

APPENDIX A

FEDERAL AND STATE PERMITTING
REQUIREMENTS AND AGENCIES

APPENDIX A: FEDERAL AND STATE AGENCIES & PERMITTING REQUIREMENTS¹	
Agency	Lease/Permit/Action
FEDERAL	
Bureau of Land Management	Coal Lease Resource Recovery & Protection Plan Scoria Sales Contract Exploration Drilling Permit
Office of Surface Mining Reclamation and Enforcement	Preparation of MLA Mining Plan Approval Document SMCRA Oversight
Office of the Secretary of the Interior	Approval of MLA Mining Plan
Mine Safety and Health Administration	Safety Permit and Legal ID Ground Control Plan Major Impoundments Explosives Use and Storage Permit
Bureau of Alcohol, Tobacco, and Firearms	Explosives Manufacturer's License Explosives Use and Storage Permit
Federal Communication Commission	Radio Permit: Ambulance Mobile Relay System Radio License
Nuclear Regulatory Commission	Radioactive By-Products Material License
Army Corps of Engineers	Authorization of Impacts to Wetlands and Other Waters of the U.S.
Department of Transportation	Hazardous Waste Shipment Notification
Federal Aviation Administration	Radio Tower Facilities Construction Permits
STATE	
State Land Commission	Coal Lease Scoria Lease
Department of Environmental Quality/Land Quality Division	Permit and License to Mine Permit to Construct Sedimentation Pond
Department of Environmental Quality/Air Quality Division	Air Quality Permit to Operate Air Quality Permit to Construct
Department of Environmental Quality/Water Quality Division	NPDES Water Discharge Permit Authorization to Construct Septic Tank & Leach Field Authorization to Construct and Install a Public Water Supply and Sewage Treatment System
Department of Environmental Quality/Solid Waste Management Program	Solid Waste Disposal Permit - Permanent and Construction
State Engineer's Office	Appropriation of Surface Water Permits Appropriation of Ground Water Permits
Industrial Siting Council	Industrial Siting Certificate of Non-Jurisdiction

¹ Individual Lease/Permit Actions listed may not be required at all mines.

APPENDIX B

UNSUITABILITY CRITERIA FOR THE
NORTH HIGHLIGHT FIELD, SOUTH HIGHLIGHT FIELD,
WEST HIGHLIGHT FIELD, WEST JACOBS RANCH,
NORTH PORCUPINE, AND SOUTH PORCUPINE
LBA STUDY AREAS

APPENDIX B. UNSUITABILITY CRITERIA FOR THE NORTH HIGHLIGHT
FIELD LBA STUDY AREA

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR THE NORTH HIGHLIGHT FIELD LBA STUDY AREA
<p>1. Federal Land Systems. With certain exceptions that do not apply to this tract, all federal lands included in the following systems are unsuitable for mining: National Parks, National Wildlife Refuges, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers, National Recreation Areas, Lands acquired through the Land and Water Conservation Fund, National Forests and Federal lands in incorporated cities, towns and villages.</p>	<p>There are Federal lands located around Gillette, Sheridan, and Wright that were determined to be unsuitable under this criterion. TBNG lands are included in the North Hilight Field LBA study area. The TBNG is not a proclaimed National Forest.</p>	<p>None of the federal lands determined to be unsuitable under Criterion 1 are present on the North Hilight Field LBA study area. Therefore, there are no unsuitable findings under this criterion.</p>
<p>2. Rights-Of-Way and Easements. Federal lands that are within ROWs or easements or within surface leases for residential, commercial, industrial or other public purposes, on federally owned surface, are unsuitable for mining.</p>	<p>Portions of the BNSF & UP railroad ROW, the Tri-County 230-Kv transmission line ROW, the Wyoming State Highway 450 ROW, and the I-90 ROW were found to be unsuitable under this criterion within the general review area.</p>	<p>The portions of the Tri-County 230-Kv transmission line ROW, the Wyoming State Highway 450 ROW, the I-90 ROW, and the BNSF & UP railroad ROW that were determined to be unsuitable are not located on the North Hilight Field LBA study area. Therefore, there are no unsuitable findings under Criterion 2 for the North Hilight Field LBA study area.</p>
<p>3. Buffer Zones for Rights-Of-Way, Communities, and Buildings. Federal lands within 100 ft of a ROW of a public road or a cemetery; or within 300 ft of any public building, school, church, community or institutional building or public park; or within 300 ft of an occupied dwelling are unsuitable for mining.</p>	<p>Portions of Wyoming State Highway 450, Interstate Highway I-90, and one cemetery were found to be unsuitable under this criterion. Decisions were deferred on other highways/roads, occupied dwellings, and one school until an application to lease is filed.</p>	<p>Highway 450, I-90, and the cemetery are not located on the North Hilight Field LBA study area. No occupied dwellings or schools are located on the study area. Portions of the ROWs of the Shroyer, Hilight, Small, and Jacobs roads, all county roads, are located on the tract as applied for and/or under Alternative 2. The Small and Jacobs roads have been vacated by the Campbell County Commissioners. Therefore, the portions of the North Hilight Field LBA study area within the ROWs of the Shroyer and Hilight roads and the associated 100-ft buffer zones are designated unsuitable and the lease will be stipulated to exclude mining within these areas unless a permit to move the road is approved by Campbell County Board of Commissioners.</p>
<p>4. Wilderness Study Areas. Federal lands designated as wilderness study areas are unsuitable for mining while under review for possible wilderness designation.</p>	<p>No lands in the general review area are within a wilderness study area.</p>	<p>There are no unsuitable findings under Criterion 4 for the North Hilight Field LBA study area.</p>
<p>5. Scenic Areas. Scenic federal lands designated by visual resource management analysis as Class I (outstanding visual quality or high visual sensitivity) but not currently on National Register of Natural Landmarks are unsuitable.</p>	<p>No lands in the general review area meet the scenic criteria as outlined.</p>	<p>There are no unsuitable findings under Criterion 5 for the North Hilight Field LBA study area.</p>
<p>6. Land Used for Scientific Study. Federal lands under permit by the surface management agency and being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments are unsuitable for the duration of the study except where mining would not jeopardize the purpose of the study.</p>	<p>Two vegetation monitoring study sites on the TBNG (NE¼ of Sec. 1, T.41N., R.71W. and NW¼ NW¼ of Sec. 30, T.41N., R.69W.), and the Hoe Creek Site (Sec. 7, T.47N., R.72W.) were found to be unsuitable under this criterion.</p>	<p>The vegetation monitoring sites and the Hoe Creek site are not located on the North Hilight Field LBA study area. There are no unsuitable findings under Criterion 6 for the North Hilight Field LBA study area.</p>

Appendix B

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR THE NORTH HILIGHT FIELD LBA STUDY AREA
<p>7. Cultural Resources. All publicly or privately owned places which are included in or are eligible for inclusion in the NRHP and an appropriate buffer zone are unsuitable.</p>	<p>On the basis of the consultation with SHPO, there were no unsuitable findings under this criterion in the general review area. Continue using the “Standard Archeological Stipulation” to new leases.</p>	<p>There are no unsuitable findings under Criterion 7 for the North Hilight Field LBA study area. The “Standard Archeological Stipulation” should be applied if this tract is leased.</p>
<p>8. Natural Areas. Federal lands designated as natural areas or National Natural Landmarks are unsuitable.</p>	<p>No lands in the general review area are designated as natural areas or as National Natural Landmarks.</p>	<p>There are no unsuitable findings under Criterion 8 for the North Hilight Field LBA study area.</p>
<p>9. Critical Habitat for Threatened or Endangered Plant and Animal Species. Federally designated critical habitat for threatened or endangered plant and animal species, and scientifically documented essential habitat for threatened or endangered species are unsuitable.</p>	<p>There is no federally designated critical habitat for threatened or endangered plant or animal species within the general review area.</p>	<p>There are no unsuitable findings under Criterion 9 for the North Hilight Field LBA study area.</p>
<p>10. State Listed Threatened or Endangered Species. Federal lands containing habitat determined to be critical or essential for plant or animal species listed by a state pursuant to state law as threatened or endangered shall be considered unsuitable.</p>	<p>Wyoming does not maintain a state list of threatened or endangered species of plants or animals. Therefore, this criterion does not apply.</p>	<p>There are no unsuitable findings under Criterion 10 for the North Hilight Field LBA study area.</p>
<p>11. Bald or Golden Eagle Nests. An active bald or golden eagle nest and appropriate buffer zone are unsuitable unless the lease can be conditioned so that eagles will not be disturbed during breeding season or unless golden eagle nests will be moved.</p>	<p>Defer suitability decisions and evaluate bald and golden eagle nests on a case by case basis at the time of leasing. Establish buffer zones around nests during mining and reclamation planning after consultation with USFWS.</p>	<p>There are currently no bald or golden eagle nests (active or inactive) on the North Hilight Field LBA study area. Evaluate suitability prior to lease issuance during consultation with USFWS.</p>
<p>12. Bald and Golden Eagle Roost and Concentration Areas. Bald and golden eagle roost and concentration areas on federal lands used during migration and wintering are unsuitable unless mining can be conducted in such a way as to ensure that eagles shall not be adversely disturbed.</p>	<p>Defer suitability decisions and evaluate bald and golden eagle roost areas on a case by case basis prior to lease issuance. Establish buffer zones after consultation with USFWS.</p>	<p>There are no identified roost sites on the North Hilight Field LBA study area. Evaluate suitability prior to lease issuance during consultation with USFWS.</p>
<p>13. Falcon Nesting Sites and Buffer Zones. Federal lands containing active falcon (excluding kestrel) cliff nesting sites and a suitable buffer zone shall be considered unsuitable unless mining can be conducted in such a way as to ensure the falcons will not be adversely affected.</p>	<p>Defer suitability decisions on falcon nesting sites and evaluate on a case by case basis prior to lease issuance. Establish buffer zones around nesting sites after consultation with USFWS.</p>	<p>No falcon nesting sites have been identified on the North Hilight Field LBA study area. There are no unsuitable findings under Criterion 13 for the North Hilight Field LBA study area.</p>
<p>14. Habitat for Migratory Bird Species. Federal lands which are high priority habitat for migratory bird species of management concern in Wyoming shall be considered unsuitable unless mining can be conducted in such a way as to ensure that migratory bird habitat will not be adversely affected during the period it is in use.</p>	<p>Defer suitability decisions on high priority habitat for migratory bird species of management concern in Wyoming and evaluate on a case by case basis prior to lease issuance. Establish buffer zones for nesting areas during mining and reclamation planning after consultation with USFWS.</p>	<p>Evaluate suitability during consultation with USFWS.</p>

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR THE NORTH HILIGHT FIELD LBA STUDY AREA
<p>15. Fish and Wildlife Habitat for Resident Species. Federal lands which the surface management agency and state jointly agree are fish, wildlife and plant habitat of resident species of high interest to the state, and which are essential for maintaining these priority wildlife species, shall be considered unsuitable unless mining can be conducted in such a way as to ensure no long-term impact on the species being provided will occur.</p>	<p>Defer suitability decisions on grouse leks and evaluate on a case by case basis prior to lease issuance. Establish buffer zones after consultation with WGFD.</p>	<p>There is currently one occupied and one unoccupied/abandoned (no activity for 10 consecutive years) sage-grouse lek identified on lands within the North Hilight Field LBA study area. There are currently no other occupied or unoccupied sage-grouse leks within 2 miles of the North Hilight Field LBA study area. Evaluate this criterion prior to lease issuance. Establish buffer zones during mining and reclamation planning after consultation with WGFD.</p>
<p>16. Floodplains. Federal lands in riverine, coastal, and special floodplains shall be considered unsuitable where it is determined that mining could not be undertaken without substantial threat of loss of life or property.</p>	<p>The BLM and USFS have determined that the identified floodplains in the general review area could potentially be mined. Therefore, all lands within the general review area are considered suitable.</p>	<p>Site-specific stipulations and resource protection safeguards will be applied if necessary during mining and reclamation planning. There are no unsuitable findings under Criterion 16 for the North Hilight Field LBA study area.</p>
<p>17. Municipal Watersheds. Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.</p>	<p>There are no designated municipal watersheds in the general review area.</p>	<p>There are no unsuitable findings under Criterion 17 for the North Hilight Field LBA study area</p>
<p>18. National Resource Waters. Federal lands with national resource waters, as identified by states in their water quality management plans, and ¼-mile buffer zones shall be unsuitable.</p>	<p>There are no designated national resource waters within the general review area.</p>	<p>There are no unsuitable findings under Criterion 18 for the North Hilight Field LBA study area.</p>
<p>19. Alluvial Valley Floors. Federal lands identified by the surface management agency, in consultation with the state, as AVFs where mining would interrupt, discontinue or preclude farming, are unsuitable. Additionally, when mining federal lands outside an AVF would materially damage the quality or quantity of water in surface or underground water systems that would supply AVFs, the land shall be considered unsuitable.</p>	<p>Consider areas determined to contain AVFs significant to farming as unsuitable. Defer decisions on other AVFs and analyze on a case-by-case basis prior to lease issuance.</p>	<p>No AVFs or potential AVFs have been identified on the North Hilight Field LBA study area with characteristics indicating potential significance to farming. There are no unsuitable findings under Criterion 19 for the North Hilight Field LBA study area.</p>
<p>20. State or Indian Tribe Criteria. Federal lands to which is applicable a criterion proposed by the state or Indian tribe located in the planning area and adopted by rulemaking by the Secretary are unsuitable.</p>	<p>There are no criterion proposed by state or Indian tribes that have been approved by the Secretary of the Interior. No tribal lands are located in or near the general review area.</p>	<p>There are no unsuitability findings for this criterion on the North Hilight Field LBA study area.</p>

APPENDIX B. UNSUITABILITY CRITERIA FOR THE SOUTH HIGHLIGHT FIELD LBA STUDY AREA

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR THE SOUTH HIGHLIGHT FIELD LBA STUDY AREA
<p>1. Federal Land Systems. With certain exceptions that do not apply to this tract, all federal lands included in the following systems are unsuitable for mining: National Parks, National Wildlife Refuges, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers, National Recreation Areas, Lands acquired through the Land and Water Conservation Fund, National Forests and Federal lands in incorporated cities, towns and villages.</p>	<p>There are Federal lands located around Gillette, Sheridan, and Wright that were determined to be unsuitable under this criterion. TBNG lands are included in the South Hilight Field LBA study area. The TBNG is not a proclaimed National Forest.</p>	<p>None of the federal lands determined to be unsuitable under Criterion 1 are present on the South Hilight Field LBA study area. Therefore, there are no unsuitable findings under this criterion.</p>
<p>2. Rights-Of-Way and Easements. Federal lands that are within ROWs or easements or within surface leases for residential, commercial, industrial or other public purposes, on federally owned surface, are unsuitable for mining.</p>	<p>Portions of the BNSF & UP railroad ROW, the Tri-County 230-Kv transmission line ROW, the Wyoming State Highway 450 ROW, and the I-90 ROW were found to be unsuitable under this criterion within the general review area.</p>	<p>The portions of the Tri-County 230-Kv transmission line ROW, the Wyoming State Highway 450 ROW, and the I-90 ROW that were determined to be unsuitable are not located on the South Hilight Field LBA study area. A portion of the north-south BNSF & UP railroad ROW that was found to be unsuitable for mining is located on the western boundary of tract as applied for and under Alternative 2. Therefore, this portion of the BNSF & UP railroad ROW was designated unsuitable and the lease will be stipulated to exclude mining within the ROW.</p>
<p>3. Buffer Zones for Rights-Of-Way, Communities, and Buildings. Federal lands within 100 ft of a ROW of a public road or a cemetery; or within 300 ft of any public building, school, church, community or institutional building or public park; or within 300 ft of an occupied dwelling are unsuitable for mining.</p>	<p>Portions of Wyoming State Highway 450, Interstate Highway I-90, and one cemetery were found to be unsuitable under this criterion. Decisions were deferred on other highways/roads, occupied dwellings, and one school until an application to lease is filed.</p>	<p>Highway 450, I-90, and the cemetery are not located on the South Hilight Field LBA study area. No occupied dwellings or schools are located on the study area. Portions of the ROWs of the Hilight and Reno roads, both county roads, are located on the tract as applied for and/or under Alternative 2. Therefore, the portions of the South Hilight Field LBA study area within the ROWs of the Hilight and Reno roads and the associated 100-ft buffer zones are designated unsuitable and the lease will be stipulated to exclude mining within these areas unless a permit to move the road is approved by Campbell County Board of Commissioners.</p>
<p>4. Wilderness Study Areas. Federal lands designated as wilderness study areas are unsuitable for mining while under review for possible wilderness designation.</p>	<p>No lands in the general review area are within a wilderness study area.</p>	<p>There are no unsuitable findings under Criterion 4 for the South Hilight Field LBA study area.</p>
<p>5. Scenic Areas. Scenic federal lands designated by visual resource management analysis as Class I (outstanding visual quality or high visual sensitivity) but not currently on National Register of Natural Landmarks are unsuitable.</p>	<p>No lands in the general review area meet the scenic criteria as outlined.</p>	<p>There are no unsuitable findings under Criterion 5 for the South Hilight Field LBA study area.</p>
<p>6. Land Used for Scientific Study. Federal lands under permit by the surface management agency and being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments are unsuitable for the duration of the study except where mining would not jeopardize the purpose of the study.</p>	<p>Two vegetation monitoring study sites on the TBNG (NE¼ of Sec. 1, T.41N., R.71W. and NW¼ NW¼ of Sec. 30, T.41N., R.69W.), and the Hoe Creek Site (Sec. 7, T.47N., R.72W.) were found to be unsuitable under this criterion.</p>	<p>The vegetation monitoring sites and the Hoe Creek site are not located on the South Hilight Field LBA study area. There are no unsuitable findings under Criterion 6 for the South Hilight Field LBA study area.</p>

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR SOUTH HILIGHT FIELD LBA STUDY AREA
<p>7. Cultural Resources. All publicly or privately owned places which are included in or are eligible for inclusion in the NRHP and an appropriate buffer zone are unsuitable.</p>	<p>On the basis of the consultation with SHPO, there were no unsuitable findings under this criterion in the general review area. Continue using the “Standard Archeological Stipulation” to new leases.</p>	<p>There are no unsuitable findings under Criterion 7 for the South Hilight Field LBA study area. The “Standard Archeological Stipulation” should be applied if this tract is leased.</p>
<p>8. Natural Areas. Federal lands designated as natural areas or National Natural Landmarks are unsuitable.</p>	<p>No lands in the general review area are designated as natural areas or as National Natural Landmarks.</p>	<p>There are no unsuitable findings under Criterion 8 for the South Hilight Field LBA study area.</p>
<p>9. Critical Habitat for Threatened or Endangered Plant and Animal Species. Federally designated critical habitat for threatened or endangered plant and animal species, and scientifically documented essential habitat for threatened or endangered species are unsuitable.</p>	<p>There is no federally designated critical habitat for threatened or endangered plant or animal species within the general review area.</p>	<p>There are no unsuitable findings under Criterion 9 for the South Hilight Field LBA study area.</p>
<p>10. State Listed Threatened or Endangered Species. Federal lands containing habitat determined to be critical or essential for plant or animal species listed by a state pursuant to state law as threatened or endangered shall be considered unsuitable.</p>	<p>Wyoming does not maintain a state list of threatened or endangered species of plants or animals. Therefore, this criterion does not apply.</p>	<p>There are no unsuitable findings under Criterion 10 for the South Hilight Field LBA study area.</p>
<p>11. Bald or Golden Eagle Nests. An active bald or golden eagle nest and appropriate buffer zone are unsuitable unless the lease can be conditioned so that eagles will not be disturbed during breeding season or unless golden eagle nests will be moved.</p>	<p>Defer suitability decisions and evaluate bald and golden eagle nests on a case by case basis at the time of leasing. Establish buffer zones around nests during mining and reclamation planning after consultation with USFWS.</p>	<p>There are currently no bald or golden eagle nests (active or inactive) on the South Hilight Field LBA study area. Evaluate suitability prior to lease issuance during consultation with USFWS.</p>
<p>12. Bald and Golden Eagle Roost and Concentration Areas. Bald and golden eagle roost and concentration areas on federal lands used during migration and wintering are unsuitable unless mining can be conducted in such a way as to ensure that eagles shall not be adversely disturbed.</p>	<p>Defer suitability decisions and evaluate bald and golden eagle roost areas on a case by case basis prior to lease issuance. Establish buffer zones after consultation with USFWS.</p>	<p>There are no identified roost sites on the South Hilight Field LBA study area. Evaluate suitability prior to lease issuance during consultation with USFWS.</p>
<p>13. Falcon Nesting Sites and Buffer Zones. Federal lands containing active falcon (excluding kestrel) cliff nesting sites and a suitable buffer zone shall be considered unsuitable unless mining can be conducted in such a way as to ensure the falcons will not be adversely affected.</p>	<p>Defer suitability decisions on falcon nesting sites and evaluate on a case by case basis prior to lease issuance. Establish buffer zones around nesting sites after consultation with USFWS.</p>	<p>No falcon nesting sites have been identified on the South Hilight Field LBA study area. There are no unsuitable findings under Criterion 13 for the South Hilight Field LBA study area.</p>
<p>14. Habitat for Migratory Bird Species. Federal lands which are high priority habitat for migratory bird species of management concern in Wyoming shall be considered unsuitable unless mining can be conducted in such a way as to ensure that migratory bird habitat will not be adversely affected during the period it is in use.</p>	<p>Defer suitability decisions on high priority habitat for migratory bird species of management concern in Wyoming and evaluate on a case by case basis prior to lease issuance. Establish buffer zones for nesting areas during mining and reclamation planning after consultation with USFWS.</p>	<p>Evaluate suitability during consultation with USFWS.</p>

Appendix B

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR SOUTH HILIGHT FIELD STUDY AREA
<p>15. Fish and Wildlife Habitat for Resident Species. Federal lands which the surface management agency and state jointly agree are fish, wildlife and plant habitat of resident species of high interest to the state, and which are essential for maintaining these priority wildlife species, shall be considered unsuitable unless mining can be conducted in such a way as to ensure no long-term impact on the species being provided will occur.</p>	<p>Defer suitability decisions on grouse leks and evaluate on a case by case basis prior to lease issuance. Establish buffer zones after consultation with WGFD.</p>	<p>There are currently are no occupied (active within the last 10 years) or unoccupied (destroyed or abandoned) sage-grouse leks indentified on lands within the South Hilight Field LBA study area. There is currently one unoccupied (destroyed) sage-grouse lek located on an existing Black Thunder Mine lease within 2 miles of the South Hilight Field LBA study area. Evaluate this criterion prior to lease issuance. Establish buffer zones during mining and reclamation planning after consultation with WGFD.</p>
<p>16. Floodplains. Federal lands in riverine, coastal, and special floodplains shall be considered unsuitable where it is determined that mining could not be undertaken without substantial threat of loss of life or property.</p>	<p>The BLM and USFS have determined that the identified floodplains in the general review area could potentially be mined. Therefore, all lands within the general review area are considered suitable.</p>	<p>Site-specific stipulations and resource protection safeguards will be applied if necessary during mining and reclamation planning. There are no unsuitable findings under Criterion 16 for the South Hilight Field LBA study area.</p>
<p>17. Municipal Watersheds. Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.</p>	<p>There are no designated municipal watersheds in the general review area.</p>	<p>There are no unsuitable findings under Criterion 17 for the South Hilight Field LBA study area.</p>
<p>18. National Resource Waters. Federal lands with national resource waters, as identified by states in their water quality management plans, and ¼-mile buffer zones shall be unsuitable.</p>	<p>There are no designated national resource waters within the general review area.</p>	<p>There are no unsuitable findings under Criterion 18 for the South Hilight Field LBA study area.</p>
<p>19. Alluvial Valley Floors. Federal lands identified by the surface management agency, in consultation with the state, as AVFs where mining would interrupt, discontinue or preclude farming, are unsuitable. Additionally, when mining federal lands outside an AVF would materially damage the quality or quantity of water in surface or underground water systems that would supply AVFs, the land shall be considered unsuitable.</p>	<p>Consider areas determined to contain AVFs significant to farming as unsuitable. Defer decisions on other AVFs and analyze on a case-by-case basis prior to lease issuance.</p>	<p>No AVFs or potential AVFs have been identified on the South Hilight Field LBA study area with characteristics indicating potential significance to farming. There are no unsuitable findings under Criterion 19 for the South Hilight Field LBA study area.</p>
<p>20. State or Indian Tribe Criteria. Federal lands to which is applicable a criterion proposed by the state or Indian tribe located in the planning area and adopted by rulemaking by the Secretary are unsuitable.</p>	<p>There are no criterion proposed by state or Indian tribes that have been approved by the Secretary of the Interior. No tribal lands are located in or near the general review area.</p>	<p>There are no unsuitability findings for this criterion on the South Hilight Field LBA study area.</p>

