DRAFT
Environmental Impact Statement for the South Gillette Area Coal Lease Applications
WYW172585, WYW173360, WYW172657, WYW161248

Volume 2 of 2
Appendices

Mule Deer on Reclaimed Rangeland
Coal Creek Mine, Wyoming

Reclaimed Belle Fourche River
Cordero Rojo Mine, Wyoming

Reclaimed Tisdale Creek
Caballo Mine, Wyoming

American Avocet in a Reclaimed Wetland
Belle Ayr Mine, Wyoming

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

October 2008

MISSION STATEMENT

It is the mission of the Bureau of Land Managment to sustain the health, diversity, and productivity of the public lands for the use and enjoyment of present and future generations.

BLM/WY/PL-09/001+1320

VOLUME 2

LIST OF APPENDICES

APPENDIX A

FEDERAL AND STATE AGENCIES AND PERMITTING REQUIREMENTS

APPENDIX A: FEDERAL AND STATE AGENCIES & PERMITTING REQUIREMENTS[1]	
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
Bureau of Alcohol, Tobacco, and Firearms	Explosive's 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 Radioactive Material Certificate of Registration
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	Wyoming Pollutant Discharge Elimination System Water Discharge Permits 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 below may not be required at all mines.

APPENDIX B

UNSUITABILITY CRITERIA FOR THE
BELLE AYR NORTH, WEST COAL CREEK,
CABALLO WEST, AND MAYSDORF II
LBA TRACTS

APPENDIX B. UNSUITABILITY CRITERIA FOR THE BELLE AYR NORTH LBA TRACT

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR BELLE AYR NORTH LBA TRACT
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.	There are Federal lands located around Gillette, Sheridan, and Wright that were determined to be unsuitable under this criterion.	None of the federal lands determined to be unsuitable under Criterion 1 are present on the Belle Ayr North LBA Tract. Therefore, there are no unsuitable findings under this criterion.
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.	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.	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 Belle Ayr North LBA Tract. Therefore, there area no unsuitable findings under Criterion 2 for the Belle Ayr North LBA Tract.
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.	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.	Highway 450, I-90, and the cemetery are not located on the Belle Ayr North LBA Tract. No occupied dwellings or schools are located on the tract. Portions of the Bishop Road, a public road, are located on the tract as applied for and under Alternative 2. Therefore, the portions of the Belle Ayr North LBA Tract within the Bishop Road ROW 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 County Board of Commissioners.
4. **Wilderness Study Areas.** Federal lands designated as wilderness study areas are unsuitable for mining while under review for possible wilderness designation.	No lands in the general review area are within a wilderness study area.	There are no unsuitable findings under Criterion 4 for the Belle Ayr North LBA Tract.
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.	No lands in the general review area meet the scenic criteria as outlined.	There are no unsuitable findings under Criterion 5 for the Belle Ayr North LBA Tract.
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.	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.	The vegetation monitoring sites and the Hoe Creek site are not located on the Belle Ayr North LBA Tract. There are no unsuitable findings under Criterion 6 for the Belle Ayr North LBA Tract.

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR BELLE AYR NORTH LBA TRACT
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.	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.	There are no unsuitable findings under Criterion 7 for the Belle Ayr North LBA Tract. The "Standard Archeological Stipulation" should be applied if this tract is leased.
8. Natural Areas. Federal lands designated as natural areas or National Natural Landmarks are unsuitable.	No lands in the general review area are designated as natural areas or as National Natural Landmarks.	There are no unsuitable findings under Criterion 8 for the Belle Ayr North LBA Tract.
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.	There is no federally designated critical habitat for threatened or endangered plant or animal species within the general review area.	There are no unsuitable findings under Criterion 9 for the Belle Ayr North LBA Tract.
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.	Wyoming does not maintain a state list of threatened or endangered species of plants or animals. Therefore, this criterion does not apply.	There are no unsuitable findings under Criterion 10 for the Belle Ayr North LBA Tract.
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.	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.	There are currently no bald or golden eagle nests (active or inactive) on the Belle Ayr North LBA Tract. Evaluate suitability prior to lease issuance during consultation with USFWS.
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.	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.	There are no identified roost sites on the Belle Ayr North LBA Tract. Evaluate suitability prior to lease issuance during consultation with USFWS.
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.	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.	No falcon nesting sites have been identified on the Belle Ayr North LBA Tract. There are no unsuitable findings under Criterion 13 for the Belle Ayr North LBA Tract.
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.	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.	Evaluate suitability during consultation with USFWS.

