necessary federal mining permit decision documents as required by the Surface Mining Control and Reclamation Act (SMCRA). We found no serious flaws in the document or supporting analysis and offer for your consideration only the following few editorial comments and suggestions:

OSM Draft EIS Comments

- In the second paragraph on page 3-84 (section 3.5.2, Surface Water, subsection 3.5.2.1, Affected Environment), the EIS characterizes TSS concentrations as being, "....relatively low, average less than 100 mg/L." From our review of the proposed SMCRA permit application package (PAP), we have understood that the TSS concentrations were considerably higher, ranging from a few hundreds to several thousands of mg/L during storm runoff (we realize snowmelt runoff conditions produce low TSS values). Please check into this inconsistency to confirm accuracy or rewrite the draft language.

[1] OSM's internal Administrative Records Management System

- On page 3-92, the first sentence of the first paragraph of section 3.5.2.3.1.3 (Stormwater Management Proposed Action and Alternatives) reads "The Proposed Action is for EPA to issue an NPDES stormwater permit for the use of 24 sediment traps to contain the 2-year, 24-hour runoff event during the operational phase,....." According to a conversation had between OSM and Westmoreland Resources, Inc (WRI) recently, it is our understanding that WRI anticipates amending this plan to construct two ponds in series at each of these 24 locations and size the pairs to, in combination, have enough volume to contain the 10-year 24-hour runoff event. The drat EIS language should reflect WRI's updated plans, assuming OSM receives revised PAP language reflecting WRI's recently stated plans.
- In the first paragraph of section 4.2.4.2 Surface Water (page 4-35), the statement that, "Coal mines in the PRB fall under EPA's Western Alkaline Coal Mine Subcategory regulation (40 CFR Part 434)....." is only partially correct. During the operational phase of mining (i.e., before regrading), disturbed areas of the PRB mines fall under the Alkaline Drainage regulations at 40 CFR part 434.63. The statement is correct in that said coal mines must follow the Western Alkaline regulations at 40 CFR part 434.82, but only for topsoil stockpiles, grubbing areas, and reclamation areas. Parts 434.63 and 434.82 are very different sets of regulations and merit separate mention. OSM would suggest amending this section of the draft to clarify this difference accordingly.

Thanks for the opportunity to review and comment on the draft EIS. For further information or clarifications concerning the comments provided in this letter, please contact me at 303-293-5047, or Hal Pranger at 303-293-5042.

Sincerely,

Rick Williamson

Rick Williamson
Team Leader – Absaloka Mine
Western Region, Program Support Division

Letter 1 from
United States Environmental Protection Agency,
Region 8

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

May 19, 2008

Ref: EPR-N

Mr. George Gover
Superintendent
Bureau of Indian Affairs
P.O. Box 69
Crow Agency, Montana 59022

Re: Absaloka Mine Crow Reservation South Extension Coal Lease, DEIS CEQ # 20080092

Dear Mr. Gover:

In accordance with our responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4332(2)(C) and Section 309 of the Clean Air Act, 42 U.S.C. Section 7609, the U.S. Environmental Protection Agency Region 8 (EPA) has reviewed the Bureau of Indian Affairs' (BIA) Absaloka Mine Crow Reservation South Extension Coal Lease Approval Draft Environmental Impact Statement (DEIS). The project proponent, Westmoreland Resources Inc. (WRI) proposes to extend the Absaloka Mine south on to the Tract III coal lease and the South Extension Tract within the boundaries of the Crow Indian reservation. The proposed mine extension would allow WRI to continue mining at the current production rate of 6.5 to 7.0 million tons of coal per year until approximately 2021.

EPA asked for an extension of the comment period so that revised information regarding EPA's proposed National Pollutant Discharge System (NPDES) permit for the Absaloka Mine South Extension project would be available during the EIS public comment period. The DEIS published in March, 2008 included information for NPDES water discharge alternatives during the pre-mining and post-mining phases of the project. On April 2, 2008, EPA received a revised NPDES permit application from WRI which requested an NPDES permit for water discharges during the active mining phase in addition to the pre-mining and post-mining phases. EPA issued a public notice for public comment on the draft NPDES permit for water discharges associated with all phases of the project comment on May 2, 2008.

EPA will be sending two comment letters for this DEIS, because of the tight schedule for this project. This first comment letter includes most of our comments, except for the changes we are recommending to update the NPDES section, comments on greenhouse gas emissions, and our rating in accordance with EPA responsibilities for conducting independent review under the Clean Air Act Section 309. We do not anticipate that the NPDES changes will affect the environmental analysis in the DEIS. The main change would be the "design storm" for sediment control structures during the active mine phase. Runoff from active parts of the mine will be required to have sediment control structures that can accommodate a 10-year, 24-hour storm.

EPA's review of the DEIS identified some concerns associated with impacts to air quality, surface and groundwater quality, groundwater levels, alluvial groundwater flows, and wetlands along with the need to improve the disclosure of environmental impacts. Further discussion and more detailed comments and concerns regarding EPA's analysis of potential environmental impacts of the Absaloka Mine Crow Reservation South Extension Coal Lease Approval are included in the enclosure with this letter.

If you have any questions regarding our comments please contact Dana Allen at 303-312-6870, Steve Potts at 406-329-3313 or me at 303-312-6004.

Sincerely,

Larry Svoboda
Director, NEPA Program
Office of Ecosystems Protection and Remediation

Enclosure

cc: Rick Stefanic, BIA
Greg Hallsten, Montana DEQ

EPA's Detailed Comments on the Absaloka Coal Mine, South Extension DEIS

Water Resources

1. The DEIS states that dissolved metals concentrations are typically low in the alluvial wells in Middle Fork Sarpy Creek and Sarpy Creek locations, although it is also stated that dissolved iron and manganese are above the SMCL levels (secondary drinking water standards) in every sample collected (page 3-56). The DEIS further states that the levels of potential contaminants such as nitrate, arsenic, selenium, barium, and trace metals (e.g., mercury, lead, chromium, copper, cadmium, zinc) are typically less than the analytical detection limits or are significantly below the MCLs (drinking water standards -- maximum contaminant levels) in all water samples that were collected in 2005 and 2006 from alluvial monitoring wells located within and adjacent to the South Extension development area.

   Westmoreland Resources Inc. (WRI) sent Absaloka Mine water quality data to EPA NPDES permit staff in Denver that showed background water quality with elevated levels of some metals. For example, concentrations of aluminum, copper, iron, lead, manganese, zinc exceeded surface water quality standards. It is not clear to EPA where these samples were collected (i.e., Sarpy Creek, Middle Fork Sarpy Creek, or a tributary), and how representative the data may be of overall natural conditions in surface waters in the project area.

   These data seem inconsistent with the above referenced DEIS statements that the levels of trace metals are below the analytical detection limits. Lead, copper, and zinc are of particular concern. The FEIS should provide further information and discussion regarding the potential for elevated levels of metals to be present in surface waters in the project area, as well as in mine drainage and/or stormwater runoff from the mine. For example from the discussion in the DEIS, it appears that there is long-term water quality data for Sarpy Creek. This information could be summarized or graphed to present long-term water quality trends from the mine. The extent to which the proposed sedimentation treatment systems would remove metals from mine drainage and stormwater runoff should also be discussed. Data on the hardness levels in project area surface waters should also be provided, because water quality criteria for metals are dependent on hardness.

2. In Westmoreland's application to discharge mine drainage from the active mining area, data were provided which showed exceedances of EPA's Quality Criteria for Water (EPA 440/5-86-001, May 1, 1986) for aluminum, copper, lead, and zinc. These data were provided in the "total" fraction and EPA's criteria are for metals in the "dissolved" fraction. The FEIS should include a discussion regarding whether potential toxicity could result from these metals and how these data can be interpreted when concerning total metal concentrations and dissolved metals concentrations given background and receiving water pH and hardness.

3. The first paragraph on page 3-101 should note that the State of Montana is scheduled to develop a Total Maximum Daily Load (TMDL) for nutrients in Sarpy Creek during the life of

the propose mine extension. The results of the TMDL will need to be incorporated into EPA's and the State of Montana's NPDES permits.

4. The third paragraph on page 3-101 should be revised to include a summary of monitoring data for nitrogen compounds (nitrate, nitrite, ammonia and total Kjehldahl nitrogen). Nitrogen compounds are frequently found downstream or in the ground water at mines with large areas of blasting using ANFO (ammonium nitrate/fuel oil).

5. The DEIS acknowledges that up to a 30 percent reduction in the groundwater flow through the Middle Fork Sarpy Creek alluvial aquifer may occur due to mining (page 3-71). The life of mine drawdown is projected to be no more than five feet at a distance of about 1,200 feet east of the South Extension boundary, and that maximum drawdown in the overburden is projected to be about 40 feet in the area immediately east of the eastern most pit, and the maximum drawdown directly south of the South Extension development area is about 10 to 20 feet (page 3-68). EPA is concerned about reductions in alluvial groundwater flows to the Middle Fork Sarpy Creek. For example, please clarify whether the estimated 30 percent reduction in groundwater flow through the Middle Fork alluvial aquifer is based on anticipated loss of all lateral recharge to the alluvial aquifer. Additional information should be added to the FEIS to explain the recharge to the alluvial aquifer.

   Groundwater recharge may be important since the DEIS states that drawdown prediction figures illustrate that the areal extent of drawdown in both the overburden and coal aquifers due to pit dewatering would be limited to a maximum distance of no more than ½ mile from the pits (page 4-33). However, if drawdown occurs as much as ½ mile from the mine pit, it would appear to us that an increase in the proposed 250 to 300 foot riparian buffer on the Middle Fork Sarpy Creek may lessen the reduction in alluvial groundwater flow. However, EPA understands that the reduction in alluvial groundwater flow would occur regardless of riparian buffer width. The relationship between riparian buffer width and the extent of alluvial groundwater drawdown remains unclear to EPA, as it appears that increasing the riparian buffer beyond 250-300 feet would lessen the potential drawdown (i.e., if drawdown occurs up to ½ mile from the mine pit). The FEIS should provide further discussion regarding relationships between riparian buffer width and reduction in alluvial groundwater flows. EPA also recommends that the riparian buffer zone be flagged in the field to better assure that mine equipment operators respect buffer zone boundaries.

6. EPA is concerned about the long-term groundwater drawdowns that would result from coal mining. The DEIS states that water levels in affected aquifers would remain depressed below pre-mining levels for a long period of time, perhaps even permanently (page 3-72). In addition, the DEIS indicates that groundwater impacts from coal bed natural gas (CBNG) development and surface coal mining would be additive in nature, and that addition of CBNG development would extend the area experiencing drawdown to the east of the mining area (page 4-34). After CBNG development and coal mining projects are completed, it will take longer for groundwater levels to recover due to the overlapping drawdown impacts caused by the dewatering and de-pressuring of the coal aquifer by both operations (page 4-35). This additive effect of potential future CBNG development along with and coal mining in regard

to groundwater drawdowns increases concerns about reductions in groundwater levels and any adverse impacts to flows in Middle Fork Sarpy Creek.

EPA recommends the FEIS explore potential mitigation measures to compensate for long-term, and maybe even permanent, adverse effect to groundwater levels (loss of springs EPA recommends the lead agencies consider requiring WRI to provide water developments to compensate for decreased groundwater levels and loss of springs that occur due to mining.

7. EPA is concerned about the projected increased levels of salinity and dissolved solids in groundwater likely to occur as a result of coal mining. The DEIS states that the Total Dissolved Solids (TDS) concentrations in the water re-saturating the backfill after mining is generally higher than TDS concentration in groundwater from the overburden and coal seam aquifers prior to mining due to availability of highly soluble salts in overburden sediments (page 3-73). In BLM's regional study of the cumulative impacts of coal mining in the Powder River Basin, the median concentrations of dissolved solids and sulfates were found to be higher in water from backfill aquifers than in water from either the Wasatch Formation overburden or the Wyodak coal aquifer. The DEIS stated that these elevated concentrations result from blasting and movement of the overburden materials that exposes more surface area to water, increasing dissolution of soluble materials, particularly from the overburden materials that were situated above the saturated zone in the pre-mining environment (page 4-33).