APPENDIX B. UNSUITABILITY CRITERIA FOR THE WEST HILIGHT FIELD LBA STUDY AREA

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR WEST HILIGHT FIELD LBA STUDY AREA
<p>1. Federal Land Systems. With certain exceptions that do not apply to this tract, all federal lands included in the following systems are unsuitable for mining: National Parks, National Wildlife Refuges, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers, National Recreation Areas, Lands acquired through the Land and Water Conservation Fund, National Forests and Federal lands in incorporated cities, towns and villages.</p>	<p>There are Federal lands located around Gillette, Sheridan, and Wright that were determined to be unsuitable under this criterion. TBNG lands are included in the West Hilight Field LBA study area. The TBNG is not a proclaimed National Forest.</p>	<p>None of the federal lands determined to be unsuitable under Criterion 1 are present on the West Hilight Field LBA study area. Therefore, there are no unsuitable findings under this criterion.</p>
<p>2. Rights-Of-Way and Easements. Federal lands that are within ROWs or easements or within surface leases for residential, commercial, industrial or other public purposes, on federally owned surface, are unsuitable for mining.</p>	<p>Portions of the BNSF & UP railroad ROWs, the Tri-County 230-Kv transmission line ROW, the Wyoming State Highway 450 ROW, and the I-90 ROW were found to be unsuitable under this criterion within the general review area.</p>	<p>The portions of the Tri-County 230-Kv transmission line ROW, the Wyoming State Highway 450 ROW, and the I-90 ROW that were determined to be unsuitable are not located on the West Hilight Field LBA study area. A portion of the north-south BNSF & UP railroad ROW that was found to be unsuitable for mining is located on the eastern boundary of the tract configured under Alternative 2. Therefore, this portion of the BNSF & UP railroad ROW was designated unsuitable and the lease will be stipulated to exclude mining within the ROW.</p>
<p>3. Buffer Zones for Rights-Of-Way, Communities, and Buildings. Federal lands within 100 ft of a ROW of a public road or a cemetery; or within 300 ft of any public building, school, church, community or institutional building or public park; or within 300 ft of an occupied dwelling are unsuitable for mining.</p>	<p>Portions of Wyoming State Highway 450, Interstate Highway I-90, and one cemetery were found to be unsuitable under this criterion. Decisions were deferred on other highways/roads, occupied dwellings, and one school until an application to lease is filed.</p>	<p>I-90 and the cemetery are not located on the West Hilight Field LBA study area. No occupied dwellings or schools are located on the study area. The West Hilight Field LBA study area includes a portion of Highway 450 west of the intersection with the north-south main BNSF & UP railroad trunk line, which was not designated unsuitable for mining under Criterion 2. However, a portion of the Highway 450 ROW is located on the tract as applied for and under Alternatives 2 and 3. A portion of the ROW of the Hilight Road, a county road, is also located on the tract configured under Alternatives 2 and 3. Therefore, the portions of the West Hilight Field LBA study area within the ROWs of Highway 450 and Hilight Road and the associated 100-ft buffer zones are designated unsuitable and the lease will be stipulated to exclude mining within these areas unless permits to move the highway and road are approved by Wyoming Department of Transportation and Campbell County Commissioners, respectively.</p>
<p>4. Wilderness Study Areas. Federal lands designated as wilderness study areas are unsuitable for mining while under review for possible wilderness designation.</p>	<p>No lands in the general review area are within a wilderness study area.</p>	<p>There are no unsuitable findings under Criterion 4 for the West Hilight Field LBA study area.</p>
<p>5. Scenic Areas. Scenic federal lands designated by visual resource management analysis as Class I (outstanding visual quality or high visual sensitivity) but not currently on National Register of Natural Landmarks are unsuitable.</p>	<p>No lands in the general review area meet the scenic criteria as outlined.</p>	<p>There are no unsuitable findings under Criterion 5 for the West Hilight Field LBA study area.</p>

Appendix B

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR WEST HILIGHT FIELD LBA STUDY AREA
<p>6. Land Used for Scientific Study. Federal lands under permit by the surface management agency and being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments are unsuitable for the duration of the study except where mining would not jeopardize the purpose of the study.</p>	<p>Two vegetation monitoring study sites on the TBNG (NE¼ of Sec. 1, T.41N., R.71W. and NW¼ NW¼ of Sec. 30, T.41N., R.69W.), and the Hoe Creek Site (Sec. 7, T.47N., R.72W.) were found to be unsuitable under this criterion.</p>	<p>The vegetation monitoring sites and the Hoe Creek site are not located on the West Hilight Field LBA study area. There are no unsuitable findings under Criterion 6 for the West Hilight Field LBA study area.</p>
<p>7. Cultural Resources. All publicly or privately owned places which are included in or are eligible for inclusion in the NRHP and an appropriate buffer zone are unsuitable.</p>	<p>On the basis of the consultation with SHPO, there were no unsuitable findings under this criterion in the general review area. Continue using the "Standard Archeological Stipulation" to new leases.</p>	<p>There are no unsuitable findings under Criterion 7 for the West Hilight Field LBA study area. The "Standard Archeological Stipulation" should be applied if this tract is leased.</p>
<p>8. Natural Areas. Federal lands designated as natural areas or National Natural Landmarks are unsuitable.</p>	<p>No lands in the general review area are designated as natural areas or as National Natural Landmarks.</p>	<p>There are no unsuitable findings under Criterion 8 for the West Hilight Field LBA study area.</p>
<p>9. Critical Habitat for Threatened or Endangered Plant and Animal Species. Federally designated critical habitat for threatened or endangered plant and animal species, and scientifically documented essential habitat for threatened or endangered species are unsuitable.</p>	<p>There is no federally designated critical habitat for threatened or endangered plant or animal species within the general review area.</p>	<p>There are no unsuitable findings under Criterion 9 for the West Hilight Field LBA study area.</p>
<p>10. State Listed Threatened or Endangered Species. Federal lands containing habitat determined to be critical or essential for plant or animal species listed by a state pursuant to state law as threatened or endangered shall be considered unsuitable.</p>	<p>Wyoming does not maintain a state list of threatened or endangered species of plants or animals. Therefore, this criterion does not apply.</p>	<p>There are no unsuitable findings under Criterion 10 for the West Hilight Field LBA study area.</p>
<p>11. Bald or Golden Eagle Nests. An active bald or golden eagle nest and appropriate buffer zone are unsuitable unless the lease can be conditioned so that eagles will not be disturbed during breeding season or unless golden eagle nests will be moved.</p>	<p>Defer suitability decisions and evaluate bald and golden eagle nests on a case by case basis at the time of leasing. Establish buffer zones around nests during mining and reclamation planning after consultation with USFWS.</p>	<p>There are currently no bald eagle nests (active or inactive) on the West Hilight Field LBA study area. There is currently one active golden eagle nest within ¼ mile of the West Hilight Field LBA study area. Evaluate suitability prior to lease issuance during consultation with USFWS.</p>
<p>12. Bald and Golden Eagle Roost and Concentration Areas. Bald and golden eagle roost and concentration areas on federal lands used during migration and wintering are unsuitable unless mining can be conducted in such a way as to ensure that eagles shall not be adversely disturbed.</p>	<p>Defer suitability decisions and evaluate bald and golden eagle roost areas on a case by case basis prior to lease issuance. Establish buffer zones after consultation with USFWS.</p>	<p>There are no identified roost sites on the West Hilight Field LBA study area. Evaluate suitability prior to lease issuance during consultation with USFWS.</p>
<p>13. Falcon Nesting Sites and Buffer Zones. Federal lands containing active falcon (excluding kestrel) cliff nesting sites and a suitable buffer zone shall be considered unsuitable unless mining can be conducted in such a way as to ensure the falcons will not be adversely affected.</p>	<p>Defer suitability decisions on falcon nesting sites and evaluate on a case by case basis prior to lease issuance. Establish buffer zones around nesting sites after consultation with USFWS.</p>	<p>No falcon nesting sites have been identified on the West Hilight Field LBA study area. There are no unsuitable findings under Criterion 13 for the West Hilight Field LBA study area.</p>

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR WEST HILIGHT FIELD LBA STUDY AREA
<p>14. Habitat for Migratory Bird Species. Federal lands which are high priority habitat for migratory bird species of management concern in Wyoming shall be considered unsuitable unless mining can be conducted in such a way as to ensure that migratory bird habitat will not be adversely affected during the period it is in use.</p>	<p>Defer suitability decisions on high priority habitat for migratory bird species of management concern in Wyoming and evaluate on a case by case basis prior to lease issuance. Establish buffer zones for nesting areas during mining and reclamation planning after consultation with USFWS.</p>	<p>Evaluate suitability during consultation with USFWS.</p>
<p>15. Fish and Wildlife Habitat for Resident Species. Federal lands which the surface management agency and state jointly agree are fish, wildlife and plant habitat of resident species of high interest to the state, and which are essential for maintaining these priority wildlife species, shall be considered unsuitable unless mining can be conducted in such a way as to ensure no long-term impact on the species being provided will occur.</p>	<p>Defer suitability decisions on grouse leks and evaluate on a case by case basis prior to lease issuance. Establish buffer zones after consultation with WGFD.</p>	<p>There is currently one undetermined (no documented activity for the last 10 years, but insufficient information to designate occupied) sage-grouse lek identified on lands within the West Hilight Field LBA study area, and one undetermined sage-grouse lek located within 2 miles of the West Hilight Field LBA study area. Evaluate this criterion prior to lease issuance. Establish buffer zones during mining and reclamation planning after consultation with WGFD.</p>
<p>16. Floodplains. Federal lands in riverine, coastal, and special floodplains shall be considered unsuitable where it is determined that mining could not be undertaken without substantial threat of loss of life or property.</p>	<p>The BLM and USFS have determined that the identified floodplains in the general review area could potentially be mined. Therefore, all lands within the general review area are considered suitable.</p>	<p>Site-specific stipulations and resource protection safeguards will be applied if necessary during mining and reclamation planning. There are no unsuitable findings under Criterion 16 for the West Hilight Field LBA study area.</p>
<p>17. Municipal Watersheds. Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.</p>	<p>There are no designated municipal watersheds in the general review area.</p>	<p>There are no unsuitable findings under Criterion 17 for the West Hilight Field LBA study area.</p>
<p>18. National Resource Waters. Federal lands with national resource waters, as identified by states in their water quality management plans, and ¼-mile buffer zones shall be unsuitable.</p>	<p>There are no designated national resource waters within the general review area.</p>	<p>There are no unsuitable findings under Criterion 18 for the West Hilight Field LBA study area.</p>
<p>19. Alluvial Valley Floors. Federal lands identified by the surface management agency, in consultation with the state, as AVFs where mining would interrupt, discontinue or preclude farming, are unsuitable. Additionally, when mining federal lands outside an AVF would materially damage the quality or quantity of water in surface or underground water systems that would supply AVFs, the land shall be considered unsuitable.</p>	<p>Consider areas determined to contain AVFs significant to farming as unsuitable. Defer decisions on other AVFs and analyze on a case-by-case basis prior to lease issuance.</p>	<p>No AVFs or potential AVFs have been identified on the West Hilight Field LBA study area with characteristics indicating potential significance to farming. There are no unsuitable findings under Criterion 19 for the West Hilight Field LBA study area.</p>
<p>20. State or Indian Tribe Criteria. Federal lands to which is applicable a criterion proposed by the state or Indian tribe located in the planning area and adopted by rulemaking by the Secretary are unsuitable.</p>	<p>There are no criterion proposed by state or Indian tribes that have been approved by the Secretary of the Interior. No tribal lands are located in or near the general review area.</p>	<p>There are no unsuitability findings for this criterion on the West Hilight Field LBA study area.</p>

APPENDIX B. UNSUITABILITY CRITERIA FOR THE WEST JACOBS RANCH LBA STUDY AREA

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR THE WEST JACOBS RANCH LBA STUDY AREA
<p>1. Federal Land Systems. With certain exceptions that do not apply to this tract, all federal lands included in the following systems are unsuitable for mining: National Parks, National Wildlife Refuges, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers, National Recreation Areas, Lands acquired through the Land and Water Conservation Fund, National Forests and Federal lands in incorporated cities, towns and villages.</p>	<p>There are Federal lands located around Gillette, Sheridan, and Wright that were determined to be unsuitable under this criterion. No TBNG lands are included in the West Jacobs Ranch LBA study area. The TBNG is not a proclaimed National Forest.</p>	<p>None of the federal lands determined to be unsuitable under Criterion 1 are present on the West Jacobs Ranch LBA study area. Therefore, there are no unsuitable findings under this criterion.</p>
<p>2. Rights-Of-Way and Easements. Federal lands that are within ROWs or easements or within surface leases for residential, commercial, industrial or other public purposes, on federally owned surface, are unsuitable for mining.</p>	<p>Portions of the BNSF & UP railroad ROWs, the Tri-County 230-Kv transmission line ROW, the Wyoming State Highway 450 ROW, and the I-90 ROW were found to be unsuitable under this criterion within the general review area.</p>	<p>The portions of the Tri-County 230-Kv transmission line ROW, the Wyoming State Highway 450 ROW, and the I-90 ROW that were determined to be unsuitable are not located on the West Jacobs Ranch LBA study area. A portion of the north-south BNSF & UP railroad ROW that was found to be unsuitable for mining is located on the eastern boundary of the tract as applied for and under Alternative 2. Therefore, this portion of the BNSF & UP railroad ROW was designated unsuitable and the lease will be stipulated to exclude mining within the ROW.</p>
<p>3. Buffer Zones for Rights-Of-Way, Communities, and Buildings. Federal lands within 100 ft of a ROW of a public road or a cemetery; or within 300 ft of any public building, school, church, community or institutional building or public park; or within 300 ft of an occupied dwelling are unsuitable for mining.</p>	<p>Portions of Wyoming State Highway 450, Interstate Highway I-90, and one cemetery were found to be unsuitable under this criterion. Decisions were deferred on other highways/roads, occupied dwellings, and one school until an application to lease is filed.</p>	<p>I-90 and the cemetery are not located on the West Jacobs Ranch LBA study area. No occupied dwellings or schools are located on the study area. The West Jacobs Ranch LBA study area includes a portion of Highway 450 west of the intersection with the north-south main BNSF & UP railroad trunk line, which was not designated unsuitable for mining under Criterion 2. However, a portion of the Highway 450 ROW is located on the tract as applied for and under Alternative 2. A portion of the ROW of the Hilight Road, a county road, is also located on the tract as applied for and under Alternative 2. Therefore, the portions of the West Jacobs Ranch LBA study area within the ROWs of Highway 450 and Hilight Road and the associated 100-ft buffer zones are designated unsuitable and the lease will be stipulated to exclude mining within these areas unless permits to move the highway and road are approved by Wyoming Department of Transportation and Campbell County Commissioners, respectively.</p>
<p>4. Wilderness Study Areas. Federal lands designated as wilderness study areas are unsuitable for mining while under review for possible wilderness designation.</p>	<p>No lands in the general review area are within a wilderness study area.</p>	<p>There are no unsuitable findings under Criterion 4 for the West Jacobs Ranch LBA study area.</p>
<p>5. Scenic Areas. Scenic federal lands designated by visual resource management analysis as Class I (outstanding visual quality or high visual sensitivity) but not currently on National Register of Natural Landmarks are unsuitable.</p>	<p>No lands in the general review area meet the scenic criteria as outlined.</p>	<p>There are no unsuitable findings under Criterion 5 for the West Jacobs Ranch LBA study area.</p>

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR THE WEST JACOBS RANCH LBA STUDY AREA
<p>6. Land Used for Scientific Study. Federal lands under permit by the surface management agency and being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments are unsuitable for the duration of the study except where mining would not jeopardize the purpose of the study.</p>	<p>Two vegetation monitoring study sites on the TBNG (NE¼ of Sec. 1, T.41N., R.71W. and NW¼ NW¼ of Sec. 30, T.41N., R.69W.), and the Hoe Creek Site (Sec. 7, T.47N., R.72W.) were found to be unsuitable under this criterion.</p>	<p>The vegetation monitoring sites and the Hoe Creek site are not located on the West Jacobs Ranch LBA study area. There are no unsuitable findings under Criterion 6 for the West Jacobs Ranch LBA study area.</p>
<p>7. Cultural Resources. All publicly or privately owned places which are included in or are eligible for inclusion in the NRHP and an appropriate buffer zone are unsuitable.</p>	<p>On the basis of the consultation with SHPO, there were no unsuitable findings under this criterion in the general review area. Continue using the "Standard Archeological Stipulation" to new leases.</p>	<p>There are no unsuitable findings under Criterion 7 for the West Jacobs Ranch LBA study area. The "Standard Archeological Stipulation" should be applied if this tract is leased.</p>
<p>8. Natural Areas. Federal lands designated as natural areas or National Natural Landmarks are unsuitable.</p>	<p>No lands in the general review area are designated as natural areas or as National Natural Landmarks.</p>	<p>There are no unsuitable findings under Criterion 8 for the West Jacobs Ranch LBA study area.</p>
<p>9. Critical Habitat for Threatened or Endangered Plant and Animal Species. Federally designated critical habitat for threatened or endangered plant and animal species, and scientifically documented essential habitat for threatened or endangered species are unsuitable.</p>	<p>There is no federally designated critical habitat for threatened or endangered plant or animal species within the general review area.</p>	<p>There are no unsuitable findings under Criterion 9 for the West Jacobs Ranch LBA study area.</p>
<p>10. State Listed Threatened or Endangered Species. Federal lands containing habitat determined to be critical or essential for plant or animal species listed by a state pursuant to state law as threatened or endangered shall be considered unsuitable.</p>	<p>Wyoming does not maintain a state list of threatened or endangered species of plants or animals. Therefore, this criterion does not apply.</p>	<p>There are no unsuitable findings under Criterion 10 for the West Jacobs Ranch LBA study area.</p>
<p>11. Bald or Golden Eagle Nests. An active bald or golden eagle nest and appropriate buffer zone are unsuitable unless the lease can be conditioned so that eagles will not be disturbed during breeding season or unless golden eagle nests will be moved.</p>	<p>Defer suitability decisions and evaluate bald and golden eagle nests on a case by case basis at the time of leasing. Establish buffer zones around nests during mining and reclamation planning after consultation with USFWS.</p>	<p>There are currently no bald eagle nests (active or inactive) on the West Jacobs Ranch LBA study area. There is currently one active golden eagle nest on lands within the West Jacobs Ranch LBA study area. Evaluate suitability prior to lease issuance during consultation with USFWS.</p>
<p>12. Bald and Golden Eagle Roost and Concentration Areas. Bald and golden eagle roost and concentration areas on federal lands used during migration and wintering are unsuitable unless mining can be conducted in such a way as to ensure that eagles shall not be adversely disturbed.</p>	<p>Defer suitability decisions and evaluate bald and golden eagle roost areas on a case by case basis prior to lease issuance. Establish buffer zones after consultation with USFWS.</p>	<p>There are no identified roost sites on the West Jacobs Ranch LBA study area. Evaluate suitability prior to lease issuance during consultation with USFWS.</p>
<p>13. Falcon Nesting Sites and Buffer Zones. Federal lands containing active falcon (excluding kestrel) cliff nesting sites and a suitable buffer zone shall be considered unsuitable unless mining can be conducted in such a way as to ensure the falcons will not be adversely affected.</p>	<p>Defer suitability decisions on falcon nesting sites and evaluate on a case by case basis prior to lease issuance. Establish buffer zones around nesting sites after consultation with USFWS.</p>	<p>No falcon nesting sites have been identified on the West Jacobs Ranch LBA study area. There are no unsuitable findings under Criterion 13 for the West Jacobs Ranch LBA study area.</p>

Appendix B

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR THE WEST JACOBS RANCH LBA STUDY AREA
<p>14. Habitat for Migratory Bird Species. Federal lands which are high priority habitat for migratory bird species of management concern in Wyoming shall be considered unsuitable unless mining can be conducted in such a way as to ensure that migratory bird habitat will not be adversely affected during the period it is in use.</p>	<p>Defer suitability decisions on high priority habitat for migratory bird species of management concern in Wyoming and evaluate on a case by case basis prior to lease issuance. Establish buffer zones for nesting areas during mining and reclamation planning after consultation with USFWS.</p>	<p>Evaluate suitability during consultation with USFWS.</p>
<p>15. Fish and Wildlife Habitat for Resident Species. Federal lands which the surface management agency and state jointly agree are fish, wildlife and plant habitat of resident species of high interest to the state, and which are essential for maintaining these priority wildlife species, shall be considered unsuitable unless mining can be conducted in such a way as to ensure no long-term impact on the species being provided will occur.</p>	<p>Defer suitability decisions on grouse leks and evaluate on a case by case basis prior to lease issuance. Establish buffer zones after consultation with WGFD.</p>	<p>There are currently are no occupied (active within the last 10 years) or unoccupied (destroyed or abandoned) sage-grouse leks identified on lands within the West Jacobs Ranch LBA study area. There are currently two undetermined (no documented activity for the last 10 years, but insufficient information to designate occupied) sage-grouse leks identified on lands adjacent to the LBA tract: one approximately 1 mile south-southwest and one approximately 1.3 miles south-southwest of the West Jacobs Ranch LBA study area. Evaluate this criterion prior to lease issuance. Establish buffer zones during mining and reclamation planning after consultation with WGFD.</p>
<p>16. Floodplains. Federal lands in riverine, coastal, and special floodplains shall be considered unsuitable where it is determined that mining could not be undertaken without substantial threat of loss of life or property.</p>	<p>The BLM and USFS have determined that the identified floodplains in the general review area could potentially be mined. Therefore, all lands within the general review area are considered suitable.</p>	<p>Site-specific stipulations and resource protection safeguards will be applied if necessary during mining and reclamation planning. There are no unsuitable findings under Criterion 16 for the West Jacobs Ranch LBA study area.</p>
<p>17. Municipal Watersheds. Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.</p>	<p>There are no designated municipal watersheds in the general review area.</p>	<p>There are no unsuitable findings under Criterion 17 for the West Jacobs Ranch LBA study area.</p>
<p>18. National Resource Waters. Federal lands with national resource waters, as identified by states in their water quality management plans, and ¼-mile buffer zones shall be unsuitable.</p>	<p>There are no designated national resource waters within the general review area.</p>	<p>There are no unsuitable findings under Criterion 18 for the West Jacobs Ranch LBA study area.</p>
<p>19. Alluvial Valley Floors. Federal lands identified by the surface management agency, in consultation with the state, as AVFs where mining would interrupt, discontinue or preclude farming, are unsuitable. Additionally, when mining federal lands outside an AVF would materially damage the quality or quantity of water in surface or underground water systems that would supply AVFs, the land shall be considered unsuitable.</p>	<p>Consider areas determined to contain AVFs significant to farming as unsuitable. Defer decisions on other AVFs and analyze on a case-by-case basis prior to lease issuance.</p>	<p>No AVFs or potential AVFs have been identified on the West Jacobs Ranch LBA study area with characteristics indicating potential significance to farming. There are no unsuitable findings under Criterion 19 for the West Jacobs Ranch LBA study area.</p>
<p>20. State or Indian Tribe Criteria. Federal lands to which is applicable a criterion proposed by the state or Indian tribe located in the planning area and adopted by rulemaking by the Secretary are unsuitable.</p>	<p>There are no criterion proposed by state or Indian tribes that have been approved by the Secretary of the Interior. No tribal lands are located in or near the general review area.</p>	<p>There are no unsuitability findings for this criterion on the West Jacobs Ranch LBA study area.</p>