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR BELLE AYR NORTH LBA TRACT
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.	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.	There currently are no active or inactive sage grouse leks on the Belle Ayr North LBA Tract study area. There are currently no active sage grouse leks within 2 miles from the Belle Ayr North LBA Tract study area. Evaluate this criterion prior to lease issuance. Establish buffer zones during mining and reclamation planning after consultation with WGFD.
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.	The BLM and USDA-FS 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.	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 Belle Ayr North LBA Tract.
17. Municipal Watersheds. Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.	There are no designated municipal watersheds in the general review area.	There are no unsuitable findings under Criterion 17 for the Belle Ayr North LBA Tract.
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.	There are no designated national resource waters within the general review area.	There are no unsuitable findings under Criterion 18 for the Belle Ayr North LBA Tract.
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.	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.	No AVFs or potential AVFs have been identified on the Belle Ayr North LBA Tract with characteristics indicating potential significance to farming. There are no unsuitable findings under Criterion 19 for the Belle Ayr North LBA Tract.
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.	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.	There are no unsuitability findings for this criterion on the Belle Ayr North LBA Tract.

APPENDIX B. UNSUITABILITY CRITERIA FOR THE WEST COAL CREEK LBA TRACT

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR WEST COAL CREEK LBA TRACT
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.	There are Federal lands located around Gillette, Sheridan, and Wright that were determined to be unsuitable under this criterion.	None of the federal lands determined to be unsuitable under Criterion 1 are present on the West Coal Creek LBA Tract. Therefore, there are no unsuitable findings under this criterion.
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.	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.	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 West Coal Creek LBA Tract. Therefore, there area no unsuitable findings under Criterion 2 for the West Coal Creek LBA Tract.
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.	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.	Highway 450, I-90, and the cemetery are not located on the West Coal Creek LBA Tract. No occupied dwellings, other public highways/roads, or schools are located on the tract. Therefore, there are no unsuitable findings under Criterion 3 for the West Coal Creek LBA Tract.
4. Wilderness Study Areas. Federal lands designated as wilderness study areas are unsuitable for mining while under review for possible wilderness designation.	No lands in the general review area are within a wilderness study area.	There are no unsuitable findings under Criterion 4 for the West Coal Creek LBA Tract.
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.	No lands in the general review area meet the scenic criteria as outlined.	There are no unsuitable findings under Criterion 5 for the West Coal Creek LBA Tract.
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.	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.	The vegetation monitoring sites and the Hoe Creek site are not located on the West Coal Creek LBA Tract. There are no unsuitable findings under Criterion 6 for the West Coal Creek LBA Tract.
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.	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.	There are no unsuitable findings under Criterion 7 for the West Coal Creek LBA Tract. The "Standard Archeological Stipulation" should be applied if this tract is leased.