   While a significant variability in natural TDS levels in groundwater appears to exist, the average TDS concentration in coal monitoring wells collected from the Rosebud and McKay seams was stated to be 1,606 mg/l (page 3-61). The potential post-mining groundwater quality at the Absaloka Mine has been predicted by modeling and by evaluating backfill water quality to range from 2,600 to 2,900 mg/l (page 3-74). This analysis, therefore, appears to predict an increase of approximately 1,000 mg/l in TDS levels from pre-mining conditions.

Wetlands

8. We appreciate the inclusion in the DEIS of figures (maps) showing the locations of wetlands in the proposed area of mining disturbance based on USFWS wetlands inventory mapping (Figures 3-14 to 3-17d). It appears that most wetlands lie within the proposed 500-600 foot riparian corridor for the Middle Fork Sarpy Creek, and thus, would not be disturbed during mining. However, some palustrine emergent seasonally flooded (PEMC) and temporarily flooded wetlands (PEMA) appear to be shown outside this riparian corridor on unnamed tributaries to Middle Fork Sarpy Creek (Figure 3-14).

   It appears that any wetlands outside the 500-600 foot riparian corridor for the Middle Fork Sarpy Creek will likely be impacted during mining. The DEIS, however, only appears to identify 0.9 acres of wetlands along the Middle Fork Sarpy Creek riparian corridor that may be disturbed during dragline crossings over the channel, as the extent of overall wetland impacts from the proposed Tract III and South Extension mining (page 3-120).

For purposes of clarity, we ask that the FEIS discuss the PEMC and PEMA wetlands on unnamed tributaries to Middle Fork Sarpy Creek that are located outside the 500-600 foot riparian corridor for the Middle Fork Sarpy Creek and that may be impacted during mining. It is important that all pre-mining wetland areas impacted during mining be quantified to better assure that post-mining reclamation will re-establish adequate wetlands during post-mine reclamation to achieve no net loss of wetlands. All wetlands that may be impacted by mining, including those outside the riparian corridor, should be quantified and disclosed.

9. The FEIS should also disclose that WRI will need to need to obtain a Clean Water Act Section 404 permit from the U.S. Army Corps of Engineers for the discharge of dredged and fill material into waters of the United States. Mining activities such as the dragline crossings of the Middle Fork of Sarpy Creek would need to be covered under a national or individual 404 permit if they result in the discharge of dredged or fill material into waters of the United States.

Air Quality

10. The BIA presented near-field modeling results for project specific criteria pollutants utilizing AERMOD and referenced the PRB 2005 Coal Review for the cumulative and visibility impacts. Tables 4-4 through 4-6 disclose potential cumulative impacts referenced from the Task 3A Report for the Powder River Basin Coal Review -- Cumulative Air Quality Effects. Potential cumulative impacts exceeded significance thresholds for the following:

    a) The 24-hour National Ambient Air Quality Standards (NAAQS) for particulate matter as PM10 is 150 µg/m3. As described in the PRB Coal Review Cumulative Air Quality Impacts report for Base Year 2002, the maximum cumulative PM10 was predicted to be 175.8 µg/m3, for 2010 Lower Development Scenario 200 µg/m3 and for 2010 Upper Development Scenario 247.7 µg/m3.

    b) Modeled increment impacts for the Prevention of Significant Deterioration (PSD) regulations in Class I areas were shown to be over the PSD threshold at the Northern Cheyenne Indian Reservation for SO2 and PM10. For Washakie Wilderness Area and Wind Cave National Park, for PM10. For Class II areas, impacts were over the PM10 threshold for the Crow Indian Reservation.

    c) A significant number of increased Days of Visibility Impairment (greater than 10%) were modeled at several Class I areas even under the 2010 Lower Development scenario near the project, including 5 days at Northern Cheyenne Indian Reservation, 15 days at Theodore Roosevelt and 6 days at Northern Absaroka Wilderness Area.

    Table 2-4 (page 2-33) states visibility impacts were 199 or more days with a change of 1.0 dv or greater at three Class I areas. EPA recommends that the FEIS clarify that these modeled impacts are for baseline conditions (2002), and three out of 17 Class I areas and seven out of 18 sensitive Class II areas in the vicinity of the Powder River Basin have visibility impacts greater than 199 days.

d. The Acid Neutralizing Capacity of sensitive lakes shows a predicted impact exceeding the significance threshold at the Cloud Peak Wilderness under the 2010 Lower Development Scenario. Under the same Scenario to the impact at Cloud Peak, an impact at the Bridger Wilderness Area also is predicted.

EPA understands the Bureau of Land Management (BLM) has committed to carry out additional detailed modeling for the Powder River Basin (PRB) Coal Review (2008). If the additional modeling becomes available, EPA recommends incorporating the revised modeling into the Absaloka FEIS. The Absaloka Mine extension is within 10 miles of the Class I Northern Cheyenne Indian Reservation, which receives significant adverse impacts from the many energy development projects in the area, as shown in the PRB Coal Review's cumulative effects analysis from coal mines within Montana. EPA believes that the control measures specified under Section 3.4.2.3 provide a significant level of point source and fugitive dust control. To further ensure impacts to the Class I areas are minimized, additional measures should be added in the FEIS for the Absaloka mine, such as those implemented at the PRB mines in Wyoming that fall under the State of Wyoming's Natural Event Action Plan (http://deq.state.wy.us/AQD/NEAP.asp)

11. EPA recommends that the discussions of visibility impairment be expanded to clarify the relative contribution of the Absaloka mine to cumulative air quality conditions, especially on the Northern Cheyenne Indian Reservation. For example, the Absaloka mine is a relatively small mine when compared to other mines in the immediate area; and in particular, when compared to the coal mines located near Gillette, Wyoming. Also the cumulative air impacts discussion on page 4-26, mentions that the coal mines mainly emit PM10 and the majority of impacts are in the "near-field". The FEIS should clarify what ranges of distances are typically considered to be "near field"? The FEIS should also explain more clearly, that emissions from the Absaloka mine are already included in the baseline for cumulative air impacts and the increase in days of visibility impairment from 5 to 10 days of visibility impairment predicted for 2010 are based on increased emissions from energy development activities other than the Absaloka mine

12. EPA recommends that the Absaloka Mine resume monitoring air quality to ensure compliance with the NAAQS PM10 24-hour standard and to measure project specific impacts to the Northern Cheyenne Class I airshed. We recommend that the monitoring site be located in the southeast corner of the proposed project boundary, in a publicly accessible area.

13. On page 3-24, middle of first paragraph of Section 3.4.1.1, the current list of pollutants with NAAQS should be updated to include PM2.5. "These ~~six~~ *seven* pollutants are carbon monoxide . . . . particulate matter (PM10 *and PM2.5*) . . ."

14. Table 3-4 "Assumed Background Air Pollutant Concentrations", presents carbon monoxide, nitrogen dioxide and sulfur dioxide background concentrations that were referenced from the MDEQ Modeling Guidance document. However, the DEIS does not present background data on ozone. EPA recommends that ozone background data be added to the FEIS.

Rather than utilizing modeled data for background concentrations, for project specific impacts, measured data should be included wherever possible. EPA is aware that monitoring data is relatively sparse in this area of Montana; however, sites located in Wyoming at the Thunder Basin National Grassland or at Spring Creek and Decker mines should be used for background data as these data do represent accurately measured data for the area.

15. In Table 3-4, the Primary/Secondary NAAQS for Ozone is now 75 ppb (147 ug/m3). The 1-hour O3 NAAQS is now only applicable for special Early Action Compact areas. Please update this information in the FEIS.

16. Table 3-4 presents PM10 summary data from the South Extension site. This data was collected during 2006. According to footnote 1 of Table 3-6, PM10 Data were "adjusted" due to forest fires located near the facility. Under the EPA Natural Events Policy and the new Exceptional Event Rule (40 CFR parts 50 and 51, March 22, 2007) Montana DEQ and EPA Region 8 should have received data documentation packages substantiating that measured PM10 data were affected by a Natural Event. If the data package was acceptable, then the data would be concurred on, excusing this data from future regulatory review. EPA is aware that fires occurred during this period in this part of Montana; however, we are unsure that the concurrence procedure was followed. The FEIS should explain in detail the monitoring dates and data that were excused. Additionally, the FEIS should include a description of MDEQ or EPA concurrence in order to excuse the measured maximum PM10 concentrations for 2006.

17. EPA recommends that the FEIS disclose that emissions from coal combustion have been identified as a significant source of atmospheric mercury. EPA's website at http://www.epa.gov/mercury/report.htm has several reports summarizing the environmental impacts of mercury, primarily bioaccumulation in the aquatic food web. Concentrations of mercury emitted as a result of combustion vary depending on the chemistry of coal deposits and the type of air pollution controls. For purposes of the DEIS, we recommend including any existing information on mercury emissions from power plants currently burning coal from the mine. If coal ash analysis data including mercury is available, EPA recommends that that information also be included in the FEIS.

Environmental Justice

18. EPA recommends that additional information be added to the Environmental Justice (EJ) section. For example, we have enclosed a map of the area around the Absaloka coal mine showing low income and minority populations, tribal boundaries, facilities with environmental permits or reporting requirements. The addition of this type of map to the EJ section would help pull together the narrative analysis to support the DEIS conclusion that there are no disproportionate impacts on minority, low income and tribal populations

    The EJ section includes some broad statements about the lack of disproportionate impacts to EJ communities; however, it lacks specific information to support the conclusion that there

are no disproportionate impacts on minority, low-income and Tribal populations. We recommend that BIA specifically describe the impacts on these populations, including human health, social and economic effects.

We note that many other sections of the DEIS are pertinent to the Environmental Justice analysis. For example, the air quality sections 3.4 and 4 .2.3 address cumulative visibility and PM10 impacts. Similarly, the analyses of groundwater drawdown, transportation and hunting practices are other areas in the DEIS that are particularly relevant to the EJ analysis. One way to ensure that readers are aware of these other EJ related analyses in the EIS is to include references to them in the EJ section.

Coordination with EPA's NPDES Permit

19. EPA understands BIA has agreed to act as lead federal agency for purposes of the Endangered Species Act (ESA) and National Historic Preservation Act (NHPA) for the Absaloka Mine project. EPA will comply with applicable NHPA and ESA provisions with regard to our NPDES permitting action. To assist EPA in completing our administrative record, could you please send a letter to EPA confirming BIA's status as lead agency for purposes of NHPA and ESA compliance and forward to EPA, copies of correspondence on the Section 7 consultation with the Fish and Wildlife Service. Similarly, could you please forward correspondence regarding the review by BIA and the appropriate State Historic Preservation Officer and Tribal Historic Preservation Officers and/or the National Advisory Council.

Letter 2 from
United States Environmental Protection Agency,
Region 8

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 8
1595 Wynkoop Street
DENVER, CO 80202-1129
Phone 800-227-8917
http://www.epa.gov/region08

June 4, 2008

Ref: EPR-N

Mr. George Gover
Superintendent
Bureau of Indian Affairs
P.O. Box 69
Crow Agency, Montana 59022

Re: Absaloka Mine Crow Reservation South Extension Coal Lease, DEIS CEQ # 20080092

Dear Mr. Gover:

In accordance with our responsibilities under Section 102(2)(C) of the National Environmental Policy Act (NEPA), 42 U.S.C. Section 4332(2)(C), and Section 309 of the Clean Air Act, 42 U.S.C. Section 7609, the U.S. Environmental Protection Agency Region 8 (EPA) has reviewed the Bureau of Indian Affairs' (BIA) Absaloka Mine Crow Reservation South Extension Coal Lease Approval Draft Environmental Impact Statement (DEIS). The project proponent, Westmoreland Resources (WRI) proposes to extend the Absaloka Mine south on to the Tract III coal lease and the South Extension Tract within the boundaries of the Crow Indian reservation. The proposed mine extension would allow WRI to continue mining at the current production rate of 6.5 to 7.0 million tons of coal per year until approximately 2021.

This letter supplements our first letter sent on May 19, 2008 which contains the majority of our comments on the DEIS. Please find enclosed our recommended changes for the Surface Water section of the FEIS. These changes are needed to make the EIS consistent with EPA's draft NPDES permit that was announced for public comment on May 2, 2008. As we mentioned in our earlier letter, EPA received a new permit application from WRI in April 2008 which necessitated changes to the proposed permit. The language in the DEIS was based on WRI's previous application which only included information on water discharges during pre-mining and post reclamation. The draft National Pollutant Discharge Elimination System (NPDES) permit and the enclosed revised EIS language includes additional information on water discharges during the active mining phase. The enclosed EIS revisions also address several EPA comments that EPA reviewers had regarding water quality.