APPENDIX B. UNSUITABILITY CRITERIA FOR THE NORTH PORCUPINE LBA STUDY AREA

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR THE NORTH PORCUPINE LBA STUDY AREA
<p>1. Federal Land Systems. With certain exceptions that do not apply to this tract, all federal lands included in the following systems are unsuitable for mining: National Parks, National Wildlife Refuges, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers, National Recreation Areas, Lands acquired through the Land and Water Conservation Fund, National Forests and Federal lands in incorporated cities, towns and villages.</p>	<p>There are Federal lands located around Gillette, Sheridan, and Wright that were determined to be unsuitable under this criterion. TBNG lands are included in the North Porcupine LBA study area. The TBNG is not a proclaimed National Forest.</p>	<p>None of the federal lands determined to be unsuitable under Criterion 1 are present on the North Porcupine LBA study area. Therefore, there are no unsuitable findings under this criterion.</p>
<p>2. Rights-Of-Way and Easements. Federal lands that are within ROWs or easements or within surface leases for residential, commercial, industrial or other public purposes, on federally owned surface, are unsuitable for mining.</p>	<p>Portions of the BNSF & UP railroad ROWs, the Tri-County 230-Kv transmission line ROW, the Wyoming State Highway 450 ROW, and the I-90 ROW were found to be unsuitable under this criterion within the general review area.</p>	<p>The portions of the Tri-County 230-Kv transmission line ROW, the Wyoming State Highway 450 ROW, and the I-90 ROW that were determined to be unsuitable are not located on the North Porcupine LBA study area. A portion of the BNSF & UP railroad ROW that was found to be unsuitable for mining crosses the tract as applied for and under Alternative 2. Therefore, this portion of the BNSF & UP railroad ROW was designated unsuitable and the lease will be stipulated to exclude mining within the ROW.</p>
<p>3. Buffer Zones for Rights-Of-Way, Communities, and Buildings. Federal lands within 100 ft of a ROW of a public road or a cemetery; or within 300 ft of any public building, school, church, community or institutional building or public park; or within 300 ft of an occupied dwelling are unsuitable for mining.</p>	<p>Portions of Wyoming State Highway 450, Interstate Highway I-90, and one cemetery were found to be unsuitable under this criterion. Decisions were deferred on other highways/roads, occupied dwellings, and one school until an application to lease is filed.</p>	<p>Highway 450, I-90, and the cemetery are not located on the North Porcupine LBA study area. No occupied dwellings or schools are located on the study area. Portions of the ROWs of the Antelope, Matheson, and Mackey roads, all county roads, are located on the tract as applied for and under Alternative 2. The relocation of the Antelope Road and a portion of the Matheson Road within the LBA study area have been approved by the Campbell County Commissioners. Therefore, the portions of the North Porcupine LBA study area within the ROWs of the Mackey Road and a portion of the Matheson Road and the associated 100-ft buffer zones are designated unsuitable for mining and the lease will be stipulated to exclude mining within these areas unless permits to move the roads are approved by Campbell County Board of Commissioners.</p>
<p>4. Wilderness Study Areas. Federal lands designated as wilderness study areas are unsuitable for mining while under review for possible wilderness designation.</p>	<p>No lands in the general review area are within a wilderness study area.</p>	<p>There are no unsuitable findings under Criterion 4 for the North Porcupine LBA study area.</p>
<p>5. Scenic Areas. Scenic federal lands designated by visual resource management analysis as Class I (outstanding visual quality or high visual sensitivity) but not currently on National Register of Natural Landmarks are unsuitable.</p>	<p>No lands in the general review area meet the scenic criteria as outlined.</p>	<p>There are no unsuitable findings under Criterion 5 for the North Porcupine LBA study area.</p>

Appendix B

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR THE NORTH PORCUPINE LBA STUDY AREA
<p>6. Land Used for Scientific Study. Federal lands under permit by the surface management agency and being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments are unsuitable for the duration of the study except where mining would not jeopardize the purpose of the study.</p>	<p>Two vegetation monitoring study sites on the TBNG (NE¼ of Sec. 1, T.41N., R.71W. and NW¼ NW¼ of Sec. 30, T.41N., R.69W.), and the Hoe Creek Site (Sec. 7, T.47N., R.72W.) were found to be unsuitable under this criterion.</p>	<p>The vegetation monitoring sites and the Hoe Creek site are not located on the North Porcupine LBA study area. There are no unsuitable findings under Criterion 6 for the North Porcupine LBA study area.</p>
<p>7. Cultural Resources. All publicly or privately owned places which are included in or are eligible for inclusion in the NRHP and an appropriate buffer zone are unsuitable.</p>	<p>On the basis of the consultation with SHPO, there were no unsuitable findings under this criterion in the general review area. Continue using the "Standard Archeological Stipulation" to new leases.</p>	<p>There are no unsuitable findings under Criterion 7 for the North Porcupine LBA study area. The "Standard Archeological Stipulation" should be applied if this tract is leased.</p>
<p>8. Natural Areas. Federal lands designated as natural areas or National Natural Landmarks are unsuitable.</p>	<p>No lands in the general review area are designated as natural areas or as National Natural Landmarks.</p>	<p>There are no unsuitable findings under Criterion 8 for the North Porcupine LBA study area.</p>
<p>9. Critical Habitat for Threatened or Endangered Plant and Animal Species. Federally designated critical habitat for threatened or endangered plant and animal species, and scientifically documented essential habitat for threatened or endangered species are unsuitable.</p>	<p>There is no federally designated critical habitat for threatened or endangered plant or animal species within the general review area.</p>	<p>There are no unsuitable findings under Criterion 9 for the North Porcupine LBA study area.</p>
<p>10. State Listed Threatened or Endangered Species. Federal lands containing habitat determined to be critical or essential for plant or animal species listed by a state pursuant to state law as threatened or endangered shall be considered unsuitable.</p>	<p>Wyoming does not maintain a state list of threatened or endangered species of plants or animals. Therefore, this criterion does not apply.</p>	<p>There are no unsuitable findings under Criterion 10 for the North Porcupine LBA study area.</p>
<p>11. Bald or Golden Eagle Nests. An active bald or golden eagle nest and appropriate buffer zone are unsuitable unless the lease can be conditioned so that eagles will not be disturbed during breeding season or unless golden eagle nests will be moved.</p>	<p>Defer suitability decisions and evaluate bald and golden eagle nests on a case by case basis at the time of leasing. Establish buffer zones around nests during mining and reclamation planning after consultation with USFWS.</p>	<p>There are currently no bald eagle nests (active or inactive) on the North Porcupine LBA study area. There are currently two active golden eagle nests on lands within the North Porcupine LBA study area. Evaluate suitability prior to lease issuance during consultation with USFWS.</p>
<p>12. Bald and Golden Eagle Roost and Concentration Areas. Bald and golden eagle roost and concentration areas on federal lands used during migration and wintering are unsuitable unless mining can be conducted in such a way as to ensure that eagles shall not be adversely disturbed.</p>	<p>Defer suitability decisions and evaluate bald and golden eagle roost areas on a case by case basis prior to lease issuance. Establish buffer zones after consultation with USFWS.</p>	<p>There are no identified roost sites on the North Porcupine LBA study area. Evaluate suitability prior to lease issuance during consultation with USFWS.</p>
<p>13. Falcon Nesting Sites and Buffer Zones. Federal lands containing active falcon (excluding kestrel) cliff nesting sites and a suitable buffer zone shall be considered unsuitable unless mining can be conducted in such a way as to ensure the falcons will not be adversely affected.</p>	<p>Defer suitability decisions on falcon nesting sites and evaluate on a case by case basis prior to lease issuance. Establish buffer zones around nesting sites after consultation with USFWS.</p>	<p>No falcon nesting sites have been identified on the North Porcupine LBA study area. There are no unsuitable findings under Criterion 13 for the North Porcupine LBA study area.</p>

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR THE NORTH PORCUPINE LBA STUDY AREA
<p>14. Habitat for Migratory Bird Species. Federal lands which are high priority habitat for migratory bird species of management concern in Wyoming shall be considered unsuitable unless mining can be conducted in such a way as to ensure that migratory bird habitat will not be adversely affected during the period it is in use.</p>	<p>Defer suitability decisions on high priority habitat for migratory bird species of management concern in Wyoming and evaluate on a case by case basis prior to lease issuance. Establish buffer zones for nesting areas during mining and reclamation planning after consultation with USFWS.</p>	<p>Evaluate suitability during consultation with USFWS.</p>
<p>15. Fish and Wildlife Habitat for Resident Species. Federal lands which the surface management agency and state jointly agree are fish, wildlife and plant habitat of resident species of high interest to the state, and which are essential for maintaining these priority wildlife species, shall be considered unsuitable unless mining can be conducted in such a way as to ensure no long-term impact on the species being provided will occur.</p>	<p>Defer suitability decisions on grouse leks and evaluate on a case by case basis prior to lease issuance. Establish buffer zones after consultation with WGFD.</p>	<p>There is currently one occupied (active within the last 10 years) sage-grouse lek and no unoccupied (destroyed or abandoned) sage-grouse leks identified on lands within the North Porcupine LBA study area. There are currently two occupied sage-grouse leks identified on lands adjacent to the LBA tract: both are approximately 1.5 miles southeast of the LBA study area. There is also one unoccupied/abandoned (no activity for 10 consecutive years) sage-grouse lek identified on lands adjacent to the LBA tract: approximately 0.5 mile southeast of the LBA study area. Evaluate this criterion prior to lease issuance. Establish buffer zones during mining and reclamation planning after consultation with WGFD.</p>
<p>16. Floodplains. Federal lands in riverine, coastal, and special floodplains shall be considered unsuitable where it is determined that mining could not be undertaken without substantial threat of loss of life or property.</p>	<p>The BLM and USFS have determined that the identified floodplains in the general review area could potentially be mined. Therefore, all lands within the general review area are considered suitable.</p>	<p>Site-specific stipulations and resource protection safeguards will be applied if necessary during mining and reclamation planning. There are no unsuitable findings under Criterion 16 for the North Porcupine LBA study area.</p>
<p>17. Municipal Watersheds. Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.</p>	<p>There are no designated municipal watersheds in the general review area.</p>	<p>There are no unsuitable findings under Criterion 17 for the North Porcupine LBA study area.</p>
<p>18. National Resource Waters. Federal lands with national resource waters, as identified by states in their water quality management plans, and ¼-mile buffer zones shall be unsuitable.</p>	<p>There are no designated national resource waters within the general review area.</p>	<p>There are no unsuitable findings under Criterion 18 for the North Porcupine LBA study area.</p>
<p>19. Alluvial Valley Floors. Federal lands identified by the surface management agency, in consultation with the state, as AVFs where mining would interrupt, discontinue or preclude farming, are unsuitable. Additionally, when mining federal lands outside an AVF would materially damage the quality or quantity of water in surface or underground water systems that would supply AVFs, the land shall be considered unsuitable.</p>	<p>Consider areas determined to contain AVFs significant to farming as unsuitable. Defer decisions on other AVFs and analyze on a case-by-case basis prior to lease issuance.</p>	<p>No AVFs or potential AVFs have been identified on the North Porcupine LBA study area with characteristics indicating potential significance to farming. There are no unsuitable findings under Criterion 19 for the North Porcupine LBA study area.</p>
<p>20. State or Indian Tribe Criteria. Federal lands to which is applicable a criterion proposed by the state or Indian tribe located in the planning area and adopted by rulemaking by the Secretary are unsuitable.</p>	<p>There are no criterion proposed by state or Indian tribes that have been approved by the Secretary of the Interior. No tribal lands are located in or near the general review area.</p>	<p>There are no unsuitability findings for this criterion on the North Porcupine LBA study area.</p>

APPENDIX B. UNSUITABILITY CRITERIA FOR THE SOUTH PORCUPINE LBA STUDY AREA

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR THE SOUTH PORCUPINE LBA STUDY AREA
<p>1. Federal Land Systems. With certain exceptions that do not apply to this tract, all federal lands included in the following systems are unsuitable for mining: National Parks, National Wildlife Refuges, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers, National Recreation Areas, Lands acquired through the Land and Water Conservation Fund, National Forests and Federal lands in incorporated cities, towns and villages.</p>	<p>There are Federal lands located around Gillette, Sheridan, and Wright that were determined to be unsuitable under this criterion. TBNG lands are included in the South Porcupine LBA study area. The TBNG is not a proclaimed National Forest.</p>	<p>None of the federal lands determined to be unsuitable under Criterion 1 are present on the South Porcupine LBA study area. Therefore, there are no unsuitable findings under this criterion.</p>
<p>2. Rights-Of-Way and Easements. Federal lands that are within ROWs or easements or within surface leases for residential, commercial, industrial or other public purposes, on federally owned surface, are unsuitable for mining.</p>	<p>Portions of the BNSF & UP railroad ROWs, the Tri-County 230-Kv transmission line ROW, the Wyoming State Highway 450 ROW, and the I-90 ROW were found to be unsuitable under this criterion within the general review area.</p>	<p>The portions of the Tri-County 230-Kv transmission line ROW, the Wyoming State Highway 450 ROW, and the I-90 ROW that were determined to be unsuitable are not located on the South Porcupine LBA study area. A portion of the BNSF & UP railroad ROW that was found to be unsuitable for mining crosses the tract configured under Alternative 2. Therefore, this portion of the BNSF & UP railroad ROW was designated unsuitable and the lease will be stipulated unsuitable to exclude mining within the ROW.</p>
<p>3. Buffer Zones for Rights-Of-Way, Communities, and Buildings. Federal lands within 100 ft of a ROW of a public road or a cemetery; or within 300 ft of any public building, school, church, community or institutional building or public park; or within 300 ft of an occupied dwelling are unsuitable for mining.</p>	<p>Portions of Wyoming State Highway 450, Interstate Highway I-90, and one cemetery were found to be unsuitable under this criterion. Decisions were deferred on other highways/roads, occupied dwellings, and one school until an application to lease is filed.</p>	<p>Highway 450, I-90, and the cemetery are not located on the South Porcupine LBA study area. No occupied dwellings or schools are located on the study area. Portions of the ROW of the Antelope Road, a county road, are located on the tract as applied for and under Alternative 2. The relocation of a portion of the Antelope Road within the LBA study area has been approved by the Campbell County Commissioners. Therefore, the portions of the South Porcupine LBA study area within the ROW of a portion of the Antelope Road and the associated 100-ft buffer zone are designated unsuitable for mining and the lease will be stipulated to exclude mining within these areas unless a permit to move the road is approved by Campbell Co. Board of Commissioners.</p>
<p>4. Wilderness Study Areas. Federal lands designated as wilderness study areas are unsuitable for mining while under review for possible wilderness designation.</p>	<p>No lands in the general review area are within a wilderness study area.</p>	<p>There are no unsuitable findings under Criterion 4 for the South Porcupine LBA study area.</p>
<p>5. Scenic Areas. Scenic federal lands designated by visual resource management analysis as Class I (outstanding visual quality or high visual sensitivity) but not currently on National Register of Natural Landmarks are unsuitable.</p>	<p>No lands in the general review area meet the scenic criteria as outlined.</p>	<p>There are no unsuitable findings under Criterion 5 for the South Porcupine LBA study area.</p>

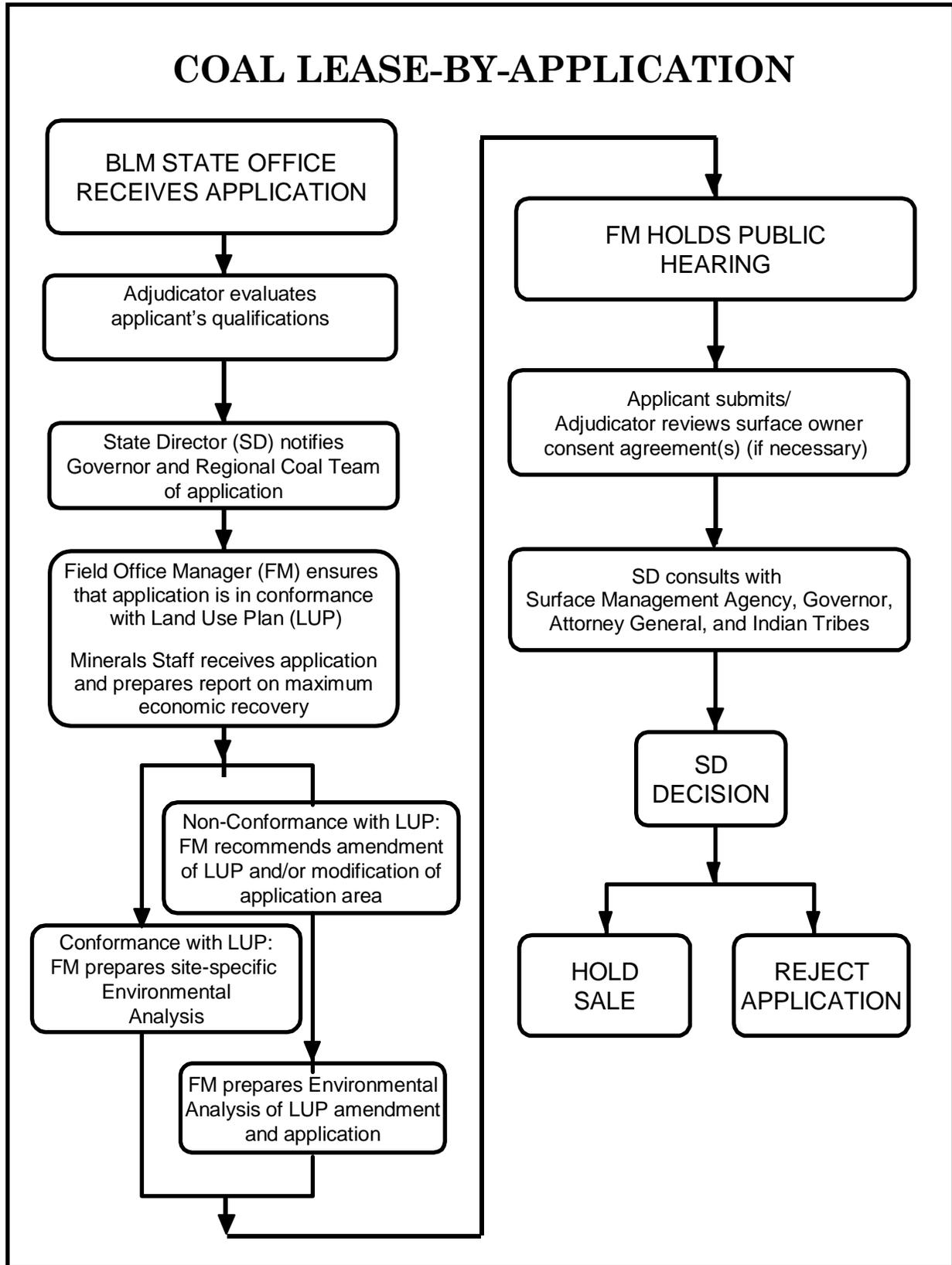
UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR THE SOUTH PORCUPINE LBA STUDY AREA
<p>6. Land Used for Scientific Study. Federal lands under permit by the surface management agency and being used for scientific studies involving food or fiber production, natural resources, or technology demonstrations and experiments are unsuitable for the duration of the study except where mining would not jeopardize the purpose of the study.</p>	<p>Two vegetation monitoring study sites on the TBNG (NE¼ of Sec. 1, T.41N., R.71W. and NW¼ NW¼ of Sec. 30, T.41N., R.69W.), and the Hoe Creek Site (Sec. 7, T.47N., R.72W.) were found to be unsuitable under this criterion.</p>	<p>The vegetation monitoring sites and the Hoe Creek site are not located on the South Porcupine LBA study area. There are no unsuitable findings under Criterion 6 for the South Porcupine LBA study area.</p>
<p>7. Cultural Resources. All publicly or privately owned places which are included in or are eligible for inclusion in the NRHP and an appropriate buffer zone are unsuitable.</p>	<p>On the basis of the consultation with SHPO, there were no unsuitable findings under this criterion in the general review area. Continue using the "Standard Archeological Stipulation" to new leases.</p>	<p>There are no unsuitable findings under Criterion 7 for the South Porcupine LBA study area. The "Standard Archeological Stipulation" should be applied if this tract is leased.</p>
<p>8. Natural Areas. Federal lands designated as natural areas or National Natural Landmarks are unsuitable.</p>	<p>No lands in the general review area are designated as natural areas or as National Natural Landmarks.</p>	<p>There are no unsuitable findings under Criterion 8 for the South Porcupine LBA study area.</p>
<p>9. Critical Habitat for Threatened or Endangered Plant and Animal Species. Federally designated critical habitat for threatened or endangered plant and animal species, and scientifically documented essential habitat for threatened or endangered species are unsuitable.</p>	<p>There is no federally designated critical habitat for threatened or endangered plant or animal species within the general review area.</p>	<p>There are no unsuitable findings under Criterion 9 for the South Porcupine LBA study area.</p>
<p>10. State Listed Threatened or Endangered Species. Federal lands containing habitat determined to be critical or essential for plant or animal species listed by a state pursuant to state law as threatened or endangered shall be considered unsuitable.</p>	<p>Wyoming does not maintain a state list of threatened or endangered species of plants or animals. Therefore, this criterion does not apply.</p>	<p>There are no unsuitable findings under Criterion 10 for the South Porcupine LBA study area.</p>
<p>11. Bald or Golden Eagle Nests. An active bald or golden eagle nest and appropriate buffer zone are unsuitable unless the lease can be conditioned so that eagles will not be disturbed during breeding season or unless golden eagle nests will be moved.</p>	<p>Defer suitability decisions and evaluate bald and golden eagle nests on a case by case basis at the time of leasing. Establish buffer zones around nests during mining and reclamation planning after consultation with USFWS.</p>	<p>There are currently no bald or golden eagle nests (active or inactive) on the South Porcupine LBA study area. Evaluate suitability prior to lease issuance during consultation with USFWS.</p>
<p>12. Bald and Golden Eagle Roost and Concentration Areas. Bald and golden eagle roost and concentration areas on federal lands used during migration and wintering are unsuitable unless mining can be conducted in such a way as to ensure that eagles shall not be adversely disturbed.</p>	<p>Defer suitability decisions and evaluate bald and golden eagle roost areas on a case by case basis prior to lease issuance. Establish buffer zones after consultation with USFWS.</p>	<p>There are no identified roost sites on the South Porcupine LBA study area. Evaluate suitability prior to lease issuance during consultation with USFWS.</p>
<p>13. Falcon Nesting Sites and Buffer Zones. Federal lands containing active falcon (excluding kestrel) cliff nesting sites and a suitable buffer zone shall be considered unsuitable unless mining can be conducted in such a way as to ensure the falcons will not be adversely affected.</p>	<p>Defer suitability decisions on falcon nesting sites and evaluate on a case by case basis prior to lease issuance. Establish buffer zones around nesting sites after consultation with USFWS.</p>	<p>No falcon nesting sites have been identified on the South Porcupine LBA study area. There are no unsuitable findings under Criterion 13 for the South Porcupine LBA study area.</p>

Appendix B

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR THE SOUTH PORCUPINE LBA STUDY AREA
<p>14. Habitat for Migratory Bird Species. Federal lands which are high priority habitat for migratory bird species of management concern in Wyoming shall be considered unsuitable unless mining can be conducted in such a way as to ensure that migratory bird habitat will not be adversely affected during the period it is in use.</p>	<p>Defer suitability decisions on high priority habitat for migratory bird species of management concern in Wyoming and evaluate on a case by case basis prior to lease issuance. Establish buffer zones for nesting areas during mining and reclamation planning after consultation with USFWS.</p>	<p>Evaluate suitability during consultation with USFWS.</p>
<p>15. Fish and Wildlife Habitat for Resident Species. Federal lands which the surface management agency and state jointly agree are fish, wildlife and plant habitat of resident species of high interest to the state, and which are essential for maintaining these priority wildlife species, shall be considered unsuitable unless mining can be conducted in such a way as to ensure no long-term impact on the species being provided will occur.</p>	<p>Defer suitability decisions on grouse leks and evaluate on a case by case basis prior to lease issuance. Establish buffer zones after consultation with WGFD.</p>	<p>There are currently are no occupied (active within the last 10 years) or unoccupied (destroyed or abandoned) sage-grouse leks identified on lands within the South Porcupine LBA study area or on lands within 2 miles of the LBA study area. Evaluate this criterion prior to lease issuance. Establish buffer zones during mining and reclamation planning after consultation with WGFD.</p>
<p>16. Floodplains. Federal lands in riverine, coastal, and special floodplains shall be considered unsuitable where it is determined that mining could not be undertaken without substantial threat of loss of life or property.</p>	<p>The BLM and USFS have determined that the identified floodplains in the general review area could potentially be mined. Therefore, all lands within the general review area are considered suitable.</p>	<p>Site-specific stipulations and resource protection safeguards will be applied if necessary during mining and reclamation planning. There are no unsuitable findings under Criterion 16 for the South Porcupine LBA study area.</p>
<p>17. Municipal Watersheds. Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.</p>	<p>There are no designated municipal watersheds in the general review area.</p>	<p>There are no unsuitable findings under Criterion 17 for the South Porcupine LBA study area.</p>
<p>18. National Resource Waters. Federal lands with national resource waters, as identified by states in their water quality management plans, and 1/4-mile buffer zones shall be unsuitable.</p>	<p>There are no designated national resource waters within the general review area.</p>	<p>There are no unsuitable findings under Criterion 18 for the South Porcupine LBA study area.</p>
<p>19. Alluvial Valley Floors. Federal lands identified by the surface management agency, in consultation with the state, as AVFs where mining would interrupt, discontinue or preclude farming, are unsuitable. Additionally, when mining federal lands outside an AVF would materially damage the quality or quantity of water in surface or underground water systems that would supply AVFs, the land shall be considered unsuitable.</p>	<p>Consider areas determined to contain AVFs significant to farming as unsuitable. Defer decisions on other AVFs and analyze on a case-by-case basis prior to lease issuance.</p>	<p>No AVFs or potential AVFs have been identified on the South Porcupine LBA study area with characteristics indicating potential significance to farming. There are no unsuitable findings under Criterion 19 for the South Porcupine LBA study area.</p>
<p>20. State or Indian Tribe Criteria. Federal lands to which is applicable a criterion proposed by the state or Indian tribe located in the planning area and adopted by rulemaking by the Secretary are unsuitable.</p>	<p>There are no criterion proposed by state or Indian tribes that have been approved by the Secretary of the Interior. No tribal lands are located in or near the general review area.</p>	<p>There are no unsuitability findings for this criterion on the South Porcupine LBA study area.</p>

APPENDIX C

COAL LEASE-BY-APPLICATION
FLOW CHART



APPENDIX D

BUREAU OF LAND MANAGEMENT
SPECIAL COAL LEASE STIPULATIONS,
U.S. FOREST SERVICE SPECIAL STIPULATIONS,
AND FORM 3400-12 COAL LEASE

BLM will attach the following special stipulations to each Wright LBA tract that is leased:

SPECIAL STIPULATIONS

In addition to observing the general obligations and standards of performance set out in the current regulations, the lessee shall comply with and be bound by the following special stipulations.