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR WEST COAL CREEK LBA TRACT
8. Natural Areas. Federal lands designated as natural areas or National Natural Landmarks are unsuitable.	No lands in the general review area are designated as natural areas or as National Natural Landmarks.	There are no unsuitable findings under Criterion 8 for the West Coal Creek LBA Tract.
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.	There is no federally designated critical habitat for threatened or endangered plant or animal species within the general review area.	There are no unsuitable findings under Criterion 9 for the West Coal Creek LBA Tract.
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.	Wyoming does not maintain a state list of threatened or endangered species of plants or animals. Therefore, this criterion does not apply.	There are no unsuitable findings under Criterion 10 for the West Coal Creek LBA Tract.
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.	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.	There are currently no bald or golden eagle nests (active or inactive) on the West Coal Creek LBA Tract. Evaluate suitability prior to lease issuance during consultation with USFWS.
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.	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.	There are no identified roost sites on the West Coal Creek LBA Tract. Evaluate suitability prior to lease issuance during consultation with USFWS.
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.	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.	No falcon nesting sites have been identified on the West Coal Creek LBA Tract. There are no unsuitable findings under Criterion 13 for the West Coal Creek LBA Tract.
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.	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.	Evaluate suitability during consultation with USFWS.

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR WEST COAL CREEK LBA TRACT
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.	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.	There currently are no active or inactive sage grouse leks on the West Coal Creek LBA Tract study area. There are currently three sage grouse leks, which have been active within the last ten years, identified on lands adjacent to the LBA tract: one within ¼ mile and two within 2 miles of the West Coal Creek LBA Tract study area. Evaluate this criterion prior to lease issuance. Establish buffer zones during mining and reclamation planning after consultation with WGFD.
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.	The BLM and USDA-FS 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.	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 Coal Creek LBA Tract.
17. Municipal Watersheds. Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.	There are no designated municipal watersheds in the general review area.	There are no unsuitable findings under Criterion 17 for the West Coal Creek LBA Tract.
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.	There are no designated national resource waters within the general review area.	There are no unsuitable findings under Criterion 18 for the West Coal Creek LBA Tract.
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.	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.	No AVFs or potential AVFs have been identified on the West Coal Creek LBA Tract with characteristics indicating potential significance to farming. There are no unsuitable findings under Criterion 19 for the West Coal Creek LBA Tract.
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.	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.	There are no unsuitability findings for this criterion on the West Coal Creek LBA Tract.

APPENDIX B. UNSUITABILITY CRITERIA FOR THE CABALLO WEST LBA TRACT

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR CABALLO WEST LBA TRACT
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.	There are Federal lands located around Gillette, Sheridan, and Wright that were determined to be unsuitable under this criterion.	None of the federal lands determined to be unsuitable under Criterion 1 are present on the Caballo West LBA Tract. Therefore, there are no unsuitable findings under this criterion.
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.	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.	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 Caballo West LBA Tract. Therefore, there area no unsuitable findings under Criterion 2 for the Caballo West LBA Tract.
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.	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.	Highway 450, I-90, and the cemetery are not located on the Caballo West LBA Tract. No occupied dwellings or schools are located on the tract. Portions of the Bishop Road, a public road, are located on the tract under Alternative 2. Therefore, the portion of the Caballo West LBA Tract within the Bishop Road ROW 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 County Board of Commissioners.
4. **Wilderness Study Areas.** Federal lands designated as wilderness study areas are unsuitable for mining while under review for possible wilderness designation.	No lands in the general review area are within a wilderness study area.	There are no unsuitable findings under Criterion 4 for the Caballo West LBA Tract.
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.	No lands in the general review area meet the scenic criteria as outlined.	There are no unsuitable findings under Criterion 5 for the Caballo West LBA Tract.
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.	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.	The vegetation monitoring sites and the Hoe Creek site are not located on the Caballo West LBA Tract. There are no unsuitable findings under Criterion 6 for the Caballo West LBA Tract.
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.	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.	There are no unsuitable findings under Criterion 7 for the Caballo West LBA Tract. The "Standard Archeological Stipulation" should be applied if this tract is leased.