We appreciate the disclosure of the percent of greenhouse gas emissions[1] from the burning of coal from the Absaloka Mine on page 3-183. We recommend that this information be presented in terms that are more easily understood by the public, such as million metric tons per year CO2 equivalents. We also recommend that the section briefly explain the environmental impacts of global climate change, referencing the relevant scientific review reports available on EPA's or Intergovernmental Panel on Climate Change (IPCC) web sites at http://www.epa.gov/climatechange/ and http://www.ipcc.ch/. In addition, EPA recommends that BIA include a cumulative impact analysis and a discussion of appropriate mitigation measures.

In accordance with our responsibilities under the Clean Air Act Section 309, it is EPA's responsibility to provide an independent review and evaluation of the potential environmental impacts of this project. EPA is rating this DEIS as "Environmental Concerns – Insufficient Information" (EC-2). The "EC" rating means that EPA's review of the DEIS, which includes our May 19th letter to you, has identified the potential impacts to ground and surface water, air and wildlife that should be avoided in order to fully protect the environment. The "2" rating means the DEIS does not contain information to fully assess environmental impacts and that the additional information, analyses or discussion should be included in the final EIS. For further questions regarding this rating, please see the attached description of EPA's EIS rating system. We recommend that the information we have requested in this letter and in our May 19th letter be provided in the FEIS to address EPA's concerns.

If you have any questions regarding our comments please contact Dana Allen at 303-312-6870, Steve Potts at 406-329-3313 or me at 303-312-6004.

Sincerely,

Osb DLA

Larry Svoboda
Director, NEPA Program
Office of Ecosystems Protection and Remediation

Enclosures

cc: Rick Stefanic, BIA
Greg Hallsten, Montana DEQ

---

[1] Since the issuance of the April 2, 2007 Supreme Court decision in Massachusetts v EPA, 127 SCt 1438 (2007), EPA has been developing a response to the remand as well as evaluating the broader ramifications of the decision throughout the Clean Air Act (CAA). On March 27, 2008, the Administrator announced that he has directed his staff to draft an Advanced Notice of Proposed Rulemaking (ANPR) to discuss and solicit public input on the specific effects of climate change and the interrelated issues raised by the possible regulation of greenhouse gas emissions under the CAA. Thus, this comment letter does not reflect, and should not be construed as reflecting, the type of judgment that might form the basis for a positive or negative finding under any provision of the CAA.

Letter from Individual Citizen (Mellion and Ihaza)

Subject: eis comments
From: "emellion07@simons-rock.edu" <emellion07@simons-rock.edu>
Date: Mon, 5 May 2008 22:29:32 -0600
To: Westmoreland EIS <WestmorelandEIS@mt.gov>

Bureau of Indian Affairs, Crow Agency
Attn: George Gover, Superintendent
P.O. Box 69
Crow Agency, MT

May 1, 2008
84 Alford Road
Great Barrington, MA 01230
[phone]
Whom It May Concern:

The following are comments in regards to the Draft Environmental Impact Statement (DEIS) for the Absaloka Mine Crow Reservation South Extension Coal Lease Approval, Proposed Mine Development Plan, and Related Federal and State Permitting Actions. As concerned citizens, we are submitting these comments in the interest of preserving the ecological resources of the Crow Tribe.

The proposed development of Westmoreland Resources Incorporated (WRI), expanding coal mining in the Powder River Basin at Absaloka Mine on the Crow Indian Reservation, will have detrimental environmental consequences on critical elements including, but not limited to, the topography and physiography of the land, and thus also on native vegetation, wildlife, and Native American cultural resources. The existing topography of the proposed development area would be substantially changed during mining. While the existing reclamation plan for Absaloka Mine, as well as the reclamation plan for the proposed development area, includes measures to establish wildlife habitat enhancement features, the draft statement fails to fully address a number of crucial issues that would ensure a complete analysis of the effects of the mine expansion.

Due to the fact that native plant communities and corresponding wildlife habitats comprise 63% of the proposed development area, there is the potential for a significant, long-term reduction of plant habitat diversity and thus the carrying-capacity of certain species. The revegetation and reclamation emphasized does not provide solid evidence and assurance of the negation of the detrimental effects of the mining expansion on vegetation.

According to the DEIS, survival and establishment of certain vegetation types planted in reclamation at the Absaloka Mine has been inconsistent to date. The changes of the surface water network caused by mining hinder the success of the reestablishment of vegetation in patterns, as well as the reclaimed land areas. Reclaimed vegetative communities may never completely match the surrounding native plant communities due to the changes in soils, topography, and age diversity of plants.

The minimum 10 year reclamation bond cannot ensure evidence of the benefits of reclaimed plant communities. Key wildlife habitats may never have the chance to be fully restored or even revived. This DEIS does not provide adequate rationalization to justify this potential habitat and biodiversity loss.

The external costs and residual impacts of this loss of vegetation communities to the Crow Indians and other Northern Great Plain Tribes are not fully considered. The plans located on the Absaloka Mine and proposed development area are important historically and currently to Native Americans, with the use of at least seventy species for food, medicinal and other uses.

Thank you for your consideration of our comments on the proposed development of Absaloka Mine. We hope that the concerns raised about the shortcomings of the current DEIS are addressed, and that improvements are made in a new DEIS to better reflect the desire to protect the abundance of environmental resources on the Crow Indian Reservation.

Sincerely,

E. Mellion and I. Ihaza

Letter from Individual Citizen (Aki)

Bureau of Indian Affairs, Crow Agency
Attn: George Gover, Superintendent
P.O. Box 69
Crow Agency, MT

May 2, 2008

84 Alford Road
Great Barrington, MA 01230
(413) 644-4767
To Whom It May Concern:

As a concerned citizen, I appreciate your time reviewing the following comments and suggestions in regards to the Draft Environmental Impact Statement (DEIS) for the Absaloka Mine Crow Reservation South Extension Coal Lease Approval, Proposed Mine Development Plan, and Related Federal and State Permitting Actions. These suggestions have been written in the interest of long-term, sustainable management of the ecological resources and economic welfare of the Crow Tribe.

Currently, coal royalty and production taxes from the Absaloka Coal Mine are paid to the Crow Tribe. In 2006, these totaled $16.6 million. Depending on production levels, the Absaloka Coal Mine has also employed between 70 and 130 Crow tribal members. Should the Proposed Action be carried out to its full extent, revenue for the Crow Tribe would total around $200 million by the year 2021, and employment would be around 170 persons. The life of the Absaloka Mine would be extended from 2009 to 2021, giving the Crow Tribe an additional 12 years of revenue and employment from the mine [ES-27].

Given the fact that no additional infrastructure needs to be built to sustain this extended and prolonged coal production activity, and the promise that post-production ecological rehabilitative measures would be taken, I am writing in support of the Proposed Action. The economic interests of the Crow Tribe, in my opinion, outweigh the environmental impacts. It is important to note that these environmental impacts will include permanent biodiversity and plant habitat loss, as well as the loss of undocumented cultural resources belonging to tribes of the Great Plains.

The Tract III Revision will produce 13 million additional tons of recoverable coal, and the South Extension permit would bring this total up to 77 million tons of recoverable coal resources. This will extend the life of the Absaloka Coal mine up to 15 years from the writing of the DEIS, providing revenue and employment to members of the Crow Tribe over this time period [ES-4]. However, an important socioeconomic consideration has not been addressed in the DEIS. While the current debate focuses on whether Absaloka Mine will become exhausted in 2009, 2011 or 2021, what will happen after the mine closure has not been discussed. Loss of employment and consistent revenue will have a profound impact on the Crow Tribe's economy. The Absaloka Mine Proposed Action merely serves to transfer this concern to a later generation.

Given the widespread environmental consequences associated with coal extraction and consumption (including, but not limited to, irreversible modification of the topography and

ecology of the landscape through coal mining; smog and other air-quality concerns associating with coal burning; and anthropogenic climate warming as a result of carbon dioxide emissions), there is a great economic opportunity in clean energy investment. The Crow Tribe would do well to propose such action to Westmoreland Resources, Inc. (WRI) or any other local industries in the business of producing energy.

Big Horn County is located in eastern Montana, which according to Montana Green Power receives on average 5 hours of full sun per day. The approximately 3,660 acres covered by the South Extension Lease Tract, once relieved of extractive processes, could be recovered by photovoltaic panels. Infrastructure for storing and transporting this electricity could build off existing coal transportation infrastructure, and the installation of the photovoltaic panels could provide employment to Crow tribal members.

Montana has also been ranked number four in the nation for wind-energy potential by the American Wind Energy Association. The space abandoned by the Absaloka Mine after coal extraction could also be used to install a wind energy project. Wind turbines, like solar panels, will result in no intrusive noise or air pollution. Their construction, in addition, could provide jobs for many Crow tribal members.

While it is necessary to extend the life of Absaloka Mine and its economic benefits to the Crow Tribe, I would recommend that the Crow Tribe consider its long-term interests and begin planning for the future. Once emptied of coal, the landscape can continue to produce energy and be economically productive, if steps are taken to implement the proper infrastructure. These new, clean energy projects could continue to yield revenue to Crow tribal members as well as meet local energy demands on a sustainable, long-term basis (as opposed to the exhaustible coal mining project that has previously been conducted in the area).

Thank you for your time.

Sincerely,

Helen Aki

APPENDIX B

Sections 3.5.2.2 and 3.5.2.3
as Revised by EPA, Region 8

3.5.2.2 Environmental Consequences

3.5.2.2.1 Proposed Action and Alternative 1

Mining operations in the South Extension development area are proposed to begin in 2008 and continue through 2021. Reclamation would be ongoing and concurrent with mining. WRI expects all disturbed areas to be fully reclaimed by 2025. Currently permitted and proposed future mining operations would affect a total of about 3,382 acres, or 41.4 percent, of the 8,160-acre Middle Fork Sarpy Creek watershed, and less than 100 acres of the upper Sarpy Creek watershed would be disturbed by the proposed South Extension development plan (Figure 3-12).

Changes in surface runoff characteristics and sediment discharges would occur during mining of the South Extension development area as a result of the removal and reconstruction of drainage channels as mining progresses and the use of runoff and sediment control structures to manage discharges of surface water from the mine permit area. Erosion rates could be high on the disturbed areas due to lack of vegetation. However, both state and federal regulations require treatment of surface runoff from mined lands to meet effluent standards. Generally, the surface runoff sediment is deposited in ponds or other sediment control structures inside the permit area before the surface runoff water is allowed to leave the permit area. While mining is in progress, surface water quality would continue to be protected by directing surface runoff from affected areas to sediment ponds, traps, ditches, sumps, and/or mine pits. Surface runoff water from the mine permit area would be detained until testing has shown that effluent limitations would be met for water to be discharged. Discharge limitations are contained in EPA's proposed National Pollutant Discharge Elimination System (NPDES) permit (MT-0030783). Similar to the Absaloka Mine's existing MDEQ Montana Pollutant Discharge Elimination System (MPDES) permit, which authorizes discharges of mine drainage within the State of Montana (MT-0021129), EPA's proposed NPDES permit for the South Extension development area contains three sets of effluent limits for discharges from the active mining area. These limits include three tiers of limits that apply to discharges not related to storm events, discharges caused by any small storm events (less than 10-year, 24-hour precipitation or snowmelt event), and discharges from any large storm events (exceeding the 10-year, 24-hour precipitation or snowmelt event). Effluent limits under MDEQ's MPDES permit have not been exceeded in the past at the Absaloka Mine except during precipitation or snowmelt runoff events in excess of the 10-year, 24-hour event. Based on the performance under the MPDES permit, and the similar application of effluent limits and pollutant removal technologies, effectiveness in treating pollutants in effluent discharged from the active mining area in the South Extension development area is anticipated to mimic that authorized under MDEQ's MPDES permit. Under normal conditions, exceedances of effluent limitations are not expected in the future as mining extends into new drainages and additional sediment control facilities are added (Hydrometrics 2006b).