These stipulations are also imposed upon the lessee's agents and employees. The failure or refusal of any of these persons to comply with these stipulations shall be deemed a failure of the lessee to comply with the terms of the lease. The lessee shall require his agents, contractors and subcontractors involved in activities concerning this lease to include these stipulations in the contracts between and among them. These stipulations may be revised or amended, in writing, by the mutual consent of the lessor and the lessee at any time to adjust to changed conditions or to correct an oversight.

(a) CULTURAL RESOURCES

(1) Before undertaking any activities that may disturb the surface of the leased lands, the lessee shall conduct a cultural resource intensive field inventory in a manner specified by the Authorized Officer of the BLM or of the surface managing agency, if different, on portions of the mine plan area and adjacent areas, or exploration plan area, that may be adversely affected by lease-related activities and which were not previously inventoried at such a level of intensity. The inventory shall be conducted by a qualified professional cultural resource specialist (i.e., archeologist, historian, historical architect, as appropriate), approved by the Authorized Officer of the surface managing agency (BLM, if the surface is privately owned), and a report of the inventory and recommendations for protecting any cultural resources identified shall be submitted to the Regional Director of the Western Region of the Office of Surface Mining (the Western Regional Director), the Authorized Officer of the BLM, if activities are associated with coal exploration outside an approved mining permit area (hereinafter called Authorized Officer), and the Authorized Officer of the surface managing agency, if different. The lessee shall undertake measures, in accordance with instructions from the Western Regional Director, or Authorized Officer, to protect cultural resources on the leased lands. The lessee shall not commence the surface disturbing activities until permission to proceed is given by the Western Regional Director or Authorized Officer.

(2) The lessee shall protect all cultural resource properties that have been determined eligible to the National Register of Historic Places within the lease area from lease-related activities until the cultural resource mitigation measures can be implemented as part of an approved mining and reclamation

or exploration plan unless modified by mutual agreement in consultation with the State Historic Preservation Officer.

(3) The cost of conducting the inventory, preparing reports, and carrying out mitigation measures shall be borne by the lessee.

(4) If cultural resources are discovered during operations under this lease, the lessee shall immediately bring them to the attention of the Western Regional Director or Authorized Officer, or the Authorized Officer of the surface managing agency, if the Western Regional Director is not available. The lessee shall not disturb such resources except as may be subsequently authorized by the Western Regional Director or Authorized Officer.

Within two (2) working days of notification, the Western Regional Director or Authorized Officer will evaluate or have evaluated any cultural resources discovered and will determine if any action may be required to protect or preserve such discoveries. The cost of data recovery for cultural resources discovered during lease operations shall be borne by the lessee unless otherwise specified by the Authorized Officer of the BLM or of the surface managing agency, if different.

(5) All cultural resources shall remain under the jurisdiction of the United States until ownership is determined under applicable law.

(b) PALEONTOLOGICAL RESOURCES

If paleontological resources, either large and conspicuous, and/or of significant scientific value are discovered during mining operations, the find will be reported to the Authorized Officer immediately. Mining operations will be suspended within 250 feet of said find. An evaluation of the paleontological discovery will be made by a BLM-approved professional paleontologist within five (5) working days, weather permitting, to determine the appropriate action(s) to prevent the potential loss of any significant paleontological value. Operations within 250 feet of such discovery will not be resumed until written authorization to proceed is issued by the Authorized Officer. The lessee will bear the cost of any required paleontological appraisals, surface collection of fossils, or salvage of any large conspicuous fossils of significant scientific interest discovered during the operations.

(c) THREATENED, ENDANGERED, CANDIDATE, or OTHER SPECIAL STATUS PLANT and ANIMAL SPECIES

(1) The lease area may now or hereafter contain plants, animals, or their habitats determined to be threatened or endangered under the Endangered Species Act of 1973, as amended, 16 U.S.C. 1531 *et seq.*, or that have other special status. The Authorized Officer may recommend modifications to exploration and development proposals to further conservation and

management objectives or to avoid activity that will contribute to a need to list such species or their habitat or to comply with any biological opinion issued by the Fish and Wildlife Service for the Proposed Action. The Authorized Officer will not approve any ground-disturbing activity that may affect any such species or critical habitat until it completes its obligations under applicable requirements of the Endangered Species Act. The Authorized Officer may require modifications to, or disapprove a proposed activity that is likely to result in jeopardy to the continued existence of a proposed or listed threatened or endangered species, or result in the destruction or adverse modification of designated or proposed critical habitat.

(2) The lessee shall comply with instructions from the Authorized Officer of the surface managing agency (BLM, if the surface is private) for ground disturbing activities associated with coal exploration on federal coal leases prior to approval of a mining and reclamation permit or outside an approved mining and reclamation permit area. The lessee shall comply with instructions from the Authorized Officer of the Office of Surface Mining Reclamation and Enforcement, or his designated representative, for all ground disturbing activities taking place within an approved mining and reclamation permit area or associated with such a permit.

(3) Any potential habitat that has not already been surveyed for Ute ladies'-tresses within the project area shall be identified and surveyed prior to surface mining activities.

(d) MULTIPLE MINERAL DEVELOPMENT

Operations will not be approved which, in the opinion of the Authorized Officer, would unreasonably interfere with the orderly development and/or production from a valid existing mineral lease issued prior to this one for the same lands.

(e) OIL AND GAS/COAL RESOURCES

The BLM realizes that coal mining operations conducted on Federal coal leases issued within producing oil and gas fields may interfere with the economic recovery of oil and gas; just as Federal oil and gas leases issued in a Federal coal lease area may inhibit coal recovery. BLM retains the authority to alter and/or modify the resource recovery and protection plans for coal operations and/or oil and gas operations on those lands covered by Federal mineral leases so as to obtain maximum resource recovery.

(f) RESOURCE RECOVERY AND PROTECTION

Notwithstanding the approval of a resource recovery and protection plan (R2P2) by the BLM, lessor reserves the right to seek damages against the operator/lessee in

the event (i) the operator/lessee fails to achieve maximum economic recovery (MER) (as defined at 43 CFR 3480.0-5(21)) of the recoverable coal reserves or (ii) the operator/lessee is determined to have caused a wasting of recoverable coal reserves. Damages shall be measured on the basis of the royalty that would have been payable on the wasted or unrecovered coal.

The parties recognize that under an approved R2P2, conditions may require a modification by the operator/lessee of that plan. In the event a coal bed or portion thereof is not to be mined or is rendered unmineable by the operation, the operator/lessee shall submit appropriate justification to obtain approval by the Authorized Officer to leave such reserves unmined. Upon approval by the Authorized Officer, such coal beds or portions thereof shall not be subject to damages as described above. Further, nothing in this section shall prevent the operator/lessee from exercising its right to relinquish all or portion of the lease as authorized by statute and regulation.

In the event the Authorized Officer determines that the R2P2, as approved, will not attain MER as the result of changed conditions, the Authorized Officer will give proper notice to the operator/lessee as required under applicable regulations. The Authorized Officer will order a modification if necessary, identifying additional reserves to be mined in order to attain MER. Upon a final administrative or judicial ruling upholding such an ordered modification, any reserves left unmined (wasted) under that plan will be subject to damages as described in the first paragraph under this section.

Subject to the right to appeal hereinafter set forth, payment of the value of the royalty on such unmined recoverable coal reserves shall become due and payable upon determination by the Authorized Officer that the coal reserves have been rendered unmineable or at such time that the operator/lessee has demonstrated an unwillingness to extract the coal.

The BLM may enforce this provision either by issuing a written decision requiring payment of the Mineral Management Service demand for such royalties, or by issuing a notice of non-compliance. A decision or notice of non-compliance issued by the lessor that payment is due under this stipulation is appealable as allowed by law.

(g) PUBLIC LAND SURVEY PROTECTION

The lessee will protect all survey monuments, witness corners, reference monuments, and bearing trees against destruction, obliteration, or damage during operations on the lease areas. If any monuments, corners or accessories are destroyed, obliterated, or damaged by this operation, the lessee will hire an appropriate county surveyor or registered land surveyor to reestablish or restore the monuments, corners, or accessories at the same location, using surveying procedures in accordance with the "Manual of Surveying Instructions for the

Survey of the Public Lands of the United States." The survey will be recorded in the appropriate county records, with a copy sent to the Authorized Officer.

(h) BUFFER ZONES FOR RIGHTS-OF-WAY OF PUBLIC ROADS

The following special stipulation (h)(1) will be added to the West Hilight Field and West Jacobs Ranch LBA Tracts:

(1) No mining activity of any kind may be conducted within Wyoming State Highway 450 right-of-way and associated 100-foot buffer zone while that public road remains in its current (2009) location. The lessee shall recover all legally and economically recoverable coal from all leased lands not within the foregoing right-of-way and associated buffer zone. Provided a permit to move this public highway is approved by the appropriate authority (Wyoming Department of Transportation), the lessee shall recover all legally and economically recoverable coal from all leased lands within the foregoing right-of-way and associated buffer zone. The lessee shall pay all royalties on any legally and economically recoverable coal that it fails to mine without the written permission of the Authorized Officer.

The following special stipulation (h)(2) will be added to each Wright area LBA tract:

(2) No mining activity of any kind may be conducted within Campbell County Road [Shroyer (CR 116), Reno (CR 83), Hilight (CR 52), Mackey (CR 69), Matheson, or Antelope (CR4)] rights-of-way and associated 100-foot buffer zones while those public roads remain in their current (2009) locations. The lessee shall recover all legally and economically recoverable coal from all leased lands not within the foregoing rights-of-way and associated buffer zones. Provided a permit to move the respective road(s) is approved by the appropriate authority (Campbell County Board of Commissioners), the lessee shall recover all legally and economically recoverable coal from all leased lands within the foregoing rights-of-way and associated buffer zones. The lessee shall pay all royalties on any legally and economically recoverable coal that it fails to mine without the written permission of the Authorized Officer.

(i) RAILROAD RIGHT-OF-WAY

The following special stipulation will be added to the South Hilight Field, West Hilight Field, West Jacobs Ranch, North Porcupine, and South Porcupine LBA Tracts:

No mining activity of any kind may be conducted on those portions of the Burlington Northern/Santa Fe and Union Pacific Railroad right-of-way that cross federally administered lands. The lessee shall recover all legally and economically recoverable coal from all leased lands not within the foregoing right-of-way. Lessee shall pay all royalties on any legally and economically recoverable coal that it fails to mine without the written permission of the Authorized Officer.

The North Hilight Field, South Hilight Field, West Hilight Field, North Porcupine, and South Porcupine LBA Tracts reconfigured under Alternative 2 (the BLM study area, which is BLM's preferred alternative) include National Forest System Lands. U.S. Forest Service will attach the following special stipulations to each Wright LBA tract that is leased:

**NOTICE FOR LANDS OF THE NATIONAL FOREST SYSTEM UNDER
JURISDICTION OF THE DEPARTMENT OF AGRICULTURE**

The permittee must comply with all the rules and regulations of the Secretary of Agriculture set forth in Title 36, Chapter II, of the Code of Federal Regulations governing the use and management of the National Forest System (NFS) when not inconsistent with the rights granted by the Secretary of the Interior in the permit. The Secretary of Agriculture's rules and regulations must be complied with for (1) all use and occupancy of the NFS prior to approval of an exploration plan by the Secretary of the Interior, (2) uses of all existing improvements, such as forest development roads, within and outside the area permitted by the Secretary of the Interior, and (3) use and occupancy of the NFS not authorized by an exploration plan approved by the Secretary of the Interior.

All matters related to this stipulation are to be addressed to:

District Ranger
2250 East Richards
Douglas, WY 82633
Telephone: 307-358-4690

who is the authorized representative of the Secretary of Agriculture.

NOTICE

CULTURAL AND PALEONTOLOGICAL RESOURCES – The U.S. Department of Agriculture-Forest Service (USFS) is responsible for assuring that the leased lands are examined to determine if cultural and paleontological resources are present and to specify mitigation measures. Prior to undertaking the surface-disturbing activities on the lands covered by the lease, the lessee or operator, unless notified to the contrary by the USFS, shall:

1. Contact the USFS to determine if a site specific cultural or paleontological resource inventory is required. If a survey is required, then:
2. Engage the services of a cultural resource specialist and/or paleontologist acceptable to the USFS to conduct a cultural and/or paleontological resource inventory of the area of proposed surface disturbance. The operator may elect to inventory an area larger than the area of proposed disturbance to cover possible site relocation which may result from environmental or other considerations. An acceptable inventory report is to

be submitted to the USFS for review and approval at the time a surface disturbing plan of operation is submitted.

3. A cultural and/or paleontological resource assessment and mitigation proposal is required for any scientifically significant locality discovered and known to exist in the area of proposed surface disturbance. Implement measures required by the USFS and BLM to preserve or avoid destruction of cultural and paleontological resource or values. Mitigation may include relocation of proposed facilities, testing, salvage, recordation, or other protective measures. All costs of the inventory and mitigation will be borne by the lessee or operator, and all data and materials salvaged will remain under the jurisdiction of the U.S. Government as appropriate.

The discovery of any antiquities or other objects of historic or scientific interest, including but not limited to, historic or prehistoric ruins, fossils, or artifacts as the result of any operation conducted within the lease boundaries on Forest System Land shall immediately be brought to the attention of the District Ranger. The permittee will cease operations in that area until authorized to proceed by the District Ranger.

FOREST SERVICE REGION 2 SENSITIVE SPECIES – The USFS is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any plant or animal species listed as sensitive by the Regional Forester. The findings of this examination may result in some restrictions to the operator’s plan or even disallow use and occupancy.

ENDANGERED OR THREATENED SPECIES – The USFS is responsible for assuring that the leased land is examined prior to undertaking any surface-disturbing activities to determine effects upon any plant or animal species listed or proposed for listing as endangered or threatened, or their habitats. The findings of this examination may result in some restriction to the operator’s plans or even disallow use and occupancy that would be in violation of the Endangered Species Act of 1973 by detrimentally affecting endangered or threatened species or their habitats.

The lessee/operator may, unless notified by the USFS that the examination is not necessary, conduct the examination of leased lands at this discretion and cost. This examination must be done by or under the supervision of a qualified resource specialist approved by the USFS. An acceptable report must be provided to the USFS identifying the anticipated effects of a proposed action on endangered or threatened species or their habitats, and the anticipated effects and impacts to USFS Regions 2 Sensitive Species that may occur or have habitat in the area.

Form 3400-12
(February 2005)

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

COAL LEASE

FORM APPROVED
OMB NO. 1004-0073
Expires: January 31, 2007

Serial Number

PART 1. LEASE RIGHTS GRANTED

This lease, entered into by and between the UNITED STATES OF AMERICA, hereinafter called lessor, through the Bureau of Land Management (BLM), and
(Name and Address)

hereinafter called lessee, is effective (date) / / , for a period of 20 years and for so long thereafter as coal is produced in commercial quantities from the leased lands, subject to readjustment of lease terms at the end of the 20th lease year and each 10-year period thereafter.

Sec. 1. This lease is issued pursuant and subject to the terms and provisions of the:

- Mineral Lands Leasing Act of 1920, Act of February 25, 1920, as amended, 41 Stat. 437, 30 U.S.C. 181-287, hereinafter referred to as the Act;
- Mineral Leasing Act for Acquired Lands, Act of August 7, 1947, 61 Stat. 913, 30 U.S.C. 351-359;

and to the regulations and formal orders of the Secretary of the Interior which are now or hereafter in force, when not inconsistent with the express and specific provisions herein.

Sec. 2. Lessor, in consideration of any bonuses, rents, and royalties to be paid, and the conditions and covenants to be observed as herein set forth, hereby grants and leases to lessee the exclusive right and privilege to drill for, mine, extract, remove, or otherwise process and dispose of the coal deposits in, upon, or under the following described lands:

containing _____ acres, more or less, together with the right to construct such works, buildings, plants, structures, equipment and appliances and the right to use such on-lease rights-of-way which may be necessary and convenient in the exercise of the rights and privileges granted, subject to the conditions herein provided.

PART II. TERMS AND CONDITIONS

Sec. 1. (a) RENTAL RATE - Lessee must pay lessor rental annually and in advance for each acre or fraction thereof during the continuance of the lease at the rate of \$ _____ for each lease year.

(b) RENTAL CREDITS - Rental will not be credited against either production or advance royalties for any year.

Sec. 2. (a) PRODUCTION ROYALTIES - The royalty will be _____ percent of the value of the coal as set forth in the regulations. Royalties are due to lessor the final day of the month succeeding the calendar month in which the royalty obligation accrues.

(b) ADVANCE ROYALTIES - Upon request by the lessee, the BLM may accept, for a total of not more than 10 years, the payment of advance royalties in lieu of continued operation, consistent with the regulations. The advance royalty will be based on a percent of the value of a minimum number of tons determined in the manner established by the advance royalty regulations in effect at the time the lessee requests approval to pay advance royalties in lieu of continued operation.

Sec. 3. BONDS - Lessee must maintain in the proper office a lease bond in the amount of \$ _____. The BLM may require an increase in this amount when additional coverage is determined appropriate.

Sec. 4. DILIGENCE - This lease is subject to the conditions of diligent development and continued operation, except that these conditions are excused

when operations under the lease are interrupted by strikes, the elements, or casualties not attributable to the lessee. The lessor, in the public interest, may suspend the condition of continued operation upon payment of advance royalties in accordance with the regulations in existence at the time of the suspension. Lessee's failure to produce coal in commercial quantities at the end of 10 years will terminate the lease. Lessee must submit an operation and reclamation plan pursuant to Section 7 of the Act not later than 3 years after lease issuance.

The lessor reserves the power to assent to or order the suspension of the terms and conditions of this lease in accordance with, inter alia, Section 39 of the Mineral Leasing Act, 30 U.S.C. 209.

5. LOGICAL MINING UNIT (LMU) - Either upon approval by the lessor or the lessee's application or at the direction of the lessor, this lease will become an LMU or part of an LMU, subject to the provisions set forth in the regulations.

The stipulations established in an LMU approval in effect at the time of LMU approval will supersede the relevant inconsistent terms of this lease so long as the lease remains committed to the LMU. If the LMU of which this lease is a part is dissolved, the lease will then be subject to the lease terms which would have been applied if the lease had not been included in an LMU.

(Continued on page 2)

Sec. 6. DOCUMENTS, EVIDENCE AND INSPECTION - At such times and in such form as lessor may prescribe, lessee must furnish detailed statements showing the amounts and quality of all products removed and sold from the lease, the proceeds therefrom, and the amount used for production purposes or unavoidably lost.

Lessee must keep open at all reasonable times for the inspection by BLM the leased premises and all surface and underground improvements, works, machinery, ore stockpiles, equipment, and all books, accounts, maps, and records relative to operations, surveys, or investigations on or under the leased lands.

Lessee must allow lessor access to and copying of documents reasonably necessary to verify lessee compliance with terms and conditions of the lease.

While this lease remains in effect, information obtained under this section will be closed to inspection by the public in accordance with the Freedom of Information Act (5 U.S.C. 552).

Sec. 7. DAMAGES TO PROPERTY AND CONDUCT OF OPERATIONS - Lessee must comply at its own expense with all reasonable orders of the Secretary, respecting diligent operations, prevention of waste, and protection of other resources.

Lessee must not conduct exploration operations, other than casual use, without an approved exploration plan. All exploration plans prior to the commencement of mining operations within an approved mining permit area must be submitted to the BLM.

Lessee must carry on all operations in accordance with approved methods and practices as provided in the operating regulations, having due regard for the prevention of injury to life, health, or property, and prevention of waste, damage or degradation to any land, air, water, cultural, biological, visual, and other resources, including mineral deposits and formations of mineral deposits not leased hereunder, and to other land uses or users. Lessee must take measures deemed necessary by lessor to accomplish the intent of this lease term. Such measures may include, but are not limited to, modification to proposed siting or design of facilities, timing of operations, and specification of interim and final reclamation procedures. Lessor reserves to itself the right to lease, sell, or otherwise dispose of the surface or other mineral deposits in the lands and the right to continue existing uses and to authorize future uses upon or in the leased lands, including issuing leases for mineral deposits not covered hereunder and approving easements or rights-of-way. Lessor must condition such uses to prevent unnecessary or unreasonable interference with rights of lessee as may be consistent with concepts of multiple use and multiple mineral development.

Sec. 8. PROTECTION OF DIVERSE INTERESTS, AND EQUAL OPPORTUNITY - Lessee must: pay when due all taxes legally assessed and levied under the laws of the State or the United States; accord all employees complete freedom of purchase; pay all wages at least twice each month in lawful money of the United States; maintain a safe working environment in accordance with standard industry practices; restrict the workday to not more than 8 hours in any one day for underground workers, except in emergencies; and take measures necessary to protect the health and safety of the public. No person under the age of 16 years should be employed in any mine below the surface. To the extent that laws of the State in which the lands are situated are more restrictive than the provisions in this paragraph, then the State laws apply.