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR CABALLO WEST LBA TRACT
8. Natural Areas. Federal lands designated as natural areas or National Natural Landmarks are unsuitable.	No lands in the general review area are designated as natural areas or as National Natural Landmarks.	There are no unsuitable findings under Criterion 8 for the Caballo West LBA Tract.
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.	There is no federally designated critical habitat for threatened or endangered plant or animal species within the general review area.	There are no unsuitable findings under Criterion 9 for the Caballo West LBA Tract.
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.	Wyoming does not maintain a state list of threatened or endangered species of plants or animals. Therefore, this criterion does not apply.	There are no unsuitable findings under Criterion 10 for the Caballo West LBA Tract.
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.	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.	There are currently no bald or golden eagle nests (active or inactive) on the Caballo West LBA Tract. Evaluate suitability prior to lease issuance during consultation with USFWS.
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.	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.	There are no identified roost sites on the Caballo West LBA Tract. Evaluate suitability prior to lease issuance during consultation with USFWS.
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.	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.	No falcon nesting sites have been identified on the Caballo West LBA Tract. There are no unsuitable findings under Criterion 13 for the Caballo West LBA Tract.
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.	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.	Evaluate suitability during consultation with USFWS.

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR CABALLO WEST LBA TRACT
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.	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.	There currently are no active or inactive sage grouse leks on the Caballo West LBA Tract study area. There are currently no active sage grouse leks identified on lands within 3 miles of the LBA tract study area. Evaluate this criterion prior to lease issuance. Establish buffer zones during mining and reclamation planning after consultation with WGFD.
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.	The BLM and USDA-FS 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.	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 Caballo West LBA Tract.
17. Municipal Watersheds. Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.	There are no designated municipal watersheds in the general review area.	There are no unsuitable findings under Criterion 17 for the Caballo West LBA Tract.
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.	There are no designated national resource waters within the general review area.	There are no unsuitable findings under Criterion 18 for the Caballo West LBA Tract.
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.	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.	No AVFs or potential AVFs have been identified on the Caballo West LBA Tract with characteristics indicating potential significance to farming. There are no unsuitable findings under Criterion 19 for the Caballo West LBA Tract.
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.	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.	There are no unsuitability findings for this criterion on the Caballo West LBA Tract.