Since the South Extension development area would be mined as an extension of the existing mine, there would not be a large increase in the size of the area that is disturbed and not reclaimed at any given time as a result of the Proposed Action or Alternative 1. The presence of disturbed areas creates a potential that sediment produced by large storms (i.e., greater than the 10-year, 24-hour storm) could potentially adversely impact areas downstream of the mining operation. This potential for adverse downstream impacts would be extended if the South Extension development area were mined.

Mining has affected surface water within the Absaloka Mine area by reducing runoff during storm and snowmelt runoff events. During these events, water and sediment are routed to and contained within ponds or impoundments constructed along the perimeter of the mine. Under normal operating conditions, water is detained and released slowly after sediment has settled. Runoff from minor storms or snowmelt events, especially those smaller than 10-year, 24-hour events, may not be released downstream due to mine-related uses, infiltration, and infrequency of runoff events. The net result has been a reduction in surface water runoff from the mine area, and sediment loads have likely been reduced compared to premining conditions (Hydrometrics 2006b).

Immediately following reclamation, the loss of soil structure would act to increase runoff rates on the South Extension development area. However, the general decrease in average slope in reclaimed areas, as discussed in Section 3.2.2, and drainage densities common in reclamation would tend to outweigh the potential for an increase in runoff due to a loss of soil structure. Soil structure would gradually recover over time, and vegetation (after successful reclamation) would provide erosion protection from raindrop impact, retard surface flows, and control runoff at approximately premining levels. All surface drainage from reclaimed areas would be controlled using best management practices (BMPs) (including contour furrows, small depressions for sediment traps, and vegetation buffers) until the area is sufficiently stable that drainage control is no longer required. Sedimentation rates are expected to be similar to premining conditions.

The mining and reclamation plan for the South Extension development area is designed to avoid disturbance to Middle Fork Sarpy Creek and its alluvial deposits by not disturbing a corridor 500 to 600 feet wide that includes the stream channel. No mining disturbance would take place within this corridor except for three road and dragline crossings designed to pass runoff from a 10-year, 24-hour storm, consistent with federal and state regulations. The outer edges of the 500 to 600 feet-wide corridor that straddles Middle Fork Sarpy Creek would be no closer than 100 feet from the stream channel; therefore, all surface disturbances would be at least 100 feet away from the channel except at the three crossings. The majority of the mining-related impacts to Middle Fork Sarpy Creek and Sarpy Creek would be the result of disturbances to some of the two streams' unnamed ephemeral tributaries. Flow from upstream areas would pass through the mine, unaltered, and into the lower portion of Middle

Fork Sarpy Creek drainage basin. Changes in water quality from these undisturbed areas are therefore not expected.

In addition to employing various runoff and sediment control facilities (e.g., small sediment ponds and sumps, excavated sediment traps and ditches, or small channel diversions), hydrologic control during mining would consist of allowing runoff to accrue to the mine pits where it would either be used for dust suppression or treated and discharged outside the mine's permit area if the water meets effluent limitations. Large flood control reservoirs are not anticipated for the South Extension development area.

During mining, the mine pits would intercept the majority of runoff within the South Extension development area. A slight reduction in downstream flow rates during mining would therefore be expected. Similarly, no negative impacts to surface water quality would occur while the pits are being used for runoff and sediment containment. Changes to the overall flow and water quality of Middle Fork Sarpy Creek and Sarpy Creek during mining are therefore expected to be negligible and undetectable.

As discussed in Section 3.5.2.1, wide variations in surface water quality have been observed in historical water quality samples collected in the general analysis area. Most variations can be attributable to the natural seasonal streamflow conditions at the time the samples were collected. These variations in surface water quality following periods of high and low flow conditions make identification of potential impacts from mining more difficult. Surface water monitoring has and would continue to be conducted to evaluate and identify anomalous variations in surface water quality. To date, affects to surface water quality from mining are considered imperceptible and affects from future mining activities are expected to be similar (Hydrometrics 2006b).

Once mining is completed the pits would be backfilled and drainage would be reestablished. Reclaimed ephemeral drainageways would be constructed to approximate the premine condition and blend with the existing drainage system above and below the area disturbed by the mining operation. The proposed mine plan for the South Extension development area avoids disturbance of the Middle Fork Sarpy Creek stream channel; therefore, restoration of surface drainage flow patterns as part of the reclamation plan would be expedited. Reclamation at the Absaloka Mine has been successful at reestablishing drainage flow patterns and is an on-going process (Hydrometrics 2006b).

The impacts described above would be similar for both the Proposed Action and Alternative 1, and they are similar to the expected impacts for the currently permitted mining operation.

3.5.2.2.2 No Action Alternative

Under the No Action Alternative, the South Extension development plan would not be permitted. Coal removal and the associated disturbance to tributaries of Middle Fork Sarpy Creek and Sarpy Creek would not occur within either the Tract III Revision area or the South Extension. The impacts to surface water resources related to existing approved mining would continue to occur as permitted. Disturbance related to mining operations at the Absaloka Mine would not be extended onto portions of the proposed development area that will not be affected under the current mining and reclamation plan.

3.5.2.3 Regulatory Compliance, Mitigation and Monitoring

Absaloka Mine's current mining and reclamation plan is designed to minimize disturbances to the hydrologic balance within the permit area and adjacent areas and prevent material damage outside the permit area. Control of surface drainage utilizes best technology currently available (BTCA) to prevent, to the extent possible, additional contributions of suspended solids to streamflow or runoff outside the permit area [82-4-231(k)(ii)(A), MCA]. Surface water flow from the mine is currently controlled using impoundments, located to capture and detain runoff water for sediment control. Sediment control structures are constructed in tributary drainages to Sarpy Creek, East Fork Sarpy Creek, and Middle Fork Sarpy Creek. Detailed descriptions of surface water runoff management and sedimentation control measures are included in WRI's Tract III South permit revision package (WRI 2006), which is on file and available for public review at MDEQ's offices in Helena and Billings, Montana. The majority of impoundments will be removed following mining; however, some will remain as permanent structures (Hydrometrics 2006b).

Control of surface water runoff and associated sedimentation would be accomplished during mining of the South Extension development area consistent with EPA's Final Effluent Guidelines and Standards for Coal Mining (40 CFR Part 434). Control of surface drainage from active areas of the mine would need to meet the New Source Performance Standards (NSPS) to prevent additional contributions of pollutants to receiving waters. Runoff from the active mining areas would be controlled using ponds and sumps. Detention ponds at the edge of the area of disturbance would be designed to detain and settle pollutants from the 2-year, 24-hour precipitation or equivalent snowmelt event. These would then be used in a series with internal sumps and ponds in the active mining area to detain and settle pollutants from the 10-year, 24-hour precipitation or equivalent storm event.

Runoff from pre- and post-mining areas includes runoff from reclamation areas, brushing and grubbing areas, topsoil stockpiling areas, and regraded areas. Control of runoff and associated pollutant loading from pre- and post-mining areas would be controlled through the use of alternate sediment control practices, as outlined in the facility's approved sediment control plan. EPA's approval of the sediment control plan and adoption of the plan to address

runoff from pre- and post-mining areas has been incorporated into EPA's proposed NPDES permit consistent with the EPA's effluent guidelines for Western Alkaline Coal Mining (40 CFR Part 434, Subpart H) regulations. Surface drainage would be controlled and sediment contained within disturbance areas using a combination of BMPs and capturing drainage from active mining areas in the mine pits to the extent possible. Mining operations would be conducted to disturb the smallest practicable area at any one time. Soil salvage would closely precede the active pit, with backfill regrading, soil redistribution, and revegetation following closely behind. The implementation of sediment control BMPs, as required through EPA's NPDES permit, would serve to control and minimize pollutant transport. Sediment control measures would be inspected regularly and sediment removal completed as required to maintain efficient function. Except for small depressions that may be left as post-mine features, sediment control measures would be removed during reclamation operations to provide a smooth topographic transition from reclaimed to undisturbed lands. BMPs would be used during reclamation to ensure that sediment transport from reclaimed lands does not exceed baseline conditions (WRI 2006 and 2007a).

EPA's proposed NPDES permit contains three sets of effluent limits to ensure that pollutants are not discharged from the active mining area in a manner that would affect downstream aquatic life. These include effluent limits for non-precipitation induced runoff, effluent limits for runoff from small storm events (less than 10-year, 24-hour precipitation or snowmelt event), and effluent limits for runoff from large storm events (exceeding the 10-year, 24-hour precipitation or snowmelt event). In evaluating whether there was reasonable potential for these discharges to impact water quality, EPA set "end-of-pipe" limits for which compliance must be met at the outfalls. Instream dilution of pollutant concentrations was not provided as there is no flow present in the receiving waters during extended portions of the year. Using data provided by WRI related to background surface water condition and the anticipated quality of effluent based on monitoring of MPDES discharges from the existing Absaloka Mine, EPA developed water quality-based effluent limits in addition to those present in the mine's existing MPDES permit. The additional limits proposed include those for acute aluminum, chronic aluminum, chronic iron, and chronic lead. These water quality-based effluent limits compliment those provided in the existing MPDES permit for total iron, suspended solids, and settleable solids. Submittal of additional data from WRI and/or further analysis could result in elimination of these additional effluent limits in EPA's permit. The elimination of any water-quality based effluent limits would not result in a change in the environmental impacts from the proposed mining activities but would rather be an indication of the availability of more specific water quality data.

Consistent with EPA's development document for the Western Alkaline Coal Mining effluent guidelines, the settling of sediment sufficient to meet the settleable solids limit for small precipitation events should ensure the settling of metals of concern to levels protective of water quality. For non-storm related

events, compliance with the total iron limit in the MPDES permit indicates that settling of other metals will not be of concern, since the total iron limit can be used as an indicator for settling of other associated metals. The alkaline nature of the runoff should also ensure that metals will be sorbed onto sediment as opposed to dissolved in the water column of the effluent. Therefore, it is anticipated that the runoff from the South Extension would not exceed any of EPA's proposed effluent limits.

The mining and reclamation plan for the South Extension development area is designed to avoid disturbance to Middle Fork Sarpy Creek by not disturbing a corridor 500 to 600 feet wide that includes the stream channel. No mining disturbance would take place within this corridor except for three road and dragline crossings over the channel designed to pass runoff from a 10-year, 24-hour storm, consistent with federal and state regulations. The outer edges of the 500 to 600 feet-wide corridor that straddles Middle Fork Sarpy Creek would be no closer than 100 feet from the stream channel; therefore, a no-disturbance buffer zone of a minimum distance of 100 feet from the stream channel would be maintained. By minimally disturbing the main drainage channel of Middle Fork to allow runoff from undisturbed, upstream portions of the basin to bypass the mine area, by controlling drainage and containing sediment within disturbance areas with sediment control structures and BMPs, and by retaining runoff water in mine pits, impacts to the Middle Fork Sarpy Creek and Sarpy Creek drainage basins would be minimized during mining. In the reclamation phase, as each sub-basin is reclaimed drainage would be reestablished, and sediment would be controlled using temporary BMPs to control sediment transport at or below baseline levels until vegetation is reestablished.

In accordance with the Surface Mining Control and Reclamation Act of 1977 (SMCRA), Montana laws and rules (Title 82, Chapter 4, MCA, and ARM Title 17, Chapter 24), and EPA's Western Alkaline Coal Mining effluent guidelines (40 CFR Part 434, Subpart H), reclamation would restore the surface water drainage after surface mining operations are completed on the South Extension development area. Surface water flow, quality, and sediment discharge would approximate premining conditions. The drainages that intersect the disturbance area would be reclaimed to exhibit channel geometry characteristics similar to the premining characteristics. Tributary drainages of Middle Fork Sarpy Creek and Sarpy Creek would be restored in approximately the same location as the natural channels, and hydrologic functions, including the alluvial groundwater-surface water interaction, would be restored. (See additional discussion in Section 3.5.1.3.).

Monitoring requirements for the existing Absaloka Mine include a monitoring program to assure that all sediment ponds would always have adequate volume reserved to contain runoff from the 10-year, 24-hour storm and for sediment accumulation, collection of streamflow and water quality data from Middle Fork Sarpy Creek and Sarpy Creek at sites shown on Figure 3-13, and compliance with MPDES Permit No. MT-0021129 to meet effluent limits after treatment.