Lessee will comply with all provisions of Executive Order No. 11246 of September 24, 1965, as amended, and the rules, regulations, and relevant orders of the Secretary of Labor. Neither lessee nor lessee's subcontractors should maintain segregated facilities.

Sec. 15. SPECIAL STIPULATIONS

Sec. 9. (a) TRANSFERS

- This lease may be transferred in whole or in part to any person, association or corporation qualified to hold such lease interest.
- This lease may be transferred in whole or in part to another public body or to a person who will mine coal on behalf of, and for the use of, the public body or to a person who for the limited purpose of creating a security interest in favor of a lender agrees to be obligated to mine the coal on behalf of the public body.
- This lease may only be transferred in whole or in part to another small business qualified under 13 CFR 121.

Transfers of record title, working or royalty interest must be approved in accordance with the regulations.

(b) RELINQUISHMENT - The lessee may relinquish in writing at any time all rights under this lease or any portion thereof as provided in the regulations. Upon lessor's acceptance of the relinquishment, lessee will be relieved of all future obligations under the lease or the relinquished portion thereof, whichever is applicable.

Sec. 10. DELIVERY OF PREMISES, REMOVAL OF MACHINERY, EQUIPMENT, ETC. - At such time as all portions of this lease are returned to lessor, lessee must deliver up to lessor the land leased, underground timbering, and such other supports and structures necessary for the preservation of the mine workings on the leased premises or deposits and place all workings in condition for suspension or abandonment. Within 180 days thereof, lessee must remove from the premises all other structures, machinery, equipment, tools, and materials that it elects to or as required by the BLM. Any such structures, machinery, equipment, tools, and materials remaining on the leased lands beyond 180 days, or approved extension thereof, will become the property of the lessor, but lessee may either remove any or all such property or continue to be liable for the cost of removal and disposal in the amount actually incurred by the lessor. If the surface is owned by third parties, lessor will waive the requirement for removal, provided the third parties do not object to such waiver. Lessee must, prior to the termination of bond liability or at any other time when required and in accordance with all applicable laws and regulations, reclaim all lands the surface of which has been disturbed, dispose of all debris or solid waste, repair the offsite and onsite damage caused by lessee's activity or activities incidental thereto, and reclaim access roads or trails.

Sec. 11. PROCEEDINGS IN CASE OF DEFAULT - If lessee fails to comply with applicable laws, existing regulations, or the terms, conditions and stipulations of this lease, and the noncompliance continues for 30 days after written notice thereof, this lease will be subject to cancellation by the lessor only by judicial proceedings. This provision will not be construed to prevent the exercise by lessor of any other legal and equitable remedy, including waiver of the default. Any such remedy or waiver will not prevent later cancellation for the same default occurring at any other time.

Sec. 12. HEIRS AND SUCCESSORS-IN-INTEREST - Each obligation of this lease will extend to and be binding upon, and every benefit hereof will inure to, the heirs, executors, administrators, successors, or assigns of the respective parties hereto.

Sec. 13. INDEMNIFICATION - Lessee must indemnify and hold harmless the United States from any and all claims arising out of the lessee's activities and operations under this lease.

Sec. 14. SPECIAL STATUTES - This lease is subject to the Clean Water Act (33 U.S.C. 1252 et seq.), the Clean Air Act (42 U.S.C. 4274 et seq.), and to all other applicable laws pertaining to exploration activities, mining operations and reclamation, including the Surface Mining Control and Reclamation Act of 1977 (30 U.S.C. 1201 et seq.).

THE UNITED STATES OF AMERICA

_____	By _____
(Company or Lessee Name)	
_____	_____
(Signature of Lessee)	(BLM)
_____	_____
(Title)	(Title)
_____	_____
(Date)	(Date)

Title 18 U.S.C. Section 1001, makes it a crime for any person knowingly and willfully to make to any department or agency of the United States any false, fictitious or fraudulent statements or representations as to any matter within its jurisdiction.

NOTICES

The Privacy Act of 1974 and the regulation in 43 CFR 2.48(d) provide that you be furnished with the following information in connection with information required by this application.

AUTHORITY: 30 U.S.C. 181-287 and 30 U.S.C. 351-359.

PRINCIPAL PURPOSE: BLM will use the information you provide to process your application and determine if you are eligible to hold a lease on BLM Land.

ROUTINE USES: BLM will only disclose the information according to the regulations at 43 CFR 2.56(d).

EFFECT OF NOT PROVIDING INFORMATION: Disclosing the information is necessary to receive a benefit. Not disclosing the information may result in BLM's rejecting your request for a lease.

The Paperwork Reduction Act of 1995 requires us to inform you that:

The BLM collects this information to authorize and evaluate proposed exploration and mining operations on public lands.

Response to the provisions of this lease form is mandatory for the types of activities specified.

The BLM would like you to know that you do not have to respond to this or any other Federal agency-sponsored information collection unless it displays a currently valid OMB control number.

BURDEN HOURS STATEMENT: Public reporting burden for this form is estimated to average one hour per response including the time for reading the instructions and provisions, and completing and reviewing the form. Direct comments regarding the burden estimate or any other aspect of this form to U.S. Department of the Interior, Bureau of Land Management (1004-0073), Bureau Information Collection Clearance Officer (WO-630), 1849 C Street, Mail Stop 401 LS, Washington, D.C. 20240.

APPENDIX E

CONVENTIONAL OIL AND GAS AND
COAL BED NATURAL GAS WELLS
CAPABLE OF PRODUCTION
LOCATED WITHIN THE BLM STUDY AREAS

FOR THE:

NORTH HILIGHT FIELD LBA TRACT
SOUTH HILIGHT FIELD LBA TRACT
WEST HILIGHT FIELD LBA TRACT
WEST JACOBS RANCH LBA TRACT
NORTH PORCUPINE LBA TRACT
SOUTH PORCUPINE LBA TRACT

**CONVENTIONAL OIL AND GAS WELLS CAPABLE OF PRODUCTION WITHIN THE
NORTH HILIGHT FIELD LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA**

API Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Oil (BBL)
521991	M & K Oil Company, Inc.	So Hilight Unit No. 1-41	44N	70W	NWNW Sec. 17	PR	237,029	6,861
521992	M & K Oil Company, Inc.	So Hilight Unit No. 4-41	44N	70W	NWSW Sec. 17	PR	18,459	6,880
522016	Primary Natural Resources, Inc.	Central Hilight Unit No. 227	44N	70W	NWSW Sec 18	PR	221,248	11,732
522106	M & K Oil Company, Inc.	So Hilight Unit No. 11-53	44N	70W	NWNE Sec 19	GL	75,417	3,076
522107	M & K Oil Company, Inc.	So Hilight Unit No. 19-53	44N	70W	NWSE Sec 19	GL	71,076	3,369
522283	M & K Oil Company, Inc.	So Hilight Unit No. 18-20	44N	70W	NWSW Sec 19	GL	458,182	21,197
522148	M & K Oil Company, Inc.	So Hilight Unit No. 12-40	44N	70W	NWNW Sec 20	GL	989,790	42,294
522224	M & K Oil Company, Inc.	So Hilight Unit No. 20-40	44N	70W	NWSW Sec 20	GL	20,914	783
522245	M & K Oil Company, Inc.	So Hilight Unit No. 14-25	44N	70W	NWNE Sec 21	GL	330,822	19,247
522502	M & K Oil Company, Inc.	So Hilight Unit No. 23-12	44N	70W	NWSE Sec 21	GL	443,628	9,904
522160	M & K Oil Company, Inc.	So Hilight Unit No. 22-39	44N	70W	NWSW Sec 21	GL	174,929	10,188
522031	M & K Oil Company, Inc.	So Hilight Unit No. 13-39	44N	70W	NWNW Sec 21	GL	265,769	11,895
523523	M & K Oil Company, Inc.	Royar Fed No. 1	44N	70W	NWSW Sec 22	GL	114,032	18,464
521956	M & K Oil Company, Inc.	Pamela No. 1	44N	71W	NWSW Sec 13	GL	304,134	13,360
521959	Primary Natural Resources, Inc.	Central Hilight Unit No. 226	44N	71W	NWSE Sec 13	PR	232,520	32,256
522568	M & K Oil Company, Inc.	Pamela No. 1-A	44N	71W	NWSW Sec 13	GL	839,971	25,608
521925	M & K Oil Company, Inc.	Mills No. 17	44N	71W	NWSE Sec 23	PR	115,489	72,057
525086	C & H Well Service	Springen No. 1	44N	71W	SENE Sec 23	GL	337,257	12,566
521845	M & K Oil Company, Inc.	So Hilight Unit No. 8-43	44N	71W	NWNW Sec 24	GL	484,888	8,007
522082	M & K Oil Company, Inc.	So Hilight Unit No. 9-17	44N	71W	NWNE Sec 24	GL	81,417	1,702

Status Codes: PR = Pumping Rods, GL = Gas Lift

Conventional oil and gas well data from WOGCC 12/13/07

**CONVENTIONAL OIL AND GAS WELLS CAPABLE OF PRODUCTION WITHIN THE
SOUTH HILIGHT FIELD LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA**

API Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Oil (BBL)
525150	M & K Oil Company, Inc	Porcupine Fed W30501 No. 1	42N	71W	NWSW Sec. 2	GL	318,792	18,548

**CONVENTIONAL OIL AND GAS WELLS CAPABLE OF PRODUCTION WITHIN THE
WEST HILIGHT FIELD LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA**

API Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Oil (BBL)
527612	M & K Oil Company, Inc	Burton Reno No. 1	43N	71W	NESW Sec. 15	PR	0	1,051

**CONVENTIONAL OIL AND GAS WELLS CAPABLE OF PRODUCTION WITHIN THE
WEST JACOBS RANCH LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA**

API Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Oil (BBL)
521868	M & K Oil Company, Inc	South Hilight Unit No. 34-50	44N	71W	NWSE Sec. 27	GL	70,631	4,631

**CONVENTIONAL OIL AND GAS WELLS CAPABLE OF PRODUCTION WITHIN THE
SOUTH PORCUPINE LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA**

API Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Oil (BBL)
526100	Abraxas Petroleum Corporation	Frazier No. 11-12	41N	71W	NWNW Sec. 12	PR	307,397	14,297

Status Codes: PR = Pumping Rods, GL = Gas Lift

Conventional oil and gas well data from WOGCC 12/13/07

**CONVENTIONAL OIL AND GAS WELLS CAPABLE OF PRODUCTION WITHIN THE
NORTH PORCUPINE LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA**

API Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Oil (BBL)
527391	DNR Oil and Gas, Inc.	Fed. W-093721C No. 19-16	42N	70W	SESE Sec. 19	FL	1,161,304	9,720
524326	DNR Oil and Gas, Inc.	Gamberg No. 1	42N	70W	SWNW Sec. 26	PR	58,427	33,412
527941	Berenergy	Janzen Fed 04315 No. 34-26	42N	70W	SWSE Sec. 26	PR	56,191	52,861
521995	Peabody Natural Gas LLC	WYO A 050890 No. 1	42N	70W	SWNE Sec. 27	GL	1,216	23,944
526728	Peabody Natural Gas LLC	Federal No. 29-2	42N	70W	NWNW Sec. 29	FL	791,926	24,745
522962	Peabody Natural Gas LLC	Federal No. 1-29	42N	70W	NWNW Sec. 29	FL	2,802,254	67,697
522996	Chaco Energy Company	Federal No. 1-23	42N	71W	NWSE Sec. 23	FL	726,144	14,958
526471	Chaco Energy Company	Exxon W-67034 No. 1-27	42N	71W	SENE Sec. 23	FL	155,690	10,317
525697	Adair Company LLC	Quillback W-67220 No. 1-34	42N	71W	SWNW Sec. 34	FL	160,820	7,671

Status Codes: FL = Flowing, PR = Pumping Rods, GL = Gas Lift

Conventional oil and gas well data from WOGCC 12/13/07

**CBNG WELLS CAPABLE OF PRODUCTION WITHIN THE
NORTH HILIGHT FIELD LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA**

API Number (Short)	Company	Well Number	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
537396	PRIMARY NATURAL RESOURCES INC	No. 22-19	44	70	SE NW Sec. 19	SI	2,082	51,387
537399	PRIMARY NATURAL RESOURCES INC	No. 11-19	44	70	NW NW Sec. 19	FL	16,884	127,775
537400	PRIMARY NATURAL RESOURCES INC	No. 24-19	44	70	SE SW Sec. 19	PS	58,978	402
537861	PRIMARY NATURAL RESOURCES INC	No. 31-19	44	70	NW NE Sec. 19	PS	70,806	4,711
537909	PRIMARY NATURAL RESOURCES INC	No. 13-19	44	70	NW SW Sec. 19	PS	63,766	116,255
537854	PRIMARY NATURAL RESOURCES INC	No. 33-19	44	70	NW SE Sec. 19	FL	36,338	20
542731	PRIMARY NATURAL RESOURCES INC	No. 11-20	44	70	NW NW Sec. 20	PS	112,412	190
542732	PRIMARY NATURAL RESOURCES INC	No. 13-20	44	70	NW SW Sec. 20	PS	104,829	3,434
532169	PRIMARY NATURAL RESOURCES INC	No. 22-13	44	71	SE NW Sec. 13	PS	43,334	90
532170	PRIMARY NATURAL RESOURCES INC	No. 31-13	44	71	NW NE Sec. 13	SI	26,299	416,906
532171	PRIMARY NATURAL RESOURCES INC	No. 42-13	44	71	SE NE Sec. 13	SI	1,178	35,448
532172	PRIMARY NATURAL RESOURCES INC	No. 33-13	44	71	NW SE Sec. 13	SI	15,390	81,940
532174	PRIMARY NATURAL RESOURCES INC	No. 11-13	44	71	NW NW Sec. 13	PS	98,202	819
537397	PRIMARY NATURAL RESOURCES INC	No. 24-13	44	71	SE SW Sec. 13	PS	105,841	147,656
537398	PRIMARY NATURAL RESOURCES INC	No. 13-13	44	71	NW SW Sec. 13	PS	72,283	41,400
540283	PRIMARY NATURAL RESOURCES INC	No. 44-13	44	71	SE SE Sec. 13	PS	68,507	36,346
540273	PRIMARY NATURAL RESOURCES INC	No. 31-14	44	71	NW NE Sec. 14	SI	75,379	29,174
542582	PRIMARY NATURAL RESOURCES INC	No. 42-14 C	44	71	SE NE Sec. 14	PS	102,100	29,231
546007	PRIMARY NATURAL RESOURCES INC	No. 21-14	44	71	NE NW Sec. 14	PS	81,487	12,865
548075	C & H WELL SERVICING INC	No. 14-11	44	71	NE SW Sec. 14	FL	108,211	0
548082	C & H WELL SERVICING INC	No. 14-13	44	71	SW SW Sec. 14	FL	108,222	0
549757	PRIMARY NATURAL RESOURCES INC	No. 33-14	44	71	NW SE Sec. 14	FL	129,649	125,512

**CBNG WELLS CAPABLE OF PRODUCTION WITHIN THE
NORTH HILIGHT FIELD LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA (Continued)**

API Number (Short)	Company	Well Number	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
549758	PRIMARY NATURAL RESOURCES INC	No. 12-14	44	71	SW NW Sec. 14	PS	60,988	353,569
549759	PRIMARY NATURAL RESOURCES INC	No. 44-14	44	71	SE SE Sec. 14	PS	101,965	47,869
537863	PRIMARY NATURAL RESOURCES INC	No. 42-23	44	71	SE NE Sec. 23	PS	118,869	436,101
537864	PRIMARY NATURAL RESOURCES INC	No. 44-23	44	71	SE SE Sec. 23	PS	209,025	118,101
537913	PRIMARY NATURAL RESOURCES INC	No. 31-23	44	71	NW NE Sec. 23	PR	281,455	48,898
537914	PRIMARY NATURAL RESOURCES INC	No. 33-23	44	71	NW SE Sec. 23	FL	327,456	79
548079	C & H WELL SERVICING INC	No. 23-3	44	71	NE NW Sec. 23	FL	108,221	0
548080	C & H WELL SERVICING INC	No. 23-5	44	71	SW NW Sec. 23	FL	108,222	0
537432	PRIMARY NATURAL RESOURCES INC	No. 31-24	44	71	NW NE Sec. 24	PS	103,052	5,570
537433	PRIMARY NATURAL RESOURCES INC	No. 42-24	44	71	SE NE Sec. 24	PS	67,124	54,154
537865	PRIMARY NATURAL RESOURCES INC	No. 11-24	44	71	NW NW Sec. 24	PS	163,687	143,249
537866	PRIMARY NATURAL RESOURCES INC	No. 22-24	44	71	SE NW Sec. 24	PS	115,256	147,133
537867	PRIMARY NATURAL RESOURCES INC	No. 33-24	44	71	NW SE Sec. 24	PS	129,140	135,633
537868	PRIMARY NATURAL RESOURCES INC	No. 44-24	44	71	SE SE Sec. 24	PS	93,209	657,198
540188	PRIMARY NATURAL RESOURCES INC	No. 24-24	44	71	SE SW Sec. 24	PS	580,267	8,428
539749	PRIMARY NATURAL RESOURCES INC	No. 13-24	44	71	NW SW Sec. 24	PS	176,273	47,766
543700	PRIMARY NATURAL RESOURCES INC	No. 23-24	44	71	NE SW Sec. 24	SI	0	1,228
540280	PRIMARY NATURAL RESOURCES INC	No. 44-26	44	71	SE SE Sec. 26	FL	313,785	7,162

Status Codes: FL = Flowing, PR = Pumping Rods, PS = Pumping Submersible, SI = Shut in
CBNG well status from WOGCC database 5/14/08
Cumulative production from WOGCC database 9/25/08

**CBNG WELLS CAPABLE OF PRODUCTION WITHIN THE
SOUTH HILIGHT FIELD LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA**

API Number (Short)	Company	Well Number	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
549558	LANCE OIL & GAS COMPANY INC	No. 21-2-4271	42	71	NE NW Sec. 2	SI	0	0
549559	LANCE OIL & GAS COMPANY INC	No. 23-2-4271	42	71	NE SW Sec. 2	SI	0	0
549560	LANCE OIL & GAS COMPANY INC	No. 12-2-4271	42	71	SW NW Sec. 2	SI	0	0
549561	LANCE OIL & GAS COMPANY INC	No. 14-2-4271	42	71	SW SW Sec. 2	SI	0	0
531964	LANCE OIL & GAS COMPANY INC	No. 14-23	43	71	SW SW Sec. 23	SI	3,249	600,630
532513	LANCE OIL & GAS COMPANY INC	No. 14-26	43	71	SW SW Sec. 26	PS	616,055	272,492
532517	LANCE OIL & GAS COMPANY INC	No. 22-26	43	71	SE NW Sec. 26	PS	176,776	408,343
532598	LANCE OIL & GAS COMPANY INC	No. 44-26	43	71	SE SE Sec. 26	PS	218,395	875,111
533456	LANCE OIL & GAS COMPANY INC	No. 32-26	43	71	SW NE Sec. 26	PS	221,343	642,943
533363	LANCE OIL & GAS COMPANY INC	No. 41-35	43	71	NE NE Sec. 35	PS	447,631	396,015
533368	LANCE OIL & GAS COMPANY INC	No. 32-35	43	71	SW NE Sec. 35	PS	340,328	621,280
532593	LANCE OIL & GAS COMPANY INC	No. 31-35	43	71	NW NE Sec. 35	PS	199,725	566,180
532594	LANCE OIL & GAS COMPANY INC	No. 22-35	43	71	SE NW Sec. 35	PS	303,551	927,640
532596	LANCE OIL & GAS COMPANY INC	No. 12-35	43	71	SW NW Sec. 35	PS	357,528	803,101
532597	LANCE OIL & GAS COMPANY INC	No. 11-35	43	71	NW NW Sec. 35	SI	303,748	320,611
532605	LANCE OIL & GAS COMPANY INC	No. 43-35	43	71	NE SE Sec. 35	SI	268,076	111,517
532606	LANCE OIL & GAS COMPANY INC	No. 42-35	43	71	SE NE Sec. 35	PS	236,807	1,345,069
Status Codes: PS = Pumping Submersible, SI = Shut in CBNG well status from WOGCC database 5/14/08 Cumulative production from WOGCC database 9/25/08								

**CBNG WELLS CAPABLE OF PRODUCTION WITHIN THE
WEST HILIGHT FIELD LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA**

API Number (Short)	Company	Well Number	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
544726	LANCE OIL & GAS COMPANY INC	No. 41-8-4371	43	71	NE NE Sec. 8	SI	139,443	750,268
531544	LANCE OIL & GAS COMPANY INC	No. 1-41-9	43	71	NE NE Sec. 9	PS	382,039	1,261,797
544720	LANCE OIL & GAS COMPANY INC	No. 43-9-4371	43	71	NE SE Sec. 9	PS	263,551	0
544721	LANCE OIL & GAS COMPANY INC	No. 34-9-4371	43	71	SW SE Sec. 9	FL	194,270	0
544723	LANCE OIL & GAS COMPANY INC	No. 23-9-4371	43	71	NE SW Sec. 9	FL	301,841	0
544724	LANCE OIL & GAS COMPANY INC	No. 21-9-4371	43	71	NE NW Sec. 9	FL	327,622	0
544725	LANCE OIL & GAS COMPANY INC	No. 12-9-4371	43	71	SW NW Sec. 9	FL	215,636	0
531545	LANCE OIL & GAS COMPANY INC	No. 1-21-10	43	71	NE NW Sec. 10	FL	361,643	35,203
534488	LANCE OIL & GAS COMPANY INC	No. 23-10	43	71	NE SW Sec. 10	SI	284,569	94
544719	LANCE OIL & GAS COMPANY INC	No. 12-10-4371	43	71	SW NW Sec. 10	FL	247,875	0
547010	COLEMAN OIL & GAS INC	No. 15-23	43	71	NE SW Sec. 15	PS	363,597	817,081
547011	COLEMAN OIL & GAS INC	No. 15-21	43	71	NE NW Sec. 15	PS	628,046	24,307
547012	COLEMAN OIL & GAS INC	No. 15-14	43	71	SW SW Sec. 15	PS	385,379	306,552
547013	COLEMAN OIL & GAS INC	No. 15-12	43	71	SW NW Sec. 15	PS	524,969	939,012
549585	COLEMAN OIL & GAS INC	No. 15-43	43	71	NE SE 1 Sec. 5	PS	200,213	459,197
549586	COLEMAN OIL & GAS INC	No. 15-41	43	71	NE NE Sec. 15	PS	202,748	308,545
549587	COLEMAN OIL & GAS INC	No. 15-34	43	71	SW SE Sec. 15	SI	82,471	800,265
537926	LANCE OIL & GAS COMPANY INC	No. 43-17-4371	43	71	NE SE Sec. 17	PS	482,068	370,211
537927	LANCE OIL & GAS COMPANY INC	No. 34-17-4371	43	71	SW SE Sec. 17	PS	676,559	672,135
537929	LANCE OIL & GAS COMPANY INC	No. 21-17-4371	43	71	NE NW Sec. 17	PS	148,393	202,421
544755	LANCE OIL & GAS COMPANY INC	No. 14-17-4371	43	71	SW SW Sec. 17	PS	241,484	295,553
544756	LANCE OIL & GAS COMPANY INC	No. 12-17-4371	43	71	SW NW Sec. 17	SI	412,204	407,837

**CBNG WELLS CAPABLE OF PRODUCTION WITHIN THE
WEST HILIGHT FIELD LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA (Continued)**