APPENDIX B. UNSUITABILITY CRITERIA FOR THE MAYSDORF II LBA TRACT

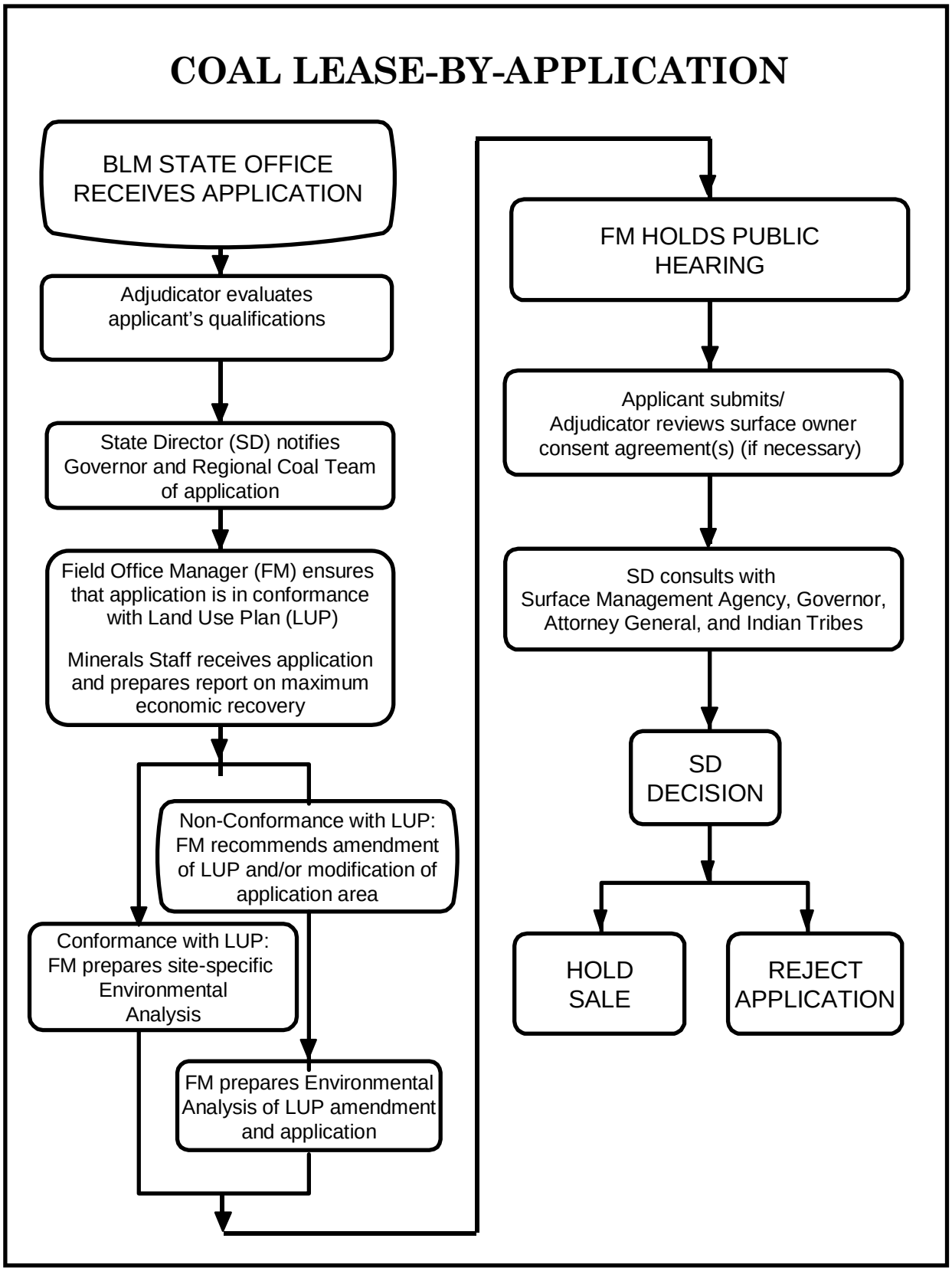
UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR MAYSDORF II LBA TRACT
1. Federal Land Systems. With certain exceptions that do not apply to this tract, all federal lands included in the following systems are unsuitable for mining: National Parks, 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.	There are Federal lands located around Gillette, Sheridan, and Wright that were determined to be unsuitable under this criterion.	None of the federal lands determined to be unsuitable under Criterion 1 are present on the Maysdorf II LBA Tract. Therefore, there are no unsuitable findings under this criterion.
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.	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.	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 Maysdorf II LBA Tract. Therefore, there area no unsuitable findings under Criterion 2 for the Maysdorf II LBA Tract.
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.	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.	Highway 450, I-90, and the previously evaluated cemetery are not located on the Maysdorf II LBA Tract. No occupied dwellings or schools are located on the tract. A portion of Wyoming State Highway 59, a public road, is located on the Maysdorf II LBA Tract. Therefore, the portion of the Maysdorf II LBA Tract within the highway ROW 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 highway is approved by WYDOT. Portions of the Haight and Hilight Roads, public roads, are located on the tract as applied for. Therefore, the portions of the Maysdorf II Tract within the Haight and Hilight ROWs 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 a permit to move the roads is approved by Campbell County Board of Commissioners. In addition, an unevaluated cemetery is located within the northern block of the Maysdorf II LBA Tract. Therefore, the lands included within the Maysdorf II LBA Tract that lie within 100 ft of the cemetery are designated unsuitable for mining and the lease will be stipulated to exclude mining within these areas unless the cemetery is relocated in accordance with all applicable laws and regulations.
4. Wilderness Study Areas. Federal lands designated as wilderness study areas are unsuitable for mining while under review for possible wilderness designation.	No lands in the general review area are within a wilderness study area.	There are no unsuitable findings under Criterion 4 for the Maysdorf II LBA Tract.
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.	No lands in the general review area meet the scenic criteria as outlined.	There are no unsuitable findings under Criterion 5 for the Maysdorf II LBA Tract.