The main function of the surface water monitoring program is to ensure protection of the hydrologic balance in the affected portions of watersheds. These requirements would be extended to include the South Extension development area if MDEQ approves WRI's application to revise the Absaloka Mine Permit to include the Tract III Revision area (WRI 2006) and OSM approves WRI's Absaloka Mine – South Extension Permit Application (WRI 2007a). Compliance monitoring for EPA's NPDES permit would also be incorporated into the monitoring program for the Absaloka Mine South Extension.

The internal drainage control system in the South Extension mining area would route the majority of runoff and water accumulating in mine pits to two primary surface water discharge points north of the reservation boundary, which would be regulated by the mine's existing MPDES Permit No. MT-0021129. Runoff from the active mine area not routed to the discharge points regulated under the mine's MPDES permit would discharge from the 24 outfalls permitted under EPA's proposed NPDES permit, MT-0030783.

WRI would be required by MDEQ and OSM to post a reclamation bond to assure success of reclamation. This bond must remain in place for a minimum of 10 years after vegetation seeding. The 10-year minimum bonding period assures vegetation establishment and surface water flow, quality, and sediment discharge would approximate premining conditions. The MPDES and NPDES permits would require maintenance of sediment control structures until final landscape stabilization is achieved across each sub-watershed contributing runoff to the dedicated control structure.

3.5.2.3.1 Discharges from Mining Operations

WRI applied to EPA and MDEQ for permits for discharges associated with the proposed expansion of the Absaloka Mine. Any applicable discharge permits for mine activities on non-Indian country lands would be issued by the State of Montana. EPA Region 8 would issue any applicable NPDES permits for discharges from the proposed expansion of the Absaloka Mine onto Indian country lands, including lands within the exterior boundaries of the Crow Indian Reservation. WRI has applied to EPA for an NPDES permit to discharge mine drainage from the active mining areas and from reclamation areas, brushing and grubbing areas, topsoil and stockpiling areas, and regraded areas associated with the proposed mine expansion onto the Crow Indian Reservation.

3.5.2.3.1.1 New Source Determination

Based on WRI's NPDES stormwater discharge permit application, EPA has determined that the proposed expansion of the Absaloka Mine onto the Crow Indian Reservation is a "major alteration", which constitutes a "new source" and is subject to NSPS in its NPDES permit [40 C.F.R. § 434.11(j)]. Pursuant to EPA regulations, EPA has evaluated whether one or more of the following

events resulting in a new, altered or increased discharge of pollutants would occur in connection with the expansion of the mine onto the Reservation:

1. Extraction of a coal seam not previously extracted by the mine.
2. Discharge into a drainage area not previously affected by wastewater discharge from the mine.
3. Extensive new surface disruption at the mining operation.
4. Construction of a new shaft, slope or drift.
5. Such other factors as the Regional Administrator of EPA deems relevant.

EPA has determined that the proposed mine expansion, at a minimum, meets criteria 2 and 3. The proposed discharge drains into a new area not previously affected, based on the 12-digit Hydrologic Unit Code (HUC) delineation as defined by the U.S. Geological Survey (USGS), and the proposed expansion disturbs 2,637 acres, which constitutes extensive new surface disruption at the mining operation. Therefore, the proposed expansion project would be a "new source" for NPDES permitting purposes.

EPA public noticed this "new source" determination through the EPA Region 8 NPDES web site (www.epa.gov/region8/npdes), and through several newspapers including the Billings Gazette, the Sheridan Press, the Big Horn County News, and the Apsaalooke Nation on December 12, 2007. EPA did not receive a challenge to this new source determination.

3.5.2.3.1.2 EPA's NEPA Compliance

Because the proposed mine expansion onto the Crow Indian Reservation would be a "new source coal mine" as defined at 40 CFR § 434.11(j)(1) and subject to NSPS, EPA's issuance of an NPDES stormwater permit to this "new source" requires compliance with NEPA and implementing regulations, and EPA's NEPA regulations at 40 CFR Part 6 (40 CFR § 122.29). The BIA and MDEQ serve as joint lead agencies for preparation of this EIS under their respective authorities of NEPA and MEPA. EPA is a cooperating agency. EPA intends to make a decision, based on the analysis presented in this EIS, to issue or deny an NPDES permit for the discharges of mine drainage stormwater associated with the proposed mine expansion onto the Crow Indian Reservation. This section of the EIS describes the Proposed Action for management of mine drainage, reasonable alternatives to the Proposed Action, the No Action Alternative, and their associated environmental impacts.

3.5.2.3.1.3 Proposed Action and Alternatives

On May 15, 2007, WRI applied for an NPDES permit to discharge mine drainage from the pre- and post-mining areas within the South Extension. Since publication of the Draft EIS in March 2008, EPA received an additional NPDES permit application requesting authorization to discharge mine drainage from the active mining area. EPA's proposed action is to issue a single NPDES permit to WRI to cover discharges from both the pre-and-post-mining areas as

well as discharges from the active mining areas. EPA proposed a draft NPDES permit and provided public notice for the draft permit on May 2, 2008. During the public comment period on the draft permit, EPA received comments from WRI, which included data that more specifically characterized the anticipated water quality from non-storm related events. Reasonable potential to exceed 30-day and acute water quality criteria was re-evaluated using the newly provided data sets. Upon re-assessment of reasonable potential to exceed water quality criteria using the updated data, EPA removed the acute and chronic limits for dissolved copper and dissolved zinc and the acute limit for lead. EPA then proposed a new draft permit in July 2008 for public comment. This permit includes effluent limits that address discharges of mine drainage from pre- and post-mining areas as well as discharges of mine drainage from the active mining areas. In order to provide public notification of the additional authorizations provided through the NPDES permit, the comment period for the Draft EIS was extended to coincide with the 30-day public notice period for the proposed NPDES permit. Authorizing discharges of mine drainage from the active mining area is not anticipated to result in additional environmental impacts because discharges of mine drainage from the active mining areas would be subject to the same treatment technology (i.e., sediment ponds), and effluent limits in the NPDES permit would ensure that the quality of the water being discharged will be similar in nature. The NPDES discharge alternatives in this Final EIS have been altered to include discharges of mine drainage from the active mining areas. Specifically, internal controls would be applied to discharges from the active mining areas. The Draft EIS prescribed the use of detention ponds at the edge of the disturbance to detain the 2-year, 24-hour storm event. Internal ponds and sumps, when combined with detention ponds as described in the Draft EIS, would be designed to detain discharges of mine drainage from the active mining area for the 10-year, 24-hour storm event. Discharges from pre-and post-mining areas would be subject to detention of the 2-year, 24-hour event, and discharges from the active mining area would be subject to detention of the 10-year, 24-hour event. The design and maintenance of ponds/sumps to detain both the 2-year and 10-year events were evaluated in the Draft EIS.

In accordance with SMCRA, EPA's permit would need to require the use of sediment traps and ponds to contain the 10-year, 24-hour precipitation or equivalent snowmelt event for discharges of mine drainage from the active mining area. These traps and ponds could then be reduced to small depressions designed to contain the 2-year, 24-hour precipitation or equivalent snowmelt event as a BMP during the reclamation phase consistent with EPA's effluent guidelines for Western Alkaline Coal Mining. Sediment traps would be installed with additional freeboard to allow for three times the average annual sediment volume to allow for proper function until vegetated cover is maintained. Sediment traps would also need to be inspected for standing water (i.e., standing water would be pumped after inspection for clarity to allow for maximum replication of pre-development hydrology) and sediment would need to be excavated to ensure that the design capacity is not exceeded by greater than 25 percent. The permit would regulate discharges of mine

drainage from the active mining area in addition to mine drainage from pre- and post-mining areas associated with the proposed mine expansion onto the Crow Indian Reservation. Pre- and post-mining areas include reclamation areas, brushing and grubbing areas, topsoil and stockpiling areas, and regraded areas. Effluent guidelines for runoff from the pre- and post-mining areas specify that a sediment control plan be submitted to EPA, approved by EPA, and be incorporated into the NPDES permit as an effluent limitation. The sediment control plan must be designed to prevent an increase in the average annual sediment yield from the premined, undisturbed conditions.

Based on data submitted in the NPDES permit application, the preliminary sediment modeling report submitted to EPA by WRI, and through input to EPA from the Office of Surface Mining Reclamation and Enforcement (OSM), two reasonable action alternatives to the Proposed Action are examined in this EIS specific to the discharge of stormwater runoff from the proposed mine expansion area. The Proposed Action and the two action alternatives analyzed all would require the issuance of an NPDES permit for discharges of mine drainage from the active mining areas and for discharges of mine drainage from the pre- and post-mining areas. The alternatives are summarized as follows:

- Proposed Management Alternative #1 (WRI's Proposed Action): Use of 24 sediment traps at the periphery of each subwatershed to contain the 2-year, 24-hour runoff event plus sediment storage during the operational phase of the mine and managed to ensure pre-development hydrology, which could be reduced in size to small depressions as a BMP during the reclamation phase for all discharges to Sarpy Creek and Middle Fork Sarpy Creek. These 24 sediment traps would be used in a series with ponds and traps within the active mining area to ensure that all discharges of mine drainage from the active mining area would be subject to a combined containment of the 10-year, 24-hour runoff event. Includes the use of management practices to reduce erosion and sediment transport.

- Proposed Management Alternative #2: Use of conventional sediment ponds to detain the 10-year, 24-hour runoff event plus sediment storage, with pond size reduced to detain the 2-year, 24-hour runoff event plus sediment storage during the reclamation phase for all discharges to Sarpy Creek and Middle Fork Sarpy Creek. This would require the consolidation of subwatershed drainages to facilitate the use of seven or more dams, each exceeding 20 acre-feet in size.

- Proposed Management Alternative #3: Use of a single large dam on the mainstem of Middle Fork Sarpy Creek downstream of mine operations. This includes construction of a 200 acre-foot dam for discharges from Middle Fork Sarpy Creek. Discharges directly to Sarpy Creek would be treated through the use of sediment ponds designed to detain the 2-year, 24-hour event plus sediment storage during the reclamation phase.

- Proposed Management Alternative #4 (No Action): The No Action Alternative for the EPA discharge permit action corresponds with BIA's alternative that does not involve expansion of the mine onto the Reservation or the South Extension Tract. If there is no expansion of the mine onto the Crow Indian Reservation, then EPA would not issue an NPDES discharge permit.

3.5.2.3.1.3.1 Environmental Consequences for the Proposed Action and Alternatives

Proposed Management Alternative #1 (WRI's Proposed Action)

This proposed alternative would include the use of 24 sediment traps at the periphery of each subwatershed to contain the 2-year, 24-hour runoff event plus sediment storage during the operational phase of the mine, which could be reduced in size to small depressions as a BMP during the reclamation phase. These 24 sediment traps would be used in a series with ponds and traps within the active mining area to ensure that all discharges of mine drainage from the active mining area would be subject to a combined containment of the 10-year, 24-hour runoff event. In addition, this alternative includes the use of BMPs to reduce erosion and sediment transport.

In developing the Western Alkaline Coal Mining effluent guidelines, EPA placed specific emphasis on the control of sediment. These effluent guidelines do not contain numeric limits for pH or metals because they are applicable only where the runoff from reclamation areas, brushing and grubbing areas, topsoil stockpiling areas, and regraded areas where the discharge, before any treatment, meets all of the following requirements:

1. pH is equal to or greater than 6.0.
2. Dissolved iron concentration is less than 10 mg/L.
3. Net alkalinity is greater than zero.

Sediment ponds often serve as a BMP for the purpose of controlling sediment at coal mining sites. Therefore, all three action alternatives proposed for the NPDES permitted discharges include some form of ponding used for the purpose of settling sediment to protect water quality from deleterious discharges of sediment and associated pollutants. In determining the size and location of ponds and/or other similar BMPs for settling sediment, it is important to recognize both the treatment capabilities for a given BMP or configuration of BMPs for a wide range of storm events and the impacts of BMPs on the hydrological balance, for the watershed as a whole.

For the purposes of settling sediment only, larger ponds are more effective. Generally speaking, a large pond or a series of large sediment ponds will treat sediment-laden runoff for more frequent, intense, and longer-lasting precipitation events than will smaller ponds. However, there is an environmental cost associated with detaining large amounts of water. While

large sediment ponds may be very effective in reducing downstream loading of sediment, the net effect of significant detention of water resources can represent a disruption of the hydrologic balance, which may exceed the impact of the mining operation. Sediment ponds in arid and semi-arid western regions can:

- require significant additional surface disruption;
- result in environmental harm through the disruption of hydrologic balance;
- adversely affect valuable riparian or aquatic communities; and
- create contention during the administration of basin water rights.