API Number (Short)	Company	Well Number	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
539634	LANCE OIL & GAS COMPANY INC	No. 11-20-4371	43	71	NW NW Sec. 20	PS	320,736	596,744
540744	LANCE OIL & GAS COMPANY INC	No. 34-21	43	71	SW SE Sec. 21	PS	517,505	0
540745	LANCE OIL & GAS COMPANY INC	No. 43-21	43	71	NE SE Sec. 21	PS	657,924	1,620
532638	LANCE OIL & GAS COMPANY INC	No. 34-22	43	71	SW SE Sec. 22	FL	175,391	1,289,146
534873	LANCE OIL & GAS COMPANY INC	No. 32-22	43	71	SW NE Sec. 22	SI	90,259	1,249,701
534874	LANCE OIL & GAS COMPANY INC	No. 41-22	43	71	NE NE Sec. 22	SI	184,428	1,553,507
540747	LANCE OIL & GAS COMPANY INC	No. 23-22	43	71	NE SW Sec. 22	SI	189,027	1,729,050
532267	LANCE OIL & GAS COMPANY INC	No. 21-27	43	71	NE NW Sec. 27	PS	265,929	1,452,517
532630	LANCE OIL & GAS COMPANY INC	No. 32-27	43	71	SW NE Sec. 27	PS	285,134	549,711
532632	LANCE OIL & GAS COMPANY INC	No. 34-27	43	71	SW SE Sec. 27	PS	417,164	249,697
532633	LANCE OIL & GAS COMPANY INC	No. 42-27	43	71	SE NE Sec. 27	PS	460,243	623,707
532634	LANCE OIL & GAS COMPANY INC	No. 43-27	43	71	NE SE Sec. 27	PS	637,195	376,045
540324	LANCE OIL & GAS COMPANY INC	No. 14-28-4371	43	71	SW SW Sec. 28	PS	403,631	226,929
549926	LANCE OIL & GAS COMPANY INC	No. 12-28-4371	43	71	SW NW Sec. 28	SI	53,920	199,427
549934	LANCE OIL & GAS COMPANY INC	No. 21-28-4371	43	71	NE NW Sec. 28	FL	148,092	68,258
549935	LANCE OIL & GAS COMPANY INC	No. 23-28-4371	43	71	NE SW Sec. 28	FL	114,007	40,252
549936	LANCE OIL & GAS COMPANY INC	No. 32-28-4371	43	71	SW NE Sec. 28	FL	77,960	294,032
549937	LANCE OIL & GAS COMPANY INC	No. 34-28-4371	43	71	SW SE Sec. 28	FL	96,592	2,610
549938	LANCE OIL & GAS COMPANY INC	No. 41-28-4371	43	71	NE NE Sec. 28	FL	133,522	278,454
549939	LANCE OIL & GAS COMPANY INC	No. 43-28-4371	43	71	NE SE Sec. 28	FL	104,009	5,841
532526	LANCE OIL & GAS COMPANY INC	No. 41-34	43	71	NE NE Sec. 34	PS	452,139	797,018
533644	LANCE OIL & GAS COMPANY INC	No. 13-34	43	71	NW SW Sec. 34	SI	157,570	1,636,134

**CBNG WELLS CAPABLE OF PRODUCTION WITHIN THE
WEST HILIGHT FIELD LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA (Continued)**

API Number (Short)	Company	Well Number	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
533645	LANCE OIL & GAS COMPANY INC	No. 23-34	43	71	NE SW Sec. 34	FL	591,286	1,348,240
533165	LANCE OIL & GAS COMPANY INC	No. 11-34	43	71	NW NW Sec. 34	PS	757,031	547,344
533166	LANCE OIL & GAS COMPANY INC	No. 21-34	43	71	NE NW Sec. 34	FL	153,682	586,568
Status Codes: FL = Flowing, PS = Pumping Submersible, SI = Shut in CBNG well status from WOGCC database 5/14/08 Cumulative production from WOGCC database 9/25/08								

**CBNG WELLS CAPABLE OF PRODUCTION WITHIN THE
WEST JACOBS RANCH LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA**

API Number (Short)	Company	Well Number	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
544732	LANCE OIL & GAS COMPANY INC	No. 41-3-4371	43	71	NE NE Sec. 3	FL	69,015	0
544734	LANCE OIL & GAS COMPANY INC	No. 32-3-4371	43	71	SW NE Sec. 3	FL	88,465	0
544735	LANCE OIL & GAS COMPANY INC	No. 23-3-4371	43	71	NE SW Sec. 3	FL	305,019	0
544736	LANCE OIL & GAS COMPANY INC	No. 21-3-4371	43	71	NE NW Sec. 3	FL	85,596	0
544737	LANCE OIL & GAS COMPANY INC	No. 14-3-4371	43	71	SW SW Sec. 3	FL	130,906	0
544738	LANCE OIL & GAS COMPANY INC	No. 12-3-4371	43	71	SW NW Sec. 3	FL	107,823	0
534479	LANCE OIL & GAS COMPANY INC	No. 13-4	43	71	NW SW Sec. 4	PS	276,480	741,724
534480	LANCE OIL & GAS COMPANY INC	No. 24-4	43	71	SE SW Sec. 4	PS	244,175	921,871
534481	LANCE OIL & GAS COMPANY INC	No. 33-4	43	71	NW SE Sec. 4	PS	272,435	428,107
534482	LANCE OIL & GAS COMPANY INC	No. 44-4	43	71	SE SE Sec. 4	PS	389,513	419,575
544727	LANCE OIL & GAS COMPANY INC	No. 41-4-4371	43	71	NE NE Sec. 4	FL	91,385	0
544728	LANCE OIL & GAS COMPANY INC	No. 32-4-4371	43	71	SW NE Sec. 4	FL	150,202	0
544729	LANCE OIL & GAS COMPANY INC	No. 21-4-4371	43	71	NE NW Sec. 4	FL	144,050	0
544730	LANCE OIL & GAS COMPANY INC	No. 12-4-4371	43	71	SW NW Sec. 4	FL	178,124	0
534483	LANCE OIL & GAS COMPANY INC	No. 22-5	43	71	SE NW Sec. 5	PS	160,706	1,279,469
534484	LANCE OIL & GAS COMPANY INC	No. 24-5	43	71	SE SW Sec. 5	PS	342,966	855,108
534485	LANCE OIL & GAS COMPANY INC	No. 33-5	43	71	NW SE Sec. 5	SI	105,879	1,278,400
534486	LANCE OIL & GAS COMPANY INC	No. 42-5	43	71	SE NE Sec. 5	PS	236,036	936,645
534487	LANCE OIL & GAS COMPANY INC	No. 44-5	43	71	SE SE Sec. 5	FL	103,930	1,750,111
536461	LANCE OIL & GAS COMPANY INC	No. 11-5-4371	43	71	NW NW Sec. 5	PS	134,895	895,782
536462	LANCE OIL & GAS COMPANY INC	No. 13-5-4371	43	71	NW SW Sec. 5	PS	207,564	988,172
536463	LANCE OIL & GAS COMPANY INC	No. 31-5-4371	43	71	NW NE Sec. 5	PS	121,352	935,229
536468	LANCE OIL & GAS COMPANY INC	No. 42-6-4371	43	71	SE NE Sec. 6	PS	140,747	1,039,248

**CBNG WELLS CAPABLE OF PRODUCTION WITHIN THE
WEST JACOBS RANCH LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA (Continued)**

API Number (Short)	Company	Well Number	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
536469	LANCE OIL & GAS COMPANY INC	No. 44-6-4371	43	71	SE SE Sec. 6	PS	210,541	842,192
546005	LANCE OIL & GAS COMPANY INC	No. 23-15-4471	44	71	NE SW Sec. 15	PS	201,111	286,494
546006	LANCE OIL & GAS COMPANY INC	No. 14-15-4471	44	71	SW SW Sec. 15	FL	129,156	367,593
548076	C & H WELL SERVICING INC	No. 15-15	44	71	SW SE Sec. 15	SI	13,583	0
548081	C & H WELL SERVICING INC	No. 15-9	44	71	NE SE Sec. 15	FL	120,581	0
535949	LANCE OIL & GAS COMPANY INC	No. 34-20-4471	44	71	SW SE Sec. 20	PS	387,655	710,720
535950	LANCE OIL & GAS COMPANY INC	No. 43-20-4471	44	71	NE SE Sec. 20	PS	494,602	476,591
535951	LANCE OIL & GAS COMPANY INC	No. 12-21-4471	44	71	SW NW Sec. 21	PS	379,406	0
535952	LANCE OIL & GAS COMPANY INC	No. 14-21-4471	44	71	SW SW Sec. 21	PS	426,420	496,503
535953	LANCE OIL & GAS COMPANY INC	No. 21-21-4471	44	71	NE NW Sec. 21	PS	354,121	621,485
535954	LANCE OIL & GAS COMPANY INC	No. 23-21-4471	44	71	NE SW Sec. 21	PS	567,605	0
535955	LANCE OIL & GAS COMPANY INC	No. 32-21-4471	44	71	SW NE Sec. 21	PS	364,184	439,626
535957	LANCE OIL & GAS COMPANY INC	No. 41-21-4471	44	71	NE NE Sec. 21	PS	124,471	915,554
535958	LANCE OIL & GAS COMPANY INC	No. 43-21-4471	44	71	NE SE Sec. 21	PS	157,982	683,308
546021	LANCE OIL & GAS COMPANY INC	No. 21-22-4471	44	71	NE NW Sec. 22	PS	151,381	91,398
548077	C & H WELL SERVICING INC	No. 22-1	44	71	NE NE Sec. 22	FL	120,590	0
548078	C & H WELL SERVICING INC	No. 22-7	44	71	SW NE Sec. 22	FL	120,599	0
549578	COLEMAN OIL & GAS INC	No. 14-22	44	71	SW SW Sec. 22	PS	367,647	32,654
549579	COLEMAN OIL & GAS INC	No. 23-22	44	71	NE SW Sec. 22	PS	274,756	247,047
549580	COLEMAN OIL & GAS INC	No. 34-22	44	71	SW SE Sec. 22	PS	255,934	26,215
542192	WILLIAMS PRODUCTION RMT COMPANY	No. 43-27-4471	44	71	NE SE Sec. 27	PS	93,595	1,531,265
542193	WILLIAMS PRODUCTION RMT COMPANY	No. 34-27-4471	44	71	SW SE Sec. 27	PS	89,958	729,731
543423	COLEMAN OIL & GAS INC	No. 12-27	44	71	SW NW Sec. 27	PS	834,425	11,924

**CBNG WELLS CAPABLE OF PRODUCTION WITHIN THE
WEST JACOBS RANCH LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA (Continued)**

API Number (Short)	Company	Well Number	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
543424	COLEMAN OIL & GAS INC	No. 21-27	44	71	NE NW Sec. 27	PS	364,271	945,167
534527	LANCE OIL & GAS COMPANY INC	No. 23-27	44	71	NE SW Sec. 27	SI	212,140	954,009
549581	COLEMAN OIL & GAS INC	No. 32-27	44	71	SW NE Sec. 27	PS	123,936	1,717,295
549582	COLEMAN OIL & GAS INC	No. 41-27	44	71	NE NE Sec. 27	PS	187,737	391,852
534528	LANCE OIL & GAS COMPANY INC	No. 23-28	44	71	NE SW Sec. 28	SI	704,547	512,816
534529	LANCE OIL & GAS COMPANY INC	No. 34-28	44	71	SW SE Sec. 28	PS	463,893	433,868
534521	LANCE OIL & GAS COMPANY INC	No. 43-28	44	71	NE SE Sec. 28	PS	342,040	1,794
534525	LANCE OIL & GAS COMPANY INC	No. 14-28	44	71	SW SW Sec. 28	PS	378,924	454,369
535959	LANCE OIL & GAS COMPANY INC	No. 12-28-4471	44	71	SW NW Sec. 28	SI	372,262	575,436
535960	LANCE OIL & GAS COMPANY INC	No. 21-28-4471	44	71	NE NW Sec. 28	PS	372,901	544,767
535961	LANCE OIL & GAS COMPANY INC	No. 32-28-4471	44	71	SW NE Sec. 28	PS	532,859	631,155
535963	LANCE OIL & GAS COMPANY INC	No. 12-29-4471	44	71	SW NW Sec. 29	PS	261,157	1,228,824
535964	LANCE OIL & GAS COMPANY INC	No. 14-29-4471	44	71	SW SW Sec. 29	PS	306,880	1,177,938
535965	LANCE OIL & GAS COMPANY INC	No. 21-29-4471	44	71	NE NW Sec. 29	PS	355,889	883,960
535966	LANCE OIL & GAS COMPANY INC	No. 23-29-4471	44	71	NE SW Sec. 29	PS	297,850	1,015,025
535967	LANCE OIL & GAS COMPANY INC	No. 32-29-4471	44	71	SW NE Sec. 29	PS	619,777	418,818
535968	LANCE OIL & GAS COMPANY INC	No. 41-29-4471	44	71	NE NE Sec. 29	PS	219,136	1,223,387
534522	LANCE OIL & GAS COMPANY INC	No. 34-29	44	71	SW SE Sec. 29	PS	201,310	1,135,249
534523	LANCE OIL & GAS COMPANY INC	No. 43-29	44	71	NE SE Sec. 29	PS	295,813	1,402,139
546026	LANCE OIL & GAS COMPANY INC	No. 43-30-4471	44	71	NE SE Sec. 30	FL	167,907	216,260
546027	LANCE OIL & GAS COMPANY INC	No. 41-30-4471	44	71	NE NE Sec. 30	SI	106,873	736,700
546033	LANCE OIL & GAS COMPANY INC	No. 42-31-4471	44	71	SE NE Sec. 31	PS	181,844	324,556

**CBNG WELLS CAPABLE OF PRODUCTION WITHIN THE
WEST JACOBS RANCH LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA (Continued)**

API Number (Short)	Company	Well Number	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
534535	LANCE OIL & GAS COMPANY INC	No. 23-32	44	71	NE SW Sec. 32	SI	290,498	988,703
534536	LANCE OIL & GAS COMPANY INC	No. 32-32	44	71	SW NE Sec. 32	PS	621,996	882,067
534537	LANCE OIL & GAS COMPANY INC	No. 34-32	44	71	SW SE Sec. 32	PS	310,217	1,589,150
534538	LANCE OIL & GAS COMPANY INC	No. 41-32	44	71	NE NE Sec. 32	PS	287,555	626,905
534539	LANCE OIL & GAS COMPANY INC	No. 43-32	44	71	NE SE Sec. 32	PS	388,317	850,984
534875	LANCE OIL & GAS COMPANY INC	No. 14-33	44	71	SW SW Sec. 33	PS	430,396	338,006
534876	LANCE OIL & GAS COMPANY INC	No. 21-33	44	71	NE NW Sec. 33	FL	303,919	800,171
534877	LANCE OIL & GAS COMPANY INC	No. 23-33	44	71	NE SW Sec. 33	SI	593,893	826,723
534878	LANCE OIL & GAS COMPANY INC	No. 32-33	44	71	SW NE Sec. 33	PS	215,367	601,659
534879	LANCE OIL & GAS COMPANY INC	No. 34-33	44	71	SW SE Sec. 33	PS	418,934	342,822
534880	LANCE OIL & GAS COMPANY INC	No. 41-33	44	71	NE NE Sec. 33	PS	200,906	0
534881	LANCE OIL & GAS COMPANY INC	No. 43-33	44	71	NE SE Sec. 33	PS	436,217	570,150
534524	LANCE OIL & GAS COMPANY INC	No. 12-33	44	71	SW NW Sec. 33	PS	206,604	912,817
549583	COLEMAN OIL & GAS INC	No. 32-34	44	71	SW NE Sec. 34	PS	536,090	68,793
549584	COLEMAN OIL & GAS INC	No. 41-34	44	71	NE NE Sec. 34	PS	387,165	14,983
544712	LANCE OIL & GAS COMPANY INC	No. 43-34-4471	44	71	NE SE Sec. 34	FL	349,252	21,277
544713	LANCE OIL & GAS COMPANY INC	No. 34-34-4471	44	71	SW SE Sec. 34	SI	59,208	28,339
544714	LANCE OIL & GAS COMPANY INC	No. 23-34-4471	44	71	NE SW Sec. 34	SI	59,637	299,634
544715	LANCE OIL & GAS COMPANY INC	No. 21-34-4471	44	71	NE NW Sec. 34	PS	332,425	41,665
544716	LANCE OIL & GAS COMPANY INC	No. 14-34-4471	44	71	SW SW Sec. 34	PS	77,875	30,209
544717	LANCE OIL & GAS COMPANY INC	No. 12-34-4471	44	71	SW NW Sec. 34	SI	48,888	67,960

Status Codes: FL = Flowing, PS = Pumping Submersible, SI = Shut in
CBNG well status from WOGCC database 5/14/08
Cumulative production from WOGCC database 9/25/08

**CBNG WELLS CAPABLE OF PRODUCTION WITHIN THE
NORTH PORCUPINE LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA**

API Number (Short)	Company	Well Number	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
553824	BILL BARRETT CORPORATION	No. 14-19-4270	42	70	SW SW Sec. 19	FL	158,844	94,832
553826	BILL BARRETT CORPORATION	No. 43-19-4270	42	70	NE SE Sec. 19	FL	162,640	129,535
553069	BILL BARRETT CORPORATION	No. 23-19-4270	42	70	NE SW Sec. 19	FL	150,317	120,810
553070	BILL BARRETT CORPORATION	No. 32-19-4270	42	70	SW NE Sec. 19	FL	107,068	5,755
553827	BILL BARRETT CORPORATION	No. 12-20-4270	42	70	SW NW Sec. 20	FL	109,341	55,394
553828	BILL BARRETT CORPORATION	No. 14-20-4270	42	70	SW SW Sec. 20	FL	150,425	38,735
553830	BILL BARRETT CORPORATION	No. 23-20-4270	42	70	NE SW Sec. 20	FL	131,326	22,922
553831	BILL BARRETT CORPORATION	No. 34-20-4270	42	70	SW SE Sec. 20	FL	168,747	6,501
554339	BILL BARRETT CORPORATION	No. 12-21-4270	42	70	SW NW Sec. 21	FL	89,236	224,189
554340	BILL BARRETT CORPORATION	No. 14-21-4270	42	70	SW SW Sec. 21	FL	159,249	1,121
554341	BILL BARRETT CORPORATION	No. 23-21-4270	42	70	NE SW Sec. 21	FL	99,629	44,967
546208	PEABODY NATURAL GAS LLC	No. 21-30	42	70	NE NW Sec. 30	FL	98,106	224,138
546595	PEABODY NATURAL GAS LLC	No. 11-30	42	70	NW NW Sec. 30	FL	165,500	129,992
554333	PEABODY NATURAL GAS LLC	No. 41-30-42-70	42	70	NE NE Sec. 30	FL	44,028	0
551233	BILL BARRETT CORPORATION	No. 43-22-42-71	42	71	NE SE Sec. 22	FL	126,879	4,258
551256	BILL BARRETT CORPORATION	No. 32-22-42-71	42	71	SW NE Sec. 22	FL	119,343	86,484
551257	BILL BARRETT CORPORATION	No. 34-22-42-71	42	71	SW SE Sec. 22	FL	132,170	3,171
553799	BILL BARRETT CORPORATION	No. 12-23-4271	42	71	SW NW Sec. 23	FL	91,009	0
553800	BILL BARRETT CORPORATION	No. 14-23-4271	42	71	SW SW Sec. 23	FL	106,161	1,178
553802	BILL BARRETT CORPORATION	No. 23-23-4271	42	71	NE SW Sec. 23	FL	102,721	128
553803	BILL BARRETT CORPORATION	No. 32-23-4271	42	71	SW NE Sec. 23	FL	92,012	174,071
553804	BILL BARRETT CORPORATION	No. 34-23-4271	42	71	SW SE Sec. 23	FL	171,448	2,095

**CBNG WELLS CAPABLE OF PRODUCTION WITHIN THE
NORTH PORCUPINE LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA (Continued)**

API Number (Short)	Company	Well Number	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
553806	BILL BARRETT CORPORATION	No. 43-23-4271	42	71	NE SE Sec. 23	FL	119,511	55,932
553066	BILL BARRETT CORPORATION	No. 12-24-4271	42	71	SW NW Sec. 24	FL	89,066	73,802
554344	BILL BARRETT CORPORATION	No. 34-24-4271	42	71	SW SE Sec. 24	FL	203,172	96,245
554302	PEABODY NATURAL GAS LLC	No. 41-25-42-71	42	71	NE NE Sec. 25	FL	36,334	18,985
549603	PEABODY NATURAL GAS LLC	No. 23-26	42	71	NE SW Sec. 26	FL	192,600	399,035
549605	PEABODY NATURAL GAS LLC	No. 12-26	42	71	SW NW Sec. 26	FL	347,164	371,250
549606	PEABODY NATURAL GAS LLC	No. 14-26	42	71	SW SW Sec. 26	FL	301,557	361
554299	PEABODY NATURAL GAS LLC	No. 41-26-42-71	42	71	NE NE Sec. 26	FL	103,061	17,939
554301	PEABODY NATURAL GAS LLC	No. 21-26-42-71	42	71	NE NW Sec. 26	SI	94,838	4,090
551234	BILL BARRETT CORPORATION	No. 12-27-42-71	42	71	SW NW Sec. 27	FL	100,862	217,113
551235	BILL BARRETT CORPORATION	No. 14-27-42-71	42	71	SW SW Sec. 27	FL	128,032	45
551236	BILL BARRETT CORPORATION	No. 21-27-42-71	42	71	NE NW Sec. 27	FL	129,910	39,872
551237	BILL BARRETT CORPORATION	No. 23-27-42-71	42	71	NE SW Sec. 27	FL	120,939	260,318
552018	BILL BARRETT CORPORATION	No. 12-34-42-71	42	71	SW NW Sec. 34	FL	90,190	12,922
552019	BILL BARRETT CORPORATION	No. 21-34-42-71	42	71	NE NW Sec. 34	FL	112,325	146,873
552020	BILL BARRETT CORPORATION	No. 32-34-42-71	42	71	SW NE Sec. 34	FL	104,917	4
552021	BILL BARRETT CORPORATION	No. 41-34-42-71	42	71	NE NE Sec. 34	FL	119,577	203
554295	PEABODY NATURAL GAS LLC	No. 23-35-42-71	42	71	NE SW Sec. 35	FL	71,181	983
554296	PEABODY NATURAL GAS LLC	No. 21-35-42-71	42	71	NE NW Sec. 35	FL	84,036	0
554297	PEABODY NATURAL GAS LLC	No. 14-35-42-71	42	71	SW SW Sec. 35	FL	65,396	35,057
554298	PEABODY NATURAL GAS LLC	No. 12-35-42-71	42	71	SW NW Sec. 35	FL	94,308	0

Status Codes: FL = Flowing, SI = Shut in
 CBNG well status from WOGCC database 5/14/08
 Cumulative production from WOGCC database 9/25/08

**CBNG WELLS CAPABLE OF PRODUCTION WITHIN THE
SOUTH PORCUPINE LBA TRACT AS APPLIED FOR AND LANDS ADDED BY BLM'S STUDY AREA (Continued)**

API Number (Short)	Company	Well Number	TWP	RNG	Location	WOGCC Status	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
554303	PEABODY NATURAL GAS LLC	No. 23-1-41-71	41	71	NE SW Sec. 1	FL	92,735	1,482
554304	PEABODY NATURAL GAS LLC	No. 21-1-41-71	41	71	NE NW Sec. 1	SI	14,027	190,852
554305	PEABODY NATURAL GAS LLC	No. 14-1-41-71	41	71	SW SW Sec. 1	FL	72,611	1,936
554306	PEABODY NATURAL GAS LLC	No. 12-1-41-71	41	71	SW NW Sec. 1	FL	54,434	102,432
554226	YATES PETROLEUM CORPORATION	No. 8	41	71	NE SE Sec. 10	FL	62,256	15,237
554212	YATES PETROLEUM CORPORATION	No. 2	41	71	NE SW Sec. 11	SI	61,213	19,834
551248	BILL BARRETT CORPORATION	No. 34-11-41-71	41	71	SW SE Sec. 11	FL	114,053	331,115
551249	BILL BARRETT CORPORATION	No. 43-11-41-71	41	71	NE SE Sec. 11	FL	148,753	1
553817	BILL BARRETT CORPORATION	No. 12-12-4171	41	71	SW NW Sec. 12	FL	74,985	11,673
553818	BILL BARRETT CORPORATION	No. 14-12-4171	41	71	SW SW Sec. 12	FL	96,934	69
553819	BILL BARRETT CORPORATION	No. 23-12-4171	41	71	NE SW Sec. 12	FL	93,435	45,785
554210	YATES PETROLEUM CORPORATION	No. 1	41	71	SW SW Sec. 13	FL	74,705	16
Status Code: FL = Flowing, SI = Shut-In CBNG well status from WOGCC 5/14/08 Cumulative production data from WOGCC 9/25/08								

APPENDIX F

SUPPLEMENTAL AIR QUALITY INFORMATION

F-1.0 INTRODUCTION

The purpose of this appendix is to provide background information on air quality issues, including the regulatory framework, regional air quality conditions, dispersion model methodologies, and the Best Available Control Technology (BACT) process.