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR MAYSDORF II LBA TRACT
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.	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.	The vegetation monitoring sites and the Hoe Creek site are not located on the Maysdorf II LBA Tract. There are no unsuitable findings under Criterion 6 for the Maysdorf II LBA Tract.
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.	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.	There are no unsuitable findings under Criterion 7 for the Maysdorf II LBA Tract. The "Standard Archeological Stipulation" should be applied if this tract is leased.
8. Natural Areas. Federal lands designated as natural areas or National Natural Landmarks are unsuitable.	No lands in the general review area are designated as natural areas or as National Natural Landmarks.	There are no unsuitable findings under Criterion 8 for the Maysdorf II LBA Tract.
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.	There is no federally designated critical habitat for threatened or endangered plant or animal species within the general review area.	There are no unsuitable findings under Criterion 9 for the Maysdorf II LBA Tract.
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.	Wyoming does not maintain a state list of threatened or endangered species of plants or animals. Therefore, this criterion does not apply.	There are no unsuitable findings under Criterion 10 for the Maysdorf II LBA Tract.
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.	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.	There are currently no bald or golden eagle nests (active or inactive) on the Maysdorf II LBA Tract. Evaluate suitability prior to lease issuance during consultation with USFWS.
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.	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.	There are no identified roost sites on the Maysdorf II LBA Tract. Evaluate suitability prior to lease issuance during consultation with USFWS.
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.	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.	No falcon nesting sites have been identified on the Maysdorf II LBA Tract. There are no unsuitable findings under Criterion 13 for the Maysdorf II LBA Tract.

UNSUITABILITY CRITERIA	GENERAL RECOMMENDATIONS FOR BUFFALO RESOURCE AREA (BLM 1985, 2001a)	FINDINGS FOR MAYSDORF II LBA TRACT
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.	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.	Evaluate suitability during consultation with USFWS.
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.	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.	There currently are no active or inactive sage-grouse leks on the Maysdorf II LBA Tract study area. There are currently four sage grouse leks which have been active within the last 10 years, identified on lands adjacent to the LBA tract: one within ¼ mile, two within 1 mile, and one within 2 miles of the Maysdorf II LBA Tract study area. Evaluate this criterion prior to lease issuance. Establish buffer zones during mining and reclamation planning after consultation with WGFD.
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.	The BLM and USDA-FS 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.	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 Maysdorf II LBA Tract.
17. Municipal Watersheds. Federal lands which have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.	There are no designated municipal watersheds in the general review area.	There are no unsuitable findings under Criterion 17 for the Maysdorf II LBA Tract.
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.	There are no designated national resource waters within the general review area.	There are no unsuitable findings under Criterion 18 for the Maysdorf II LBA Tract.
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.	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.	No AVFs or potential AVFs have been identified on the Maysdorf II LBA Tract with characteristics indicating potential significance to farming. There are no unsuitable findings under Criterion 19 for the Maysdorf II LBA Tract.
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.	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.	There are no unsuitability findings for this criterion on the Maysdorf II LBA Tract.