There are several impacts that may harm the environment when sediment ponds are used to meet discharge requirements from mining in the arid and semi-arid west. Sedimentation ponds are designed to capture and store water from a precipitation event and then slowly release water in a continuous, low-velocity discharge. The negative effects of this include disruption of the natural and hydrologic and sediment balance, stream channel instability, and water loss due to evaporation. For the majority of storm events, downstream channel flow is either eliminated or significantly attenuated. Loss of runoff through evaporation, evapotranspiration, and localized infiltration can alter the hydrologic balance, downstream resources, groundwater hydrology, and the spatial pattern of alluvial recharge. Discharge of sediment-free water from a sediment pond may also accelerate channel erosion because the sediment-free water will accumulate sediment from the channel immediately below the pond. Later, when the sedimentation pond is removed, drainage from the reclaimed area will flow uninterrupted. Channel reconfiguration may then occur, making the area more susceptible to erosion and instability than premining undisturbed conditions.

The aforementioned discussion of the effects of sediment ponds on hydrology is provided herein to note that the proposed alternative cannot solely address reductions in sediment yield since detaining and/or retaining water to meet the Western Alkaline Coal Mining effluent limitations can affect watershed hydrology, downstream water availability, aquatic life, wetland habitat, and riparian communities. Therefore, in addition to constructing smaller ponds, the proposed alternative for discharges of mine drainage must:

- prevent an increase in the average annual sediment yield from the premined, undisturbed conditions consistent with the Western Alkaline Coal Mining effluent limitations;
- minimize reductions in downstream runoff;
- reduce unnecessary additional disturbance of surface acreage; and
- restore or improve riparian and natural vegetative species.

WRI proposes to utilize small depressions for sediment control during the reclamation phase, to enhance infiltration, vegetative diversity and wildlife habitat. Also, reclamation operations including spoil scarification, soil

preparation, and seeding would be conducted on the contour. Revegetation should compare favorably with premining vegetative cover within 3 years from seeding.

Operators of mines may supplement detention/retention facilities or replace such facilities where feasible with managerial and structural erosion and sediment control practices. Table 3-11 lists examples of managerial sediment and erosion control practices and the respective techniques for implementation. These may vary over the life of the disturbance and reclamation period, depending on changing site conditions. For the purposes of meeting sediment discharge limits while providing a natural post-mining hydrology, preventing erosion is environmentally preferable to treating for sediment downstream.

Table 3-11. Examples of Managerial Sediment and Erosion Control Practices.

Managerial Sediment and Erosion Control Practice	**Implementation Technique**
Minimizing the Area of Disturbance	Surface disturbances are minimized to that specific area necessary to conduct the mining and reclamation.
Appropriate Application	BMPs are judiciously used based on erosion and sedimentation control capabilities, site-specific environmental conditions, and sedimentation predictions.
Timely Placement	Structures are placed at the most appropriate time to function properly and effectively during their anticipated use period.
Control of Sediment at Source	BMPs are implemented at the source of the sediment. Terraces, check dams, straw bales, riprap, mulch, silt fences, etc., are implemented to control overland flow, trap sediment in runoff or protect the disturbed land surface from erosion.
Contemporaneous Reclamation	After mineral extraction is complete, disturbed areas are reclaimed as rapidly as is practicable and rehabilitated for the designated post-mining land use.
Periodic Inspection, Maintenance and Replacement	BMPs are periodically inspected during construction and use. Based on these inspections, maintenance is scheduled and adequately performed. When structures are no longer needed, they are removed, if necessary, and the disturbed area reclaimed. Most BMPs are installed as integral components of the surface drainage system and their removal is not needed.

WRI has proposed in its NPDES permit application, the use of several of these management practices in the development of coal resources in the proposed

Absaloka Coal Mine expansion. Upon review by EPA and evaluation of the management practices with specific consideration to the preferred discharge alternative, if EPA's decision is to issue an NPDES permit for the proposed mine expansion onto the Crow Indian Reservation, EPA would include these management practices as enforceable permit conditions:

1. Contemporaneous Reclamation. As the dragline pit advances, soil would be salvaged ahead of the pit prior to initiating drilling and blasting of overburden for the next mine cut. The pit advance allows regrading of the dragline spoils behind the active pit. Regrading typically follows pit advancement by four spoil ridges so that regrading can be accomplished in blocks. Once regraded areas are available, soil salvaged ahead of the pit can be hauled directly to regraded areas behind the pit and redistributed.

2. Control of Sediment at Source. Sediment control at the source includes erosion control measures to prevent sedimentation, structural BMPs for the purposes of filtering or settling sediment, and land contouring to allow for natural infiltration and deposition. Spoil scarification, soil placement, soil preparation, and sediment would need to be done on the contour as well unless siting of necessary equipment presents a significant operational hazard.

3. Periodic inspection and maintenance. Some BMPs may not need to be removed and may serve as a benefit during and post-construction such as the use of localized depressions for the purposes of settling sediment and infiltration of water. The majority of BMPs would need to be removed as part of the mine reclamation, and inspection and maintenance of structural BMPs would be critical to preventing non-natural localized sediment transport.

4. Erosion control. Several erosion control BMPs are included in the proposed mine plan. These may be written as enforceable conditions of the NPDES discharge permit and include:

    - scarifying regraded spoil, following contours where equipment can operate safely, to increase infiltration and minimize soil slippage potential;
    - minimizing compaction, to the extent possible, during final grading and redistribution of soil or other growth media;
    - use of seedbed preparation techniques that create a roughened surface to retard surface runoff and increase infiltration with the degree of roughness consistent with approved reclamation and post-mine land uses;
    - use of commercial erosion control products, mulch, or cover crops where they will not adversely affect vegetation establishment and diversity;

- establishment of permanent vegetative cover, as appropriate for the site, by the end of the third growing season following initial seeding;
- reduction of slope length by reconstructing slope topography; and
- use of coarse-textured substrates on sites with increased erosion potential and where establishment of woody species is desired.

Proposed Management Alternative #2

Alternative #2 would include the use of conventional sediment ponds in each subwatershed to detain the 10-year, 24-hour runoff event plus sediment storage, with pond sizes reduced to detain the 2-year, 24-hour runoff event plus sediment storage during the reclamation phase.

In Middle Fork Sarpy Creek, one approach would be to consider conventional sediment pond dams to detain the 10-year, 24-hour runoff event plus sediment storage. This would require at least seven dams, most or all of which would exceed 20 acre-feet in size, triggering Mine Safety and Health Administration (MSHA) design and approval requirements under 30 CFR 77.216. With the exception of subwatershed A, all of the discharge points would be on the Crow Indian Reservation. Also, multiple dams would be required in subwatershed A and possibly subwatersheds B and C due to substantial drainage area above the mining disturbance area and a need to minimize impoundment size. In addition, because the coal seam extends to the margins of the flood plain, dams would need to be constructed over mineable coal, adversely affecting recoverability of the reserve base.

WRI's initial submittals to OSM and MDEQ (and to EPA) proposed excavated ponds or traps with 10-year, 24-hour runoff capacity during the operational phase, which would then be reduced in size to 2-year, 24-hour capacity in the reclamation phase. In their technical reviews, both agencies noted that ponds of this size are not necessary given the short duration of active mining operations in these small drainages. WRI reexamined the matter and realized that in these small drainages, as in the larger Middle Fork Sarpy Creek tributaries, most runoff would be directed to the pit during active mining. Additional modeling was completed, and WRI revised its proposal to utilize 2-year, 24-hour traps during the operational phase, which would be reduced in size to small depressions as a BMP during the reclamation phase.

The environmental impacts associated with sizing ponds to detain the 10-year, 24-hour event would likely be significant. These effects are largely based on the disruption of natural hydrology as defined by the premining condition. Retaining normal premining discharges from significant annual storm events would reduce the downstream availability of water for wetland, aquatic life, and riparian communities to reestablish post-mining. This would be exacerbated by the need to reroute the runoff from the 24 sub-watersheds in the project expansion area to allow for the construction of seven significant structures that can retain water from the more significant 10-year, 24-hour event.

For the NPDES discharge alternatives, any alternative that would likely include a physical structure into the project during and/or post-reclamation would reduce the rate at which wetland communities are reestablished, and/or alter the ability for wetland communities to become reestablished. Alternatives #2 and #3 both include the use of significant sediment ponds to detain water during site preparation activities, active mining, and during reclamation. This would effect the natural reestablishment of vegetation and wetlands. Also, the removal of any structures would be necessary in the long term to ensure that premining hydrology is attained. This could cause downstream blowouts of vegetated areas where the vegetation has been reestablished based on a lesser flow regime.

Proposed Management Alternative #3

Alternative #3 would include the use of a single large dam on the mainstem of Middle Fork Sarpy Creek downstream of mine operations. Discharges directly to Sarpy Creek would be treated through the use of sediment ponds designed to detain the 2-year, 24-hour event plus sediment storage during the reclamation phase. Preliminary design work indicates that such a dam would have a capacity of about 200-acre feet; it would be 23 feet high, and 1,000 feet long with a base width of up to 100 feet. At full pool, the dam and spillway would cover approximately 34 acres. An estimated 2,000 feet of drainage bottom would be affected by the dam and pool area. Both MDEQ and OSM have rejected this option as too disruptive hydrologically.

The hydrologic effects from creating a single sediment pond are similar to those for Alternative #2 with the exception that the use of a single sediment pond more significantly reduces the availability of downstream water. The use of a single sediment pond involves the instream placement of a significant dam that would alter the availability of water both during reclamation and post reclamation. Though the dam would eventually be removed, the footprint of the physical structure would cause a significant delay in the reestablishment of wetland communities. This alternative would also require WRI to develop internal drainage controls that would likely not simulate pre-development hydrologic patterns as proposed in EPA's Effluent Guidelines for Western Alkaline Coal Mining.

Generally, the use of single large structures is not a method recommended by EPA for controlling sediment-laden discharges. This is because control of erosion and the use of management practices is considered to represent a more natural hydrologic condition and because the use of small and separated BMPs in combination with source controls is generally more effective in reducing site specific sediment loading.

Proposed Management Alternative #4 (No Action)

The No Action Alternative for the EPA NPDES permit action corresponds with BIA's alternative that does not involve expansion of the mine onto the Crow

Indian Reservation. If there is no expansion of the mine onto the reservation, then EPA would not issue an NPDES permit.

The impacts from the No Action Alternative are described in Section 3.5.2.2.2.

3.5.2.3.1.3.2 Alternatives Considered but Eliminated from Detailed Analysis

Use of shallow injection wells to inject mine runoff to aquifers

For the purposes of EPA's permitting action, shallow injection of runoff could be used to treat sediment-laden waters, but the reallocation of water from surface to groundwater resources would be in direct conflict with the goals of the Western Alkaline Coal Mining effluent guidelines. As part of the development of the effluent guideline, EPA placed particular emphasis on the need to maintain the existing hydrologic balance and the need to retain existing aquatic and riparian communities.

Avoid discharges of sediment by retaining all runoff during the active mining phase

While this alternative could be cost prohibitive, the primary reason for not considering full retention of mine drainage is that it would impact the hydrologic balance and long-term sediment loading of receiving streams. Full retention of mine drainage would require that all water be evaporated and be made unavailable for downstream water users and downstream aquatic life, and would limit water availability causing a disruption in aquatic and riparian communities. Full retention of mine drainage is similar to the Alternative #3 for Middle Fork Sarpy Creek, but extends the use of large dams to the smaller drainages that discharge directly to Sarpy Creek. Constructing a large dam in Sarpy Creek would require significant alteration of the subwatershed drainages and would create a lack of water availability resulting in a significantly altered post-mining hydrology.

3.5.2.3.1.3.3 EPA's Preferred Alternative

Considering the proposed management alternatives and the potential environmental impacts described herein, EPA's preferred alternative is the Proposed Management Alternative #1. Appendix B presents a summary of the environmental impacts of the management alternatives.