The air quality discussion in Chapter 3 of this EIS focuses on potential air quality impacts specific to the Black Thunder, Jacobs Ranch, and North Antelope Rochelle mines and the North Hilight Field, South Hilight Field, West Hilight Field, West Jacobs Ranch, North Porcupine, and South Porcupine LBA Tracts (Figure F-1). Cumulative air quality-related impacts associated with coal leasing in the Powder River Basin (PRB) of Wyoming are addressed in Section 4.2.3 of this EIS, which summarizes the results the Task 1A (Current Air Quality Conditions), Task 3A (Cumulative Air Quality Effects), and Task 3A Supplemental (Cumulative Air Quality Effects for 2015) Reports of the Powder River Basin Coal Review, prepared by the ENSR Corporation for the BLM Wyoming State Office, BLM Wyoming High Plains District Office, and BLM Montana Miles City Field Office, September 2005 (Tasks 1A and 3A) and October 2008 (Task 3A Supplemental).

F-2.0 REGULATORY FRAMEWORK

Ambient air quality and air pollution emissions are regulated under federal and state laws and regulations. In Wyoming, the Wyoming Department of Environmental Quality/Air Quality Division (WDEQ/AQD) is responsible for managing air quality through state regulations promulgated in the Wyoming Air Quality Standards and Regulations (WAQSR) and through the Wyoming State Implementation Plan (SIP). WDEQ/AQD has also been delegated authority by the U.S. Environmental Protection Agency (EPA) to implement federal programs of the Clean Air Act Amendment of 1990 (CAAA).

The WDEQ/AQD implements WAQSR and CAAA requirements through various air permitting programs. A proponent initiating a project must undergo new source review and obtain a pre-construction permit or a permit waiver authorizing construction of the project. This process ensures that the project will comply with the air quality requirements at the time of construction. To ensure on-going compliance, WDEQ/AQD also implements an operating permit program that can require on-going monitoring of emissions sources and/or source control systems.

F-2.1 National Ambient Air Quality Standards

The Clean Air Act (CAA) requires EPA to establish National Ambient Air Quality Standards (NAAQS) to protect public health and welfare. These standards define the maximum level of air pollution allowed in the ambient air. The CAA established NAAQS for six pollutants, known as “criteria” pollutants, which “...cause or contribute to air pollution which may be reasonably anticipated to

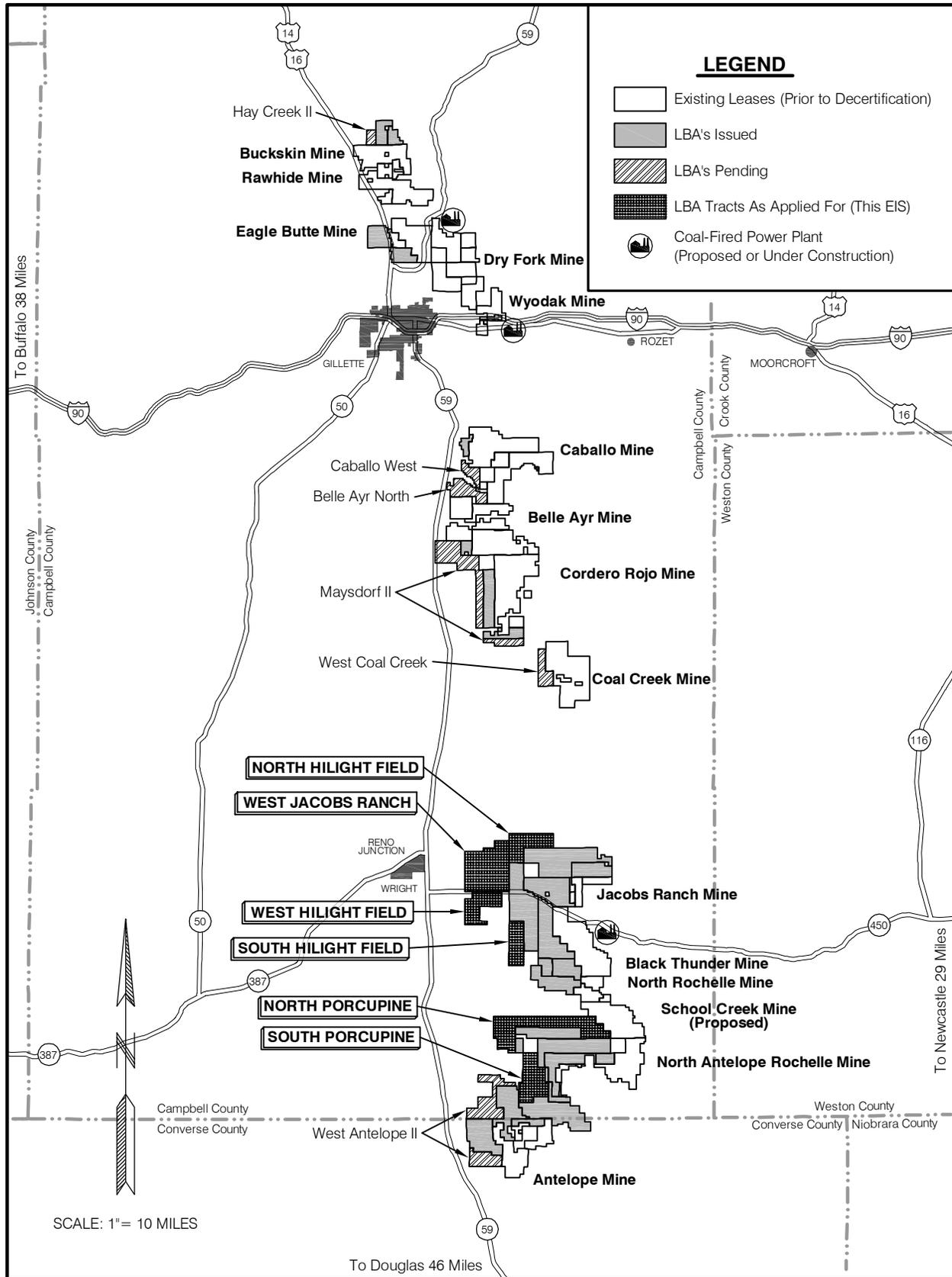


Figure F-1. General Location Map with Federal Coal Leases and LBA Tracts.

endanger public health or welfare and the presence of which in the ambient air results from numerous or diverse mobile or stationary sources.” The six, present-day criteria pollutants are lead, nitrogen dioxide (NO₂), sulfur dioxide (SO₂), carbon monoxide (CO), ozone (O₃) and particulate matter (PM₁₀ and PM_{2.5}), where PM₁₀ is coarse particulate with mean aerodynamic diameter of 10 microns or less and PM_{2.5} is fine particulate with a diameter of 2.5 microns or less.

The CAA and CAAA allow states to promulgate additional ambient air standards that are at least as stringent, or more stringent, than the NAAQS. A list of the criteria pollutants regulated by the CAA, and the currently applicable NAAQS set by the EPA for each, is presented in Table F-1. The Wyoming Ambient Air Quality Standards, or WAAQS, set by the WDEQ/AQD are also listed in this table. In some instances, the Wyoming standards are more stringent than the NAAQS.

During the new source review process, applicants must demonstrate that the facility will not cause or significantly contribute to exceedance of these standards. These demonstrations are made via atmospheric dispersion modeling or other means, including monitoring data approved by the WDEQ/AQD administrator.

F-2.2 Attainment/Non-Attainment Area Designations

Pursuant to the CAA, EPA has developed a method for classifying existing air quality in distinct geographic regions known as air basins, or air quality control regions, and/or Metropolitan Statistical Areas (MSAs). For each federal criteria pollutant, each air basin (or portion of a basin or MSA) is classified as in “attainment” if the area has “attained” compliance with (that is, not exceeded) the adopted NAAQS for that pollutant, or is classified as in “non-attainment” if the levels of ambient air pollution exceed the NAAQS for that pollutant. Areas for which sufficient ambient monitoring data are not available to define attainment status are designated as “unclassified” for those particular pollutants.

States use the EPA method to designate areas within their borders as being in “attainment” or “non-attainment” with the NAAQS. Existing air quality throughout most of the PRB in Wyoming, including the general Wright analysis area, is designated an attainment area for all pollutants. However, the town of Sheridan, Wyoming, located in Sheridan County about 150 miles northwest of the general Wright analysis area, is a moderate non-attainment area for PM₁₀ due to localized sources and activity within the town. There are no other non-attainment areas within 150 miles of the project area.

Table F-1. Assumed Background Air Pollutant Concentrations, Applicable AAQS, and PSD Increment Values (in $\mu\text{g}/\text{m}^3$).

Criteria Pollutant	Averaging Time ¹	Background Concentration	Primary NAAQS ²	Secondary NAAQS ²	WAAQS	PSD Class I Increments ³	PSD Class II Increments ³
Carbon monoxide	1-hour	3,336 ⁴	40,000	40,000	40,000	---	---
	8-hour	1,381	10,000	10,000	10,000	---	---
Nitrogen dioxide	1-hour ⁵	---	188.1	---	---	---	---
	Annual	25 ⁶	100	100	100	2.5	25
Ozone	8-hour	133 ⁶	147	147	157	---	---
Sulfur dioxide	3-hour	157 ⁷	---	1,300	1,300	25	512
	24-hour	68 ⁷	365	---	260	5	91
	Annual	9 ⁷	80	---	60	2	20
PM ₁₀ ⁸	24-hour	103 ⁹	150	150	150	8	30
	Annual	26 ⁹	---	---	50	4	17
PM _{2.5} ⁸	24-hour	18.9 ¹⁰	35	35	65	---	---
	Annual	6.4 ¹⁰	15	15	15	---	---

¹ Annual standards are not to be exceeded; short-term standards are not to be exceeded more than once per 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 PSD Increment Consumption Analysis.

⁴ Data collected by Amoco at Ryckman Creek for an eight-month period during 1978-1979, summarized in Riley Ridge EIS (BLM 1983).

⁵ EPA set a new 1-hour NO₂ standard at 0.100 ppm (188.1 $\mu\text{g}/\text{m}^3$) effective January 22, 2010. To attain this standard, the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed 0.100 ppm.

⁶ Data collected at WDEQ/AQD site located 15 miles SSW of Gillette, Wyoming. (Annual = average of mean annual values in 2005-2008. 8-hr = average of four highest 8-hr values in 2005-2008).

⁷ Data collected at Wyodak Site 4, Campbell County, Wyoming. (Annual = average of mean annual values in 2005-2008. 24-hr and 3-hr = average of two highest 24-hr and 3-hr values in 2005-2008.)

⁸ 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 $\mu\text{g}/\text{m}^3$ and revokes the annual PM₁₀ standard of 50 $\mu\text{g}/\text{m}^3$. The State of Wyoming will enter into rulemaking to revise the WAAQS.

⁹ Data collected at the Jacobs Ranch Mine, Site 5, Campbell County, Wyoming. (Annual = average of mean annual values in 2005-2008. 24-hr = average of four highest 24-hr values in 2005-2008.)

¹⁰ Data collected at the Black Thunder Mine, Site BTM-26-2, Campbell County, Wyoming. (Annual = average of mean annual values in 2005-2008. 24-hr = average of 98th percentile values in 2005-2008.)

Source: BLM 2005b, EPA 2009a, and WDEQ/AQD

F-2.3 Prevention of Significant Deterioration

Under requirements of the CAA, EPA has established Prevention of Significant Deterioration (PSD) rules, intended to prevent deterioration of air quality in attainment (and unclassifiable) areas. Increases in ambient concentrations of NO₂, SO₂, and PM₁₀ are limited to modest increments above the existing or “baseline” air quality in most attainment areas of the country (Class II areas discussed below), and to very small incremental increases in pristine attainment areas (Class I areas discussed below).

For the purposes of PSD, EPA has categorized each attainment area within the United States into one of three PSD area classifications. PSD Class I is the most restrictive air quality category, and was created by Congress to prevent further deterioration of air quality in national and international parks, national memorial parks and national wilderness areas of a given size threshold which were in existence prior to 1977, or those additional areas which have since been designated Class I under federal regulations (40 CFR 52.21). All remaining areas outside of the designated Class I boundaries were designated Class II areas, which allow a relatively greater deterioration of air quality over that in existence in 1977, although still within the NAAQS. No Class III areas, which would allow further degradation, have been designated.

The federal land managers have also identified certain federal assets with Class II status as “sensitive” Class II areas for which air quality and/or visibility are valued resources.

Table F-2 is a list of mandatory federal Class I areas, tribal Class I areas, and federal Class II areas that are of special interest in the region and their distance from the general Wright analysis area. The closest Class I area to the general Wright analysis area is Wind Cave National Park in South Dakota, located about 91 miles to the east. The next closest Class I area is the Northern Cheyenne Indian Reservation (tribal federal Class I area), located about 132 miles to the north-northwest. The closest sensitive Class II areas are the Devils Tower National Monument and the Jewel Cave National Monument, which are approximately 70 miles north-northeast and 74 miles east of the general Wright analysis area, respectively.

PSD regulations limit the maximum allowable increase (increment) in ambient PM₁₀ in a Class I airshed resulting from major stationary sources or major modifications to 4 µg/m³ (annual geometric mean) and 8 µg/m³ (24-hour average). Increases in other criteria pollutants are similarly limited. Specific types of facilities listed in the PSD rules which emit, or have the potential to emit, 100 tons per year or more of PM₁₀ or other criteria air pollutants, or any other facility which emits, or has the potential to emit, 250 tons per year or more of PM₁₀ or other criteria air pollutants, are considered major stationary sources and must therefore demonstrate compliance with those incremental standards during the new source permitting process. However, fugitive emissions are not counted against the PSD major source applicability threshold

Table F-2. Approximate Distances and Directions from the General Wright Analysis Area to Mandatory Federal PSD Class I, Tribal Federal PSD Class I, and Federal PSD Class II Areas.

Receptor Area	Distance (miles)	Direction to Receptor
Mandatory Federal PSD Class I Area		
Badlands Wilderness Area ¹	143	E
Bridger Wilderness Area	199	WSW
Fitzpatrick Wilderness Area	207	W
Gates of the Mountain Wilderness Area	382	NW
Grand Teton National Park	254	W
North Absaroka Wilderness Area	213	WNW
Red Rocks Lake Wilderness Area	320	WNW
Scapegoat Wilderness Area	426	NW
Teton Wilderness Area	221	W
Theodore Roosevelt National Park (North Unit)	290	NNE
Theodore Roosevelt National Park (South Unit)	242	NNE
U.L. Bend Wilderness Area	290	NNW
Washakie Wilderness Area	187	W
Wind Cave National Park	91	E
Yellowstone National Park	235	WNW
Tribal Federal PSD Class I		
Fort Peck Indian Reservation	301	N
Northern Cheyenne Indian Reservation	132	NNW
Federal PSD Class II		
Absaroka-Beartooth Wilderness Area	224	WNW
Agate Fossil Beds National Monument	114	SE
Badlands National Park	121	E
Bighorn Canyon National Recreation Area	166	NW
Black Elk Wilderness Area	88	E
Cloud Peak Wilderness Area	93	WNW
Crow Indian Reservation	124	NW
Devils Tower National Monument	70	NNE
Fort Belknap Indian Reservation	327	NNW
Fort Laramie National Historic Site	108	SSE
Jewel Cave National Monument	74	E
Mount Rushmore National Memorial	94	E
Popo Agie Wilderness Area	194	WSW
Soldier Creek Wilderness Area	106	SE

¹ The U.S. Congress designated the Wilderness Area portion of Badlands National Park as a mandatory Federal PSD Class I area. The remainder of Badlands National Park is a PSD Class II area.

unless the source is so designated by federal rule (40 CFR 52.21). As a result, the surface coal mines in the PRB have not been subject to permitting under the PSD regulations because the mine emissions that are subject to PSD applicability levels fall below these thresholds.

F-2.4 Best Available Control Technology

All sources being permitted within Wyoming must meet state-specific best available control technology (BACT) requirements, regardless of whether the source is subject to state/federal PSD review. During new source review, a BACT analysis is developed for the proposed project. The BACT analysis must evaluate all control options on the basis of technical, economic and environmental feasibility. BACT for mining operations in the PRB is largely dictated by categorical control requirements defined in the WAQSR. BACT decisions are mandated through the new source review pre-construction permit.

F-2.5 New Source Performance Standards

The new source performance standards (NSPS) are a program of “end-of-stack” technology-based controls/ approaches required by the CAA and adopted by reference into the WAQSR. These standards, which apply to specific types of new, modified or re-constructed stationary sources, require the sources to achieve some base level of emissions control. For surface coal mining in the PRB, this includes certain activities at coal preparation plants. Specifically, the applicable requirements can be found at 40 CFR Part 60, Subpart Y (Standards of Performance for Coal Preparation Plants), and in the WAQSR. However, in Wyoming these standards are typically less stringent than state-level BACT limits.

F-2.6 Federal Operating Permit Program

The CAAA required the establishment of a facility-wide permitting program for larger sources of pollution. This program, known as the Federal Operating Permit Program, or “Title V” (codified at Title V of the 1990 CAAA), requires that “major sources” of air pollutants obtain a federal operating permit. Under this program, a “major source” is a facility that has the potential to emit more than 100 tons per year (tpy) of any regulated pollutant, 10 tpy of any single hazardous air pollutant (HAP), or 25 tpy or more of any combination of HAPs, from applicable sources. The operating permit is a compilation of all applicable air quality requirements for a facility and requires an ongoing demonstration of compliance through testing, monitoring, reporting and recordkeeping requirements. The potential to emit (PTE) for PM₁₀ under the existing air quality permits for the Black Thunder, Jacobs Ranch, and North Antelope Rochelle mines were well below the 100 tpy applicability threshold.

F-2.7 Summary of Pre-Construction Permitting Procedures

The WDEQ/AQD administers a permitting program to assist the agency in managing the state's air resources. Under this program, anyone planning to construct, modify, or use a facility capable of emitting designated pollutants into the atmosphere must obtain an air quality permit to construct. Coal mines fall into this category. A new coal mine, or a modification to an existing mine, must be permitted by WDEQ/AQD, pursuant to the provisions of WAQSR Chapter 6, Section 2. Under these provisions, a successful permittee must demonstrate that it will comply with all applicable aspects of the WAQSR including state and federal ambient air standards.

When a permittee decides to construct a new surface coal mine or modify operations at an existing surface coal mine that will cause an increase in pollutant emissions, they must submit an application, which is reviewed by WDEQ/AQD new source review staff and the applicable WDEQ/AQD field office. Typically, a company will meet with the WDEQ/AQD prior to submitting an application to determine issues and details that need to be included in the application. A surface coal mining application will include the standard application, BACT measures that will be implemented, an inventory of point and fugitive sources for the mine in question as well as neighboring mines and other sources, and air quality modeling analyses addressing cumulative impacts in the mining region.

BACT must be employed at all sources permitted/exempted in Wyoming. Per WAQSR Chapter 6, Section 2, BACT at large mining operations typically include but may not be limited to: paving of access roads, treating of haul routes with chemical dust suppressant (and water) and storage of large amounts of materials/coal awaiting shipment in enclosures such as silos, troughs or barns. These (and other) mitigation measures are considered in the development of emission inventories used for modeling/permitting.

For the modeling analyses, an applicant must compile an emission inventory of PM₁₀ from their mining operation, neighboring mines and other surrounding sources. For PM₁₀ from the applicant mine, both point source and fugitive dust emissions are quantified. The emissions are based on the facility's potential to emit in each year of the life of mine (LOM). The applicant also examines the surrounding coal mining operations and their previous air quality permits to determine their emissions throughout the LOM. Two or more worst-case years (generally with the highest potential emissions) are then modeled in detail. Other surrounding emission sources, such as power plants, compressor stations, paved highways, long-haul railroad lines and municipalities are also considered in the modeling analysis.

Coal mines in the PRB are also required to quantify nitrogen oxides (NO_x) emissions from their operations. Dispersion modeling is required to demonstrate compliance with the ambient NO₂ standard. Potential emissions from diesel powered mining equipment, blasting and locomotive emissions (on

mine property) are considered in the modeling analyses. In a fashion similar to the PM₁₀ analysis, neighboring mining operations and other surrounding sources are also included in the NO_x/NO₂ analysis.

Long-term PM₁₀ modeling is conducted for the permit application to demonstrate compliance with the annual PM₁₀ standard. For both point and area sources, the Industrial Source Complex Long Term model, version 3 (ISCLT3) is typically used.

The WDEQ/AQD has recently required all mines in the PRB to “submit and justify a background PM₁₀ concentration with each permit application” (WDEQ/AQD 2006). A site specific PM₁₀ background concentration of 14.91 µg/m³ was developed in the modeling analysis for the Black Thunder and Jacobs Ranch mines, while a background concentration of 15.0 µg/m³ was developed for the North Antelope Rochelle Mine. The modeling results are added to the background and compared to the annual standard. Likewise, compliance with the annual NO₂ standard is verified using ISCLT3 and an NO₂ background concentration of 14.0 µg/m³ for the Black Thunder and Jacobs Ranch mines and a NO₂ background concentration of 20.0 µg/m³ for the North Antelope Rochelle Mine.

Short-term PM₁₀ modeling is not required by WDEQ/AQD, nor does WDEQ/AQD consider it to be an accurate representation of short-term impacts. Section 234 of the 1990 CAAA mandated the administrator of the EPA to analyze the accuracy of short-term modeling of fugitive particulate emissions from surface coal mines. A June 26, 1996 letter from EPA Region VIII to Wyoming State Representative, Ms. Barbara Cubin, detailed the results of an EPA study wherein the short-term model failed to meet evaluation criteria and tended to significantly overpredict 24-hour impacts of surface coal mines. The memorandum of agreement of January 24, 1994 between EPA Region VIII and the State of Wyoming allows WDEQ/AQD to conduct monitoring in lieu of short-term modeling for assessing coal mining-related impacts in the PRB. This agreement remains in effect and ambient particulate monitoring is required of each coal mine through conditions of their respective permits. The 1994 Memorandum of Agreement also required WDEQ/AQD to implement “Best Available Work Practice” mitigation measures at any mine where an exceedance of the PM₁₀ air quality standard has occurred.

The permit application is reviewed by WDEQ/AQD to determine compliance with all applicable air quality standards and regulations. This includes review of compliance with emission limitations established by NSPS, review of compliance with ambient standards through modeling analyses, and establishment of control measures to meet BACT requirements. The WDEQ/AQD proposed permit conditions are sent to public notice for a 30-day review period after which a final decision on the permit is made (or a public hearing is held prior to a final permit decision).

The Black Thunder, Jacobs Ranch, and North Antelope Rochelle mines have prepared permit applications and conducted air quality modeling analyses when mine plan changes have dictated and as required by WDEQ/AQD. These applications and analyses demonstrate that mining operations have complied, and will continue to comply, with all applicable aspects of the WAQSR and the federal CAAA.

In conducting an analysis of air quality impacts in the PRB for the Wyoming and Montana BLM, the Task 1A Report for the Powder River Basin Coal Review reports a background concentration of 5 $\mu\text{g}/\text{m}^3$ for NO_x for the entire PRB. The air permit actions for the Black Thunder and Jacobs Ranch mines used a background concentration of 14.0 $\mu\text{g}/\text{m}^3$ for PM_{10} and the North Antelope Rochelle Mine used a background concentration of 20.0 $\mu\text{g}/\text{m}^3$. These concentrations are based on recently monitored values in Gillette, Wyoming and at the Black Thunder, Jacobs Ranch, and North Antelope Rochelle mines, and include all sources operating at the time the value was measured, including existing coal mine operations located around Gillette.