3.5.2.3.1.4 Coordination with OSM

It is expected that, in general, the sediment control plan submitted to EPA for pre- and post-mining discharges would consist largely of materials generated as part of WRI's application to OSM for a surface mining permit (MT-0021-A). SMCRA requires a coal mining operator to submit a reclamation plan, documentation, and analysis to OSM for approval. The plan submitted to OSM must address adverse impacts to the hydrologic balance, whether acid-forming

or toxic-forming materials are present that could be mobilized, whether the operation could result in contamination, diminution, or interruption of underground or surface waters, impacts the proposed alteration would have on sediment yield, acidity, total dissolved and suspended solids, potential flooding or streamflow alterations, groundwater and surface water availability, and other site-specific characteristics as defined by OSM.

Prior to developing this EIS, EPA coordinated with OSM on review of the potential alternatives as proposed in the sediment modeling report submitted to EPA and OSM as part of the NPDES permit application process. EPA also coordinated with OSM to review the effluent limits applied to the three categories of effluent limits applicable to mine drainage from the active mining area. Inspection schedules and reporting requirements in the proposed NPDES permit have been designed to coincide with OSM requirements to minimize duplication. EPA would continue to work with OSM to evaluate the alternatives for NPDES discharge as it relates to the goals defined in this EIS and to ensure consistency between the SMCRA and EPA permitting processes.

3.5.2.3.1.5 Discussion of Water Quality Standards

As previously noted in Section 3.5.2, the State of Montana listed Sarpy Creek in its 2006 Integrated 303(d) List and 305(b) Water Quality Report to the EPA as a Category 5 stream. Category 5 means one or more uses are impaired and a TMDL is needed. Sarpy Creek, from the Crow Indian Reservation boundary to its mouth, is listed as "partially supporting" aquatic life and a warm water fishery. The probable cause of impairment is high nutrient measurements (i.e., nitrate + nitrite as nitrogen, total nitrogen, total phosphorus, and total Kjehldahl nitrogen), and according to the MDEQ (2006c) the probable source of impairment is agricultural and grazing practices. The stream's impairment does not represent a risk to recreational uses and human health. Development of TMDLs has not yet started for the lower Yellowstone watershed, including Sarpy Creek. East Fork Sarpy Creek was also evaluated for EPA's 303(d) list in 2006 and found to not be impaired and fully supports its beneficial uses as a Class C-3 stream (MDEQ 2006c).

Surface water in the vicinity of the Absaloka Mine is used primarily for agricultural purposes (livestock watering), industrial uses (primarily haul road watering), and wildlife. No public or domestic water supplies are known to exist that rely on surface water from the Sarpy Creek drainage.

Because surface runoff from rainfall and snow melt is the only source of effluent, nutrient loading is not a concern. Any impairment of Sarpy Creek is a function of agricultural land uses in the drainage and highly mineralized ground water in the alluvium and base flow. It is anticipated that all of the discharge alternatives would not cause or contribute to an impairment of the water quality standards in Sarpy Creek once reclamation is complete with the exception of the No Action Alternative, which allows for continued nutrient loading from agricultural lands unless otherwise mitigated.

3.5.2.3.1.6 Availability of NPDES Permit

The draft NPDES permit for the discharges from active mining and reclamation areas, brushing and grubbing areas, topsoil and stockpiling areas, and regraded areas associated with the proposed mine expansion is available on EPA's Region 8 NPDES web site at: http://www.epa.gov/region8/water/wastewater/download.

APPENDIX C

Revised Section 3.18

3.18 The Relationship Between Local Short-term Uses of Man's Environment and the Maintenance and Enhancement of Long-term Productivity

After 2007, the Absaloka Mine would be able to produce coal at an average production level of 6.5 to 7.0 million tons per year (mmtpy) for about two more years under the No Action Alternative, compared with an average of 6.5 to 7.0 mmtpy for up to 14 years under the Proposed Action, or an average of 6.5 mmtpy for up to 4 years under Alternative 1 (Table 2-2).

As the coal is mined, almost all components of the present ecological system, which have developed over a long period of time, would be modified. In partial consequence, the reclaimed land would be slightly lower topographically, and although it would resemble original contours, it would lack some of the original diversity of geomorphic form.

The forage and associated grazing and wildlife habitat that the proposed development area provides would be temporarily and incrementally disturbed during mining and reclamation. During mining of the proposed development area, there would be a loss of vegetation on a total of 385 acres (Alternative 1) up to a maximum of 2,637 acres (Proposed Action) with an accompanying disturbance of grazing land and wildlife habitat. This disturbance would occur incrementally over a period of years. The mine site would be returned to equivalent or better forage production capacity for domestic livestock before the performance bond is released. Long-term productivity would depend largely on postmining range management practices, which to a large extent would be controlled by private landowners.

Mining would disturb pronghorn and mule deer habitat. There would be loss and displacement of wildlife during mining, but it is anticipated that reclaimed habitat would support a diversity of wildlife species similar to premining conditions. The diversity of species found in the undisturbed lands would not be completely restored on the leased lands for an estimated 50 years after the initiation of disturbance.

If the South Extension lease is approved, the proposed development plan is permitted, and the area is mined and reclaimed, there would be a deterioration of the groundwater quality in the lease area; however, the water quality would still be adequate for livestock and wildlife. Groundwater models predict that drawdown effects during mining would be very localized and limited to areas near the mine pits. The depth to groundwater in the Rosebud-McKay coal seams would increase 5 feet or more during mining within an area extending roughly 1,200 feet east of the South Extension tract boundary, and a maximum of about 40 feet of drawdown is projected at the eastern edge of the easternmost mine pit. Essentially no groundwater level drawdowns are expected south and west of the proposed development area. Groundwater levels in the overburden aquifer would also increase during mining around the mine pits at roughly the same amount and areal extent as the underlying coal

seam aquifers. Groundwater flow through the undisturbed aquifers near the backfilled mine pits would be interrupted until saturation levels in the backfill have risen and the rates of recharge to and discharge from the backfill equilibrate. Water levels are predicted to still be rising 50 years after mining is complete (Section 3.5.1).

Mining operations and associated activities would degrade the air quality and visual resources of the mine area on a short-term basis. Following coal removal, removal of surface facilities, and completion of reclamation, there would be no long-term impact on air quality. The long-term impact on visual resources would be minor.

Short-term impacts to recreation values may occur from reduction in big game populations due to habitat disturbance and reduction in access to the proposed development area. However, reclamation would result in a wildlife habitat similar to that which presently exists and access to lands would be restored. There should be no long-term adverse impacts on recreation.

The long-term economy of the region would be enhanced as a result of the Proposed Action and Alternative 1. The Proposed Action and Alternative 1 would extend the life of the Absaloka Mine and the associated economic benefits to Big Horn County, the Crow Tribe, and the local communities from 3 to 12 years.

3.18.1 Coal Mining and Coal-Fired Power Plant Related Greenhouse Gas Emissions and Global Climate Change

As discussed in Chapter 1, this EIS analyzes the environmental impacts of leasing and mining the coal reserves within the Crow Reservation South Extension lease tract, and the environmental impacts of mining currently leased coal within the Tract III Coal Lease. Preparation of this EIS is not the enabling action that would allow mining to begin, but rather, it serves to provide NEPA analysis for the BIA decision on the South Extension lease, and MEPA and NEPA analyses for the MDEQ and OSM decisions.

The Absaloka Mine plans to produce the coal included in the proposed development area at currently permitted levels using existing mine production and transportation facilities. As a result, mining of the proposed development area as planned under the Proposed Action or Alternative 1 would release what has been termed greenhouse gases to the atmosphere. Greenhouse gases have been raised as a concern due to the greenhouse effect. Water vapor, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), ozone (O_3), and fluorinated gases are currently recognized as greenhouse gases. The greenhouse effect is a theory that certain gases in the atmosphere, like glass in a greenhouse, trap radiation from the sun and act as an insulator around the Earth, holding in the planet's heat. The quantity and types of petroleum-based fuels used in the proposed mining operation, as well as the electricity used on site and mining processes such as blasting, methane released from mined coal (negligible), and

the spontaneous combustion of exposed coal are not expected to differ appreciably from the current operation and will therefore not result in increased emission rates of greenhouse gases.

The environmental impacts of mining the coal are considered in this EIS. There is no commitment at the time of lease approval and mine permit approvals as to how the coal would be used when it is mined. However, the coal that is currently being mined by the Absaloka Mine is being used by coal-fired power plants to generate electricity for U.S. consumers, as would the coal mined as a result of the Proposed Action and Alternative 1. A discussion on the emissions that are generated by burning coal to produce electricity is therefore included in this section of the EIS.

Historically, the coal mined in the Powder River Basin (PRB) has been used as a source of fuel to generate electricity in power plants located throughout the U.S. Coal demand is driven by the electric power sector, which accounts for about 92 percent of consumption. Approximately 50 percent of the electric power generated in the U.S. was provided by coal in 2005 and 2006 (DOE 2007). Coal-fired power plant emissions include CO_2, which has been identified as the principal anthropogenic greenhouse gas. According to the Energy Information Administration (DOE 2006 and 2007):

- CO_2 emissions represent about 84 percent of the total U.S. greenhouse gas emissions.

- Estimated energy-related CO_2 emissions in the U.S. totaled 5,955 million metric tons in 2005 and 5,877 million metric tons in 2006, which was a 1.2 percent decrease.

- Estimated energy-related CO_2 emissions in the U.S. from coal totaled 2,141 million metric tons in 2005 and 2,121 million metric tons in 2006, or about 36 percent of total U.S. energy-related CO_2 emissions in both 2005 and 2006.

- Coal consumed by only the electric power sector in the U.S. in 2005 was 1,037 million tons and 1,026 million tons in 2006.

Assuming coal would be produced from the Absaloka Mine at a rate of 7.0 mmtpy and it all goes to electric power generation, and coal consumed by the electric power sector in the U.S. continues to be approximately 1,030 mmtpy, then burning coal from the Absaloka Mine would account for approximately 0.68 percent (14.49 million tons) of the estimated CO_2 emissions produced by coal electric power generation (approximately 2,132 million tons) and 0.25 percent (approximately 14.5 million tons) of the estimated total energy-related CO_2 emissions (approximately 5,900 million tons) in the U.S.

There is a consensus in the international community that global climate change is occurring and that it should be addressed in governmental decision

making. The Intergovernmental Panel on Climate Change (IPCC) was formed jointly in 1988 by the United Nations Environment Program and the World Meteorological Organization. The IPCC brings together the world's top scientists in all relevant fields, synthesizes peer-reviewed scientific literature on climate change, and produces authoritative assessments of the current state of knowledge of climate change. It produces periodic reports on scientific, technical, and socio-economic information relevant for the understanding of climate change, its potential impacts, and options for adaptation and mitigation.

The Fourth Assessment Report of the IPCC is available online at http://www.ipcc.ch. The final part of the report, the Synthesis Report (Bernstein et al. 2007), which was released in preliminary form on November 17, 2007, summarizes the results of the assessment carried out by the three Working Groups of the IPCC. The observed changes in climate and their effects addressed in the IPCC Synthesis Report include:

- "Warming of the climate system is unequivocal, as is now evident from observations of increases in global average air and ocean temperature, widespread melting of snow and ice, and rising global average sea level."

- "Observational evidence from all continents and most oceans shows that many natural systems are being affected by regional climate changes, particularly temperature increases."

Scientific evidence has proven that the Earth's climate has been continuously changing during the planet's history, with many prolonged events ranging from ice ages to periods of warmth. Natural events such as volcanic eruptions, changes in the Earth's orbit, and the amount of energy released from the Sun are all believed to have affected the Earth's climate. There has been, and continues to be, considerable scientific investigation and discussion as to the causes of the recent historic rise in global mean temperatures, and whether the warming trend will continue. Three identified possible causes are solar effects, population growth, and greenhouse effects. Beginning late in the 18th century, human activities associated with the Industrial Revolution have also changed the composition of the atmosphere and therefore very likely are influencing the Earth's climate (EPA 2008c). Human population doubled to two billion in the period 1780 to 1930, then doubled again by 1974. The atmospheric concentrations of greenhouse gases have increased as populations increased and more land and resources were used to provide for the needs of these populations. As human activities have increased, carbon based fuels have been used to provide energy, and forests and vegetation cleared to provide for food production and human use. Coincident increases, however, do not prove cause and effect. As summarized in the IPCC Synthesis Report (Bernstein et al. 2007):

- "Global atmospheric concentrations of carbon dioxide (CO_2), methane (CH_4), and nitrous oxide (N_2O) have increased markedly as a result of

human activities since 1750 and now far exceed pre-industrial values determined from ice cores spanning many thousands of years."

- "Most of the observed increase in globally-averaged temperatures since the mid-20th century is *very likely* due to the observed increase in anthropogenic greenhouse gas concentrations. It is *likely* there has been significant anthropogenic warming over the past 50 years averaged over each continent (except Antarctica)."

The scientific community has reached an agreement regarding the science of global climate change: the world is undoubtedly warming, and the warming is largely the result of emissions of CO_2 and other greenhouse gases from human activities including industrial processes, fossil fuel combustion, and changes in land use (PEW 2008a). The projected climate change and its impact, as summarized in the IPCC Synthesis Report (Bernstein et al. 2007), include:

- "There is *high agreement* and *much evidence* that with current climate change mitigation policies and related sustainable development practices, global greenhouse gas emission will continue to grow over the next few decades."

- "Continued greenhouse gas emissions at or above current rates would cause further warming and induce many changes in the global climate system during the 21st century that would *very likely* be larger than those observed during the 20th century."

- "There is *high confidence* that by mid-century, annual river runoff and water availability are projected to increase at high latitudes (and in some tropical wet areas) and decrease in some dry regions in the mid-latitudes and tropics. There is also *high confidence* that many semi-arid areas (e.g., Mediterranean Basin, western United States, southern Africa and northeastern Brazil) will suffer a decrease in water resources due to climate change."

- "Anthropogenic warming and sea level rise would continue for centuries due to the time scales associated with climate processes and feedbacks, even if greenhouse gas concentrations were to be stabilized."

- "Anthropogenic warming could lead to some impacts that are abrupt or irreversible, depending upon the rate and magnitude of the climate change."

Regardless of future greenhouse gas emissions and the scale of mitigation undertaken, some degree of future climate change will occur. Adapting to or coping with climate change will therefore become necessary in certain regions of the world and for certain socioeconomic and environmental systems. However, according to the IPCC, "adaptation alone is not expected to cope with all the projected effects of climate change, and especially not over the long term

as most impacts increase in magnitude." The IPCC have addressed a wide variety of mitigation technologies, policies and measures available to international governments to create incentives for mitigation action, and "many options for reducing global greenhouse gas emissions through international cooperation exist." IPCC's long-term perspective is summarized as follows:

- "There is high agreement and much evidence that all stabilization levels assessed can be achieved by deployment of a portfolio of technologies that are either currently available or expected to be commercialized in coming decades, assuming appropriate and effective incentives are in place for their development, acquisition, deployment and diffusion and addressing related barriers."

There are methods of generating electricity that result in fewer greenhouse gas emissions than burning coal, including natural gas, nuclear, hydroelectric, solar, wind, and geothermal. Coal-burning power plants currently supply about 50 percent of the electric power generated in the U.S. According to a recent report by the North American Electric Reliability Council, peak demand for electricity in the U.S. is expected to double in the next 22 years (Associated Press, 2007). According to the Department of Energy's (DOE's) Energy Information Administration International Energy Outlook 2008 Report (DOE 2008a), global energy demand will grow by 50 percent over the 2005 to 2030 period, with continued heavy reliance on fossil fuels, especially coal and oil. Sustained high prices for oil and natural gas make coal-fired electricity generation more attractive economically, especially for coal-rich nations like China and the U.S. The DOE's report states that without mandatory actions, including national policies and/or binding international agreements to limit or reduce greenhouse gas emissions, coal consumption is expected to increase at a rate of 2 percent a year worldwide. Coal's share of world energy use has increased sharply over the past few years due primarily to its increased use in China. China's coal use has nearly doubled since 2000, and is expected to account for 71 percent of the increase in world coal consumption by 2030. The world's demand for liquid fuels (petroleum products) is expected to grow by nearly 33 percent more than is consumed today by 2030.

The most rapid growth in energy demand from 2005 to 2030 is projected for nations outside the Organization for Economic Cooperation and Development (non-OECD nations). The worldwide increase in fossil-fuel-fired power generation translates into a 51 percent increase in world CO_2 emissions by 2030 (DOE 2008a). With strong economic growth and continued heavy reliance on fossil fuels expected for most of the non-OECD economies, much of the increase in CO_2 emissions is projected to occur among the developing non-OECD nations. In 2005, non-OECD CO_2 emissions exceeded OECD emissions by 7 percent. In 2030, however, non-OECD emissions are projected to exceed OECD emissions by 72 percent (DOE 2008a).

The outlook for coal-fired power generation could be altered substantially by international agreements to reduce greenhouse gas emissions. The electric

power sector offers some of the most cost-effective opportunities for reducing CO_2 emissions in most countries. If a cost (either implicit or explicit) is applied to emitters of CO_2, there are alternative low- or no-emission technologies that are available or under development that could be used to replace some coal-fired power generation. Implementing these newer technologies would not require major changes to the existing power distribution infrastructure (DOE 2008a).

The U.S. is currently responsible for approximately 25 percent of worldwide CO_2 emissions, and electric utilities are responsible for approximately 33 percent of those emissions. There are currently no national policies or laws in place regulating the emission of CO_2. A number of bills were introduced in the U.S. Congress in 2007 related to climate change. The Lieberman-Warner Climate Security Act, which was introduced in October, 2007 by Senators Joe Lieberman (ID-CT) and John Warner (R-VA), would establish a cap-and-trade program within the U.S. requiring a 70 percent reduction in greenhouse gas emissions from facilities covered by the program (e.g., coal-fired power plants), which represent over 80 percent of total U.S. greenhouse gas emissions. The cap-and-trade program would reduce greenhouse gas emissions from covered sectors by 4 percent below 2005 levels by 2012; 19 percent below 2005 levels by 2020; and 71 percent below 2005 by 2050. It was voted out of the Senate Environment and Public Works Committee in December, 2007. The Lieberman-Warner Climate Security Act of 2008 was debated in the U.S. Senate in early June 2008, and for the first time, a majority of the Senate (54 Senators) signaled its support for mandatory climate action and, in particular, greenhouse gas cap-and-trade. Sixty votes are needed for passage of the bill, so the June 2008 vote shows that the next U.S. President will come to office with a majority of support in the Senate for greenhouse gas cap-and-trade (PEW 2008b).

The U.S. Supreme Court, in 2007 (*Massachusetts v. EPA*), held that CO_2 qualifies as an air pollutant under the Clean Air Act (CAA). The case was remanded to EPA to take further action to regulate CO_2 under the CAA unless the EPA determines that CO_2 does not endanger public health or welfare. EPA has not yet made that determination. In its Fiscal Year 2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110–161), Congress directed EPA to publish a mandatory greenhouse gas reporting rule, using the Agency's existing authority under the CAA. The rule will require mandatory reporting of greenhouse gases “above appropriate thresholds in all sectors of the economy.” EPA is responsible for determining those thresholds, as well as the frequency of reporting. Congress requested EPA to include reporting of emissions to the extent that the Agency deems appropriate. The Appropriations language instructs the Agency to publish a proposed rule within 9 months (by September 2008), and a final rule within 18 months (by June 2009). Stakeholders will have the opportunity to provide comments when the proposed rule is published (EPA 2008d).

According to recent resolutions of the National Association of Regulatory Utility Commissioners (NARUC), many U.S. financial and corporate interests have acknowledged that enactment of federal legislation limiting the emissions of CO_2 and other greenhouse gases appears inevitable, and that there is substantial likelihood that federal legislation intended to reduce emissions of CO_2 and other greenhouse gasses will be enacted in the near future (NARUC 2008a). State regulatory utility commissioners are concerned about meeting future energy demand in an era of restrictions on carbon emissions. Without federal climate change legislation, uncertainty about these anticipated CO_2 emissions limits and carbon sequestration regulations has caused proponents of some projects to delay where possible or use less risky options like natural gas or nuclear power (NARUC 2008b).

There are new technologies for producing cleaner, more efficient, and more reliable power from coal, some of which are currently available, although not yet commercially established. These include advanced pulverized coal, circulating fluidized bed, and integrated gasification combined cycle (IGCC) technologies. One such project that is proceeding, the FutureGen power plant, proposes to produce electricity by turning coal into gas, remove impurities, including CO_2, and then sequester the CO_2 underground. A site in southeastern Illinois was recently selected for the FutureGen plant, which has a goal of being operational in 2012 (Biello 2007). FutureGen is a public-private partnership between the U.S. Department of Energy (DOE) and the FutureGen Industrial Alliance, Inc., a non-profit consortium of international energy companies. The Alliance is responsible for design, construction, and operation of the facility, and DOE is responsible for independent oversight and coordinating participation of international governments. Under a cooperative agreement between DOE and the Alliance, DOE was to provide a majority of the project's cost. On January 30, 2008, DOE proposed a major restructuring of the FutureGen project and that financing part of FutureGen at this time would be inappropriate. However, the full Senate Appropriations Committee passed legislation in July 2008 to protect $134 million of previously appropriated federal funding slated for FutureGen to keep the project moving forward (FutureGen 2008).

If public sentiment results in changed electric demand, or if CO_2 emissions are ultimately regulated and current policies affecting the energy sector change, the demand forecast for coal for electric generation could change. The Department of Energy's Annual Energy Outlook 2008 report (DOE 2008b) projected growth in the absolute level of primary energy consumption and a shift toward fuel sources with slightly lower average carbon content. Total primary energy consumption is projected to grow by 19 percent and the total energy-related emissions of CO_2 to grow by 16 percent between 2006 and 2030. In this projection, the mix of sources for this power generation include coal, natural gas, nuclear, liquids (petroleum), hydro-power, and non-hydro renewable (wind, solar, etc.). The DOE forecasts (2008b) that the generation mix by 2030 as compared to 2007 would be:

Source	2007	2030
Coal	49%	54%
Nuclear	20%	14%
Natural Gas	19%	18%
Petroleum	3%	1%
Hydro Power	7%	6%
Renewables	2%	7%

The Electric Power Research Institute, an industry-funded non-profit organization, said the most cost-effective way to reduce the level of carbon dioxide in the atmosphere is by the aggressive implementation of advanced technologies as quickly as possible. Those technologies include expanding nuclear power, advanced coal gasification and carbon capture and storage, deployment of advanced power distribution/transmission infrastructure to operate with intermittent renewables, and developing renewable technologies. Renewable sources include wind and solar, as well as emerging technologies like tidal power, river turbines and others reported in the media. Hydropower is limited because most opportunities for hydropower have been used or require large infrastructure. Reducing demand for fossil fuel is also key, but there is no single "silver bullet" the institute said (James 2007).

The Absaloka Mine produced around 7.0 million tons of coal in 2007, which represents about 0.7 percent of the estimated U.S. CO_2 emissions produced by coal electric power generation in 2007. Under the No Action Alternative, CO_2 emissions attributable to burning coal produced by the Absaloka Mine would be extended at about this level for approximately 3 years, or until about 2011, while the mine recovers its remaining estimated 21 million tons of currently leased and permitted coal reserves. It is likely that, by that time, regulations limiting CO_2 emissions will be in place and, potentially, projects utilizing the emerging technologies to reduce and/or sequester CO_2 emissions would be more established.

Under the Proposed Action and Alternative 1, the Absaloka Mine anticipates producing the coal included in the South Extension development area at the current production levels, which would extend CO_2 emissions related to burning coal from the Absaloka Mine for up to 12 additional years beyond 2011. It is not possible to project the level of CO_2 emissions that burning the coal in the South Extension development area would produce due to the uncertainties about what regulatory limits will be imposed on emissions of greenhouse gases and how those limits will affect the use of and emissions from the coal in the South Extension development area at the time it is actually mined. It is likely that by the time the coal in the South Extension is mined regulations limiting CO_2 emissions will be in place and, potentially, power plants utilizing the emerging technologies to reduce and/or sequester CO_2 emissions would be more established.

Development of alternate technologies for producing power and technologies for using energy more efficiently are progressing based on economic feasibility,

technical merit, current and future restrictions on emissions that limit the use of fossil fuel-based technologies, and concerns about global warming. A decision by BIA to not approve the IMDA lease for the South Extension and/or decisions by MDEQ and OSM to not approve the Tract III Revision permit application or the South Extension permit application would not affect that progress, and would not result in changing the amount of coal burned to produce electricity because there are other sources of coal available to coal-fired power plants.