F-2.8 Natural Events Action Plan

In response to the measured exceedances of the PM_{10} NAAQS in certain areas of the PRB and in anticipation of possible future exceedances, the WDEQ/AQD has collaborated with the Wyoming Mining Association (WMA) to develop a Natural Events Action Plan (NEAP) for the coal mines of the PRB, based on EPA Natural Event Policy guidance. The plan was submitted to and approved by EPA. A report describing the plan can be accessed on the WDEQ/AQD's website at <http://deq.state.wy.us/AQD/NEAP%20Files/1-23-07NEAP.pdf>.

The NEAP recognizes that certain NAAQS exceedances due to natural events are uncontrollable. While all practical mitigation measures need to be implemented during those events, the exceedances should not be considered against the NAAQS attainment designation for the region. Specific NEAP goals include:

- Provide for the protection of public health,
- Develop public information program,
- Provide a mechanism for “flagging” exceedances due to uncontrollable natural events,
- Implement Best Available Control Measures (BACM) and Reactionary Control Measures (RACM) based on the severity of the event, and
- Provide mechanism for excluding flagged data when they meet specific wind speed criteria and BACM and RACM are in place.

The NEAP identifies, in addition to the BACT measures generally included in individual mine air quality permits, two other categories of control measures designed to prevent exceedances during high wind events (WDEQ/AQD 2007). One of these is an additional list of control measures that the mines can implement continuously so that they are in place before a high wind event

occurs. These measures are not current requirements in all of the mines' air quality permits. They primarily address the principal mine-controlled sources of fugitive dust, which are large contiguous disturbed areas. These measures include:

1. Stabilizing topsoiled area as soon as practicable following topsoil replacement.
2. Ripping, windrowing, mulching, temporarily seeding or chemically treating areas greater than 300 contiguous acres in size that have been stripped of topsoil but will not be mined in the near future.
3. Ripping, windrowing, temporarily seeding or chemically treating graded backfill areas greater than 300 contiguous acres in size.
4. Ripping, mulching, temporarily seeding or chemically treating long-term out-of-pit overburden and topsoil stockpiles that have been graded.
5. Applying non-vegetative barriers such as gravel or other large-diameter particles to erodible surfaces to reduce surface erosion where appropriate.
6. Cleaning, treating, and maintaining pads in front of truck dumps to prevent accumulations of spilled materials from getting pulverized.
7. Scheduling topsoil removal, backfill grading and topsoil replacements concurrently to minimize open areas when possible.
8. Requiring contractors to apply water and/or chemical dust suppressants in their haulage areas.

The second additional category of control measures discussed in the NEAP includes measures that are not currently required by all individual air quality permits but are actions that can be taken during a high wind event, depending on site specific conditions (WDEQ/AQD 2007). These include:

1. The mine operator will consider relevant information, including National Weather Service forecasts and local meteorological information, to confirm that a high wind event is occurring.
2. The mine operator will visually determine areas of mining activity that are generating excessive visible dust and direct water trucks to those areas.
3. The mine operator should direct overburden operations to the shortest haul distance available during a high wind event.
4. The mine operator will evaluate the practicality of dumping the overburden as low as possible.
5. Mine employees will inspect for and extinguish coal fires.
6. The mine operator will evaluate shutting down scoria crushing operations that appear to be generating excess dust.
7. The mine operator will evaluate shutting down road maintenance activities that are generating dust.
8. The mine operator will evaluate ordering contractors to increase water, reduce operating equipment or shut down haulage.
9. The mine operator will evaluate the need to shut down and/or reduce earthmoving activities as the mine schedule and conditions will allow.

If a NEAP is designed and implemented to minimize PM₁₀ concentrations, EPA will exercise its discretion, under Section 107(d)(3) of the CAA, not to redesignate areas as nonattainment, provided that the exceedances are demonstrated to be the result of natural events. Based on the EPA's Natural Events Policy, PM₁₀ concentrations due to dust raised by unusually high winds will be treated as uncontrollable natural events under the following conditions: (1) the dust originated from non-anthropogenic sources, or (2) the dust originated from anthropogenic sources controlled with the required BACMs.

The WDEQ/AQD NEAP includes a public education plan, a public notification and health advisory program, and a plan to abate or minimize appropriate contributing controllable sources of PM₁₀, which includes three categories of control measures. The NEAP approved by EPA only includes measures for control of coal mine sources since it is the ambient monitoring systems around the large surface coal mines that have recorded the exceedances of the 24-hour PM₁₀ NAAQS. If it is demonstrated that there are non-coal sources contributing to elevated measurements in an area of concern, WDEQ/AQD may address these additional sources separately from the approved NEAP or as a future update of the plan.

F-3.0 EXISTING AIR QUALITY

WDEQ monitors air quality through an extensive network of air quality monitors throughout the state. Particulate matter is generally measured as PM₁₀. The eastern portion of the PRB has an extensive network of PM₁₀ monitors operated by the mining industry due to the density of coal mines in the region (Figure F-2). There are also monitors in Sheridan, Gillette, Arvada and Wright, Wyoming.

This network is sited to measure ambient air quality and to infer impacts from specific sources. Source-specific monitors may also be used for developing trends in PM₁₀ concentrations. WDEQ uses data from this monitoring network to identify potential air quality problems and to anticipate issues related to air quality. With this information, the WDEQ can stop or reverse trends that negatively affect the ambient air. Part of that effort has resulted in the formation of a coalition involving the counties, coal companies and coal bed methane operators to focus on minimizing dust from roads. The WDEQ may also take enforcement action to remedy a situation where monitoring shows a violation of any standard. If a monitored standard is exceeded at a specific source, the state agency may initiate enforcement against that source. In those instances, the state agency may use a negotiated settlement agreement to seek corrective action.

WDEQ operates two visibility monitoring stations in the PRB, both of which are IMPROVE sites. One of these sites is located north of Gillette. This site includes a nephelometer, a transmissometer, an aerosol monitor (IMPROVE protocol), and meteorological instruments to measure wind speed, direction, temperature, and relative humidity. The site is also equipped with a digital

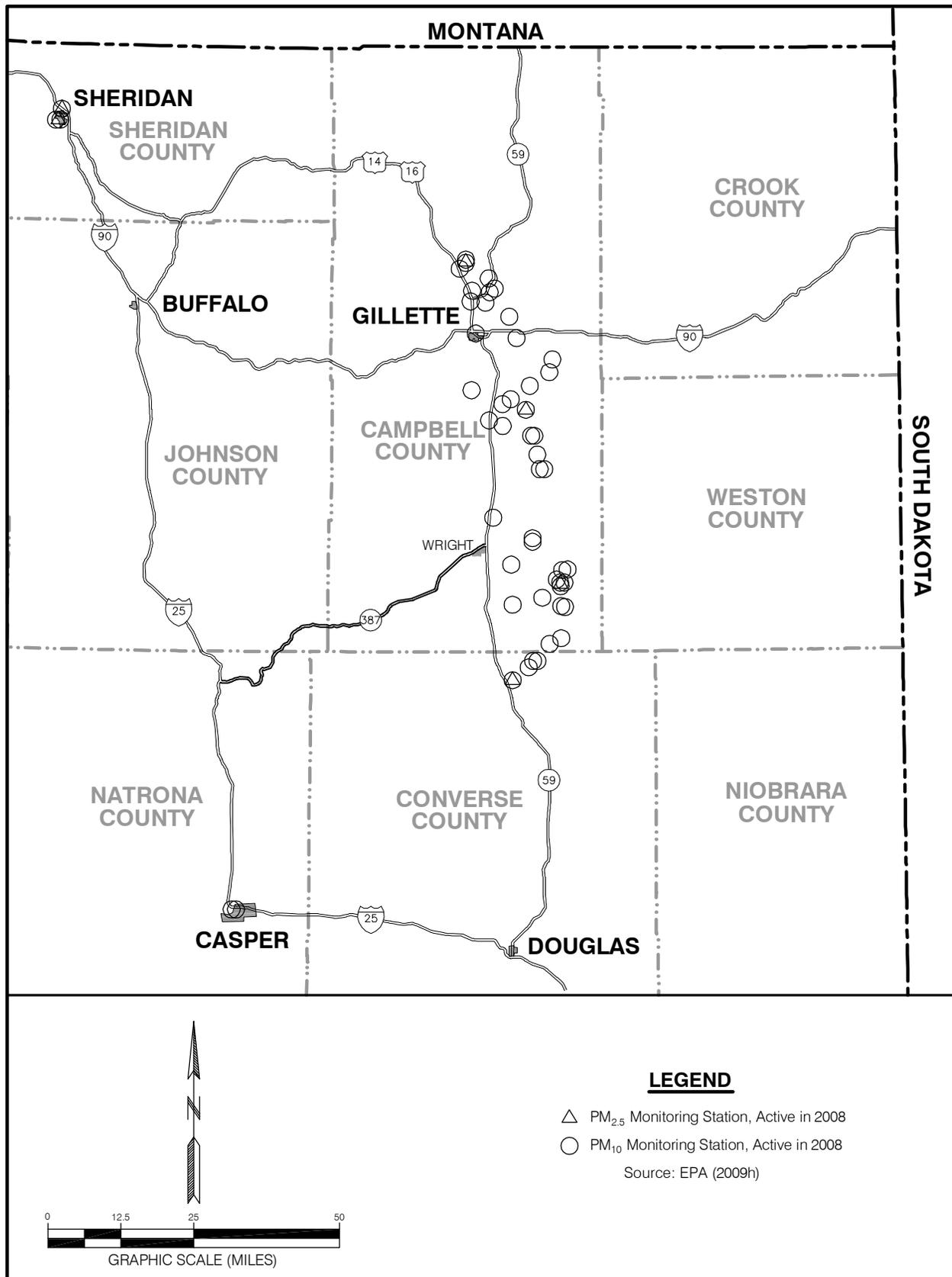


Figure F-2. Active Particulate Monitoring Stations in Northeastern Wyoming.

camera and analyzers for ozone and nitrogen oxides (NO, NO₂, NO_x). The second visibility monitoring station is located west of Buffalo and includes a nephelometer, a transmissometer, an aerosol monitor (IMPROVE), meteorological instruments to measure wind speed, direction, temperature, and relative humidity, plus a digital camera.

Air quality monitoring equipment for NO₂ within the PRB includes a Wyoming Air Resources Monitoring System (WARMS) operated by BLM to detect sulfur and nitrogen concentrations near Buffalo, Sheridan, and Newcastle and a National Atmospheric Deposition Program (NADP) monitoring system for precipitation chemistry in Newcastle.

F-3.1 Regional Particulate Emissions

The federal and state standards for particulate matter pollutant are discussed in Chapter 3, Section 3.4.2.1 of this EIS.

WDEQ/AQD requires monitoring data to document the air quality at all of the PRB mines. Each mine monitored PM₁₀ for a 24-hour period every 6 days at multiple monitoring sites through the end of 2001. This frequency was increased by the WDEQ/AQD to a 24-hour period every 3 days beginning in 2002. Available monitoring data for total suspended particles (TSP) began in 1980 and data for PM₁₀ began in 1989. Through 2004 approximately 57,000 TSP samples had been collected, and approximately 48,950 PM₁₀ samples had been collected through 2008, making the eastern PRB one of the most intensely monitored areas for particulates in the county. Table F-3 summarizes the annual arithmetic average of data from 1980 through 2008 for sites located at the mining operations in Campbell and Converse counties.

As indicated in Table F-3, the long-term trend in particulate emissions remained relatively flat through 1998. The overall average annual TSP concentration was 37.7 µg/m³ from 1980 through 2003, with annual averages ranging between 27.8 µg/m³ and 57.5 µg/m³. There were increases in 1988 and 1996, which may have been the result of fires in the region during those years. Increases from 1999 to 2003 may be related to drought conditions as well as increases in coal and overburden production and increases in other natural resource development activities, including coal bed natural gas (CBNG), during that period. Annual average PM₁₀ concentrations from 1989 through 1998 were relatively flat, ranging from 12.9 µg/m³ to 16.5 µg/m³, with an overall average of 15.4 µg/m³. Annual average PM₁₀ concentrations from 1999 through 2008 were increased slightly, but were similarly relatively flat, ranging from 20.3 µg/m³ to 27.2 µg/m³, with an overall average of 23.0 µg/m³.

The 1980-1998 time period was associated with significant growth in the surface coal mining industry in the eastern PRB. Coal production increased from about 59 million tons per year (mmtpy) to over 293 mmtpy (an increase of almost 400 percent), and associated overburden production increased from 105 million bank cubic yards (mmbcy) to 669 mmbcy per year (an increase of over

Table F-3. Summary of WDEQ/AQD Reports on Air Quality Monitoring for Surface Coal Mines¹ in Wyoming's PRB, 1980-2007.

Year	Coal Produced (mmtpy)	Overburden Moved (mmbcy)	Number of Mines Operating/ Monitoring TSP/ Monitoring PM ₁₀ ¹	Number of TSP/PM ₁₀ Monitoring Sites ²	TSP Average (µg/m ³)	PM ₁₀ Average (µg/m ³)
1980	58.7	105.3	10/14/0	34/0	35.5	na ³
1981	71.0	133.4	11/13/0	35/0	39.4	na
1982	76.1	141.1	11/14/0	40/0	31.2	na
1983	84.9	150.9	13/14/1	41/1	32.6	11.2
1984	105.3	169.5	14/16/1	42/1	33.9	11.1
1985	113.0	203.4	16/17/0	49/0	32.3	na
1986	111.2	165.7	16/17/0	45/0	29.3	na
1987	120.7	174.6	16/17/0	43/0	31.7	na
1988	138.8	209.7	16/17/0	43/0	37.7	na
1989	147.5	215.6	15/17/3	40/3	32.1	15.9
1990	160.7	220.1	17/17/5	47/5	34.3	14.8
1991	171.4	242.3	17/17/5	46/6	32.7	16.5
1992	166.1	296.0	17/17/7	41/7	31.7	15.9
1993	188.8	389.5	17/17/8	40/11	27.8	14.5
1994	213.6	483.9	17/18/8	44/11	31.7	15.5
1995	242.6	512.7	16/18/8	41/12	29.6	12.9
1996	257.0	605.4	17/18/8	41/12	35.4	16.0
1997	259.7	622.0	16/17/10	39/15	33.3	15.9
1998	293.5	669.0	16/17/12	36/17	33.9	15.9
1999	317.1	762.9	15/17/12	36/18	55.3	21.6
2000	322.6	868.9	15/15/12	31/17	56.1	23.4
2001	354.1	927.7	12/11/12	29/29	57.5	27.2
2002	359.7	1,032.1	13/11/13	23/38	56.0	23.3
2003	363.6	1,044.2	13/10/13	16/34	51.9	20.8
2004	381.6	1,184.4	13/6/13	7/33	-- ⁴	20.3
2005	390.3	1,147.6	12/6/12	7/33	-- ⁴	21.5
2006	431.9	1,256.7	13/5/13	6/33	-- ⁴	24.2
2007	436.5	1,268.5	14/4/14	4/33	-- ⁴	25.2
2008	451.7	1,432.2	13/0/13	0/37	-- ⁴	22.8

¹ Mines include Buckskin, Rawhide, Eagle Butte, Dry Fork, Fort Union (acquired by Dry Fork), Wyodak, Clovis Point (acquired by Wyodak), Caballo, Belle Ayr, Cordero Rojo (Caballo Rojo combined with Cordero), Coal Creek, Jacobs Ranch, Black Thunder, North Antelope Rochelle (North Antelope combined with Rochelle), and Antelope. (North Rochelle Mine was acquired by Black Thunder and North Antelope Rochelle mines.)

² Some sites include more than one sampler, so the number of samplers is greater than the number of sites.

³ Not applicable (no monitoring for PM₁₀ was done).

⁴ Data no longer pertinent due to paucity of monitoring sites.

Sources: 1980 through 1996 emissions and production data from April 1997 report prepared by Wyoming Mining Association for WDEQ/AQD. 1997 through 2008 PM₁₀ emissions data from EPA AirData database (EPA 2009a). 1997 through 2003 TSP emissions data from WDEQ/AQD (available upon request). 1997 through 2008 production data from WDEQ/AQD (Shamley 2008a, 2010) and Wyoming Department of Employment/State Inspector of Mines (1997-2007a, 2008c).

537 percent). From 1990 through 2007, the average annual increase in coal production was 6.3 percent, while annual overburden production increased an average of 11.3 percent over the same time period. The proportionately larger annual increase in overburden production is due to the fact that the mines are gradually moving into areas of higher stripping ratios as the shallower reserves are mined out.

The relatively flat trend in particulate emissions from 1980 through 1998 is due in large part to the Wyoming Air Quality Program that requires BACT at all permitted facilities. BACT control measures, which include watering and chemical treatment of roads, limiting the amount of area disturbed, temporary revegetation of disturbed areas to reduce wind erosion, and timely final reclamation, are discussed in Section 3.4.2.3 of this EIS.

The average annual TSP concentration increased from 33.9 $\mu\text{g}/\text{m}^3$ in 1998 to 55.3 $\mu\text{g}/\text{m}^3$ in 1999, and remained greater than 50.0 $\mu\text{g}/\text{m}^3$ through 2003. The average annual PM_{10} concentration increased from 15.9 $\mu\text{g}/\text{m}^3$ in 1998 to 21.6 $\mu\text{g}/\text{m}^3$ in 1999 and peaked in 2001 at 27.2 $\mu\text{g}/\text{m}^3$. The monitored concentrations have decreased since 2001; in 2004, the average annual concentration was 20.3 $\mu\text{g}/\text{m}^3$ and in 2008 it was 22.8 $\mu\text{g}/\text{m}^3$. The average annual increase in coal production from 2001 through 2008 (3.4 percent per year, or 12.2 mmtpy over the 8-year period) and associated overburden production (6.8 percent per year and 63.1 mmby over the 8-year period) were less than a majority of the previous twenty 5-year running average periods, but the particulate concentrations remained relatively constant. There were no major fires in the region between 1998 and 2005 but major fires were experienced in the region in 2006 and 2007. There was an increase in CBNG development in the PRB between 1998 and 2005 and northeastern Wyoming has experienced extreme drought conditions as well as a dramatic increase in surface disturbance activities associated with CBNG development since 1999. All of these factors have exacerbated particulate emissions.

There were no monitored exceedances of the 24-hour PM_{10} standards anywhere in the Wyoming PRB through year 2000. From 2001 through 2006 there were 29 monitored exceedances of the 24-hour PM_{10} standard at seven operating mines, and in 2007 a total of 11 exceedances were reported at six mines. A majority of the 29 exceedances reported between 2001 and 2006 were associated with elevated winds exceeding 20 miles per hour, each of which could have qualified as a high wind event under the NEAP. Of the 11 exceedances reported within the PRB in 2007, nine have been flagged as exceptional events by EPA under the NEAP and will be treated as uncontrollable natural events (not considered when determining the region's air quality designation). Of the two other reported exceedances in 2007, one is still under review by EPA and may be flagged as an exceptional event under the NEAP, and one was determined by EPA to be a valid exceedance (not considered an exceptional event under the NEAP) and a notice of violation was subsequently issued (Shamley 2010). In 2008, a total of two exceedances of the 24-hour PM_{10} standard were reported in the PRB, one each at the Black

Thunder Mine and North Rochelle Mine. WDEQ/AQD subsequently issued notices of violation for both exceedances that occurred in 2008 (Shamley 2010). There were no exceedances of the 24-hour PM₁₀ particulate standard reported in the PRB in 2009 (Shamley 2010). In summary, 29 of the 33 valid exceedances (those not considered exceptional events under the NEAP) of the 24-hour PM₁₀ standard that have occurred in the PRB through 2009 have been recorded by the group of mines located south and east of the town of Wright; the remaining four valid exceedances occurred in the group of mines located north of Gillette (Figure F-1).

Emissions control measures that are used to control particulate emissions at the PRB mines, including the three applicant mines in the Wright area (Black Thunder, Jacobs Ranch and North Antelope Rochelle), are discussed in Chapter 3, Section 3.4.2.3 of this EIS.

County roads are also responsible for some portion of the fugitive dust related to transportation. To help address this problem, the Campbell County Commissioners, oil and gas production companies, and coal mine operators have formed a coalition to implement the most effective dust control measures on a number of county roads. Measures taken have ranged from the implementation of speed limits to paving of heavily traveled roads. The coalition has utilized chemical treatments to control dust as well as closing roads where appropriate or necessary and rebuilding existing roads to higher specifications. The coalition requested money from the Wyoming State Legislature to fund acquisition of Rotomill (ground up asphalt) to be mixed with gravel for use in treating some of the roads in the PRB. The Rotomill/gravel mixture has been demonstrated to be effective in reducing dust; the life of the mixture on treated roads is estimated to be from 5 to 6 years (Bott 2006).

F-3.2 Regional NO₂ Concentrations

The federal and state standards for NO₂ are discussed in Chapter 3, Section 3.4.3.1 of this EIS.

Nitrogen oxides (NO_x) form when fuel is burned at high temperatures. They can be formed naturally or by human activities. The primary manmade sources are motor vehicles, electric utilities, and other fuel-burning sources. According to the EPA, motor vehicles produce about 55 percent of the manmade NO_x emissions, utilities and industrial/commercial/residential activities each produce about 22 percent of the manmade NO_x emissions, and other sources account for the remaining 1 percent of the manmade emissions (EPA 2009b). The primary direct source of emissions of NO_x during coal mining operations is tailpipe emissions from large mining equipment and other vehicle traffic inside the mine permit area.

Blasting that is done to remove the material overlying the coal (the overburden) can result in emissions of several products, including NO₂, as a result of the incomplete combustion of nitrogen-based explosives used in the blasting

process. When this occurs, gaseous, orange-colored clouds may be formed and they can drift or be blown off mine permit areas.

NO₂ is a product of incomplete combustion of sources such as gasoline- and diesel-burning engines or from mine blasting activities. Incomplete combustion during blasting may be caused by wet conditions in the overburden, incompetent or fractured geological formations, deformation of bore holes, and blasting agent factors. Generally, blasting-related NO_x emissions are more prevalent at operations that use the blasting technique referred to as cast blasting (Chancellor 2003). Cast blasting refers to a type of direct blasting in which the blast is designed to cast the overburden from on top of the coal into the previously mined area.

In the mid-to late-1990s, the Office of Surface Mining Reclamation and Enforcement (OSM) received complaints from several citizens about blasting clouds from several mines in the PRB. EPA expressed concerns that NO₂ levels in some of those blasting clouds may have been sufficiently high at times to cause human health effects. In response to those concerns, several studies have been conducted, the mines have modified their blasting techniques, and the WDEQ has imposed blasting restrictions on several mines. More information about these studies and restrictions is presented in the following discussion.

On the order of the Director of the WDEQ, members of the mining industry in the PRB conducted a comprehensive, multi-year monitoring and modeling study of NO₂ exposures from blast clouds. Results of the study (TBCC 2002), conducted pursuant to protocols reviewed and approved by the WDEQ, were provided to the WDEQ and the public in July 2002.

Using a combination of NO₂ measurements collected near 91 blast sites (78 valid runs) and a conservative modeling/extrapolation approach, the authors developed a series of “safe” setback curves for coal, overburden and cast shots for various wind speed classes. The curves were derived from the sampled data, conservative projections of concentrations at greater/lesser distances than measured and an assumed safe level (based on a comprehensive review of available health effects data) of 5.0 ppm for 10 minutes.

Subsequently, the data in the 2002 report (collected at the Black Thunder Mine) were augmented with monitored data/analyses from an additional 45 validated blast events at the Eagle Butte, North Antelope Rochelle, Buckskin and Cordero Rojo mines. New curves, based on the entire basin-wide data set encompassing 123 valid tests, were developed but differed only slightly from the original Black Thunder curves.

Measures that are used by the mines to control NO₂ emissions related to blasting by the PRB mines are discussed in Chapter 3, Section 3.4.3.3 of the EIS.

F-4.0 REFERENCES CITED

All references cited within this appendix are included within Section 6.0 of this EIS.