APPENDIX C

COAL LEASE-BY-APPLICATION
FLOW CHART


COAL LEASE-BY-APPLICATION
BLM STATE OFFICE RECEIVES APPLICATION
Adjudicator evaluates applicant's qualifications
State Director (SD) notifies Governor and Regional Coal Team of application
Field Office Manager (FM) ensures that application is in conformance with Land Use Plan (LUP)
Minerals Staff receives application and prepares report on maximum economic recovery
Non-Conformance with LUP: FM recommends amendment of LUP and/or modification of application area
Conformance with LUP: FM prepares site-specific Environmental Analysis
FM prepares Environmental Analysis of LUP amendment and application
FM HOLDS PUBLIC HEARING
Applicant submits/ Adjudicator reviews surface owner consent agreement(s) (if necessary)
SD consults with Surface Management Agency, Governor, Attorney General, and Indian Tribes
SD DECISION
HOLD SALE
REJECT APPLICATION

APPENDIX D

BUREAU OF LAND MANAGEMENT
SPECIAL COAL LEASE STIPULATIONS
AND FORM 3400-12 COAL LEASE

BLM will attach the following special stipulations to each 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, SCHOOL BUILDING, AND OCCUPIED DWELLINGS***

(1) No mining activity of any kind may be conducted within the U.S. Highway 59 right-of-way and associated 100-feet buffer zone. 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 the highway is approved by the Wyoming Department of, 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.

(2) No mining activity of any kind may be conducted within Bishop, Haight, or Hilight Road rights-of-way and associated 100-feet buffer zones. 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 roads is approved by the 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.

(3) No mining activity of any kind may be conducted within Maysdorf Point Cemetery and associated 100-feet buffer zone. The lessee shall recover all legally and economically recoverable coal from all leased lands not within the foregoing cemetery and associated buffer zone. Provided a permit to move the cemetery is approved by the Campbell County Cemetery District, the lessee shall recover all legally and economically recoverable coal from all leased lands within the foregoing cemetery 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.

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 of 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. 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.).

Sec. 15. SPECIAL STIPULATIONS

(Continued on page 3)

Sec. 15. SPECIAL STIPULATIONS (Cont'd.) -

THE UNITED STATES OF AMERICA

_____ (Company or Lessee Name)	By _____
_____ (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.

(Form 3400-12, page 3)

APPENDIX E

BIOLOGICAL ASSESSMENT
FOR THE BELLE AYR NORTH LBA TRACT,
SOUTH GILLETTE AREA EIS

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E-1.0 INTRODUCTION

Between 2004 and 2006, operators of four coal mines in Campbell County, Wyoming applied for four tracts of federal coal as maintenance leases under the Leasing on Application regulations at 43 CFD 3425. The environmental impacts of leasing these four Lease by Application (LBA) tracts are being evaluated in one environmental impact statement (EIS), the South Gillette Area Coal (SGAC) EIS. The four tracts, which are shown in Figure E-1, and applicant mines are:

- Belle Ayr North LBA Tract adjacent to and north of the Belle Ayr Mine;
- West Coal Creek LBA Tract adjacent to and west of the Coal Creek Mine;
- Caballo West LBA Tract adjacent to and southwest of the Caballo Mine; and
- Maysdorf II LBA Tract adjacent to and west of the Cordero Rojo Complex.

The purpose of this Biological Assessment is to provide information about the potential effects that leasing one of the tracts, the Belle Ayr North LBA Tract, would have on federally listed threatened or endangered (T&E) species. T&E species are managed under the authority of the Endangered Species Act of 1973 (PL 93-205, as amended). The Endangered Species Act requires Federal agencies to ensure that all actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any federally listed species or result in the destruction or adverse modification of their critical habitat. BLM does not authorize mining by issuing a lease for federal coal, but the impacts of mining the coal are considered at the leasing stage because it is a logical consequence of issuing a lease.

This Biological Assessment was prepared to disclose the possible effects to T&E species (plant and animal) that are known to be present or that may be present within the area influenced by the Proposed Action and the alternative to the Proposed Action being evaluated by the BLM. It was prepared in accordance with Section 7 of the Endangered Species Act.

Biological Assessment objectives are:

1. To comply with the requirements of the Endangered Species Act that actions of federal agencies not jeopardize or adversely modify critical habitat of federally listed species.

2. To provide a process and standard by which to ensure that threatened or endangered species receive full consideration in the decision making process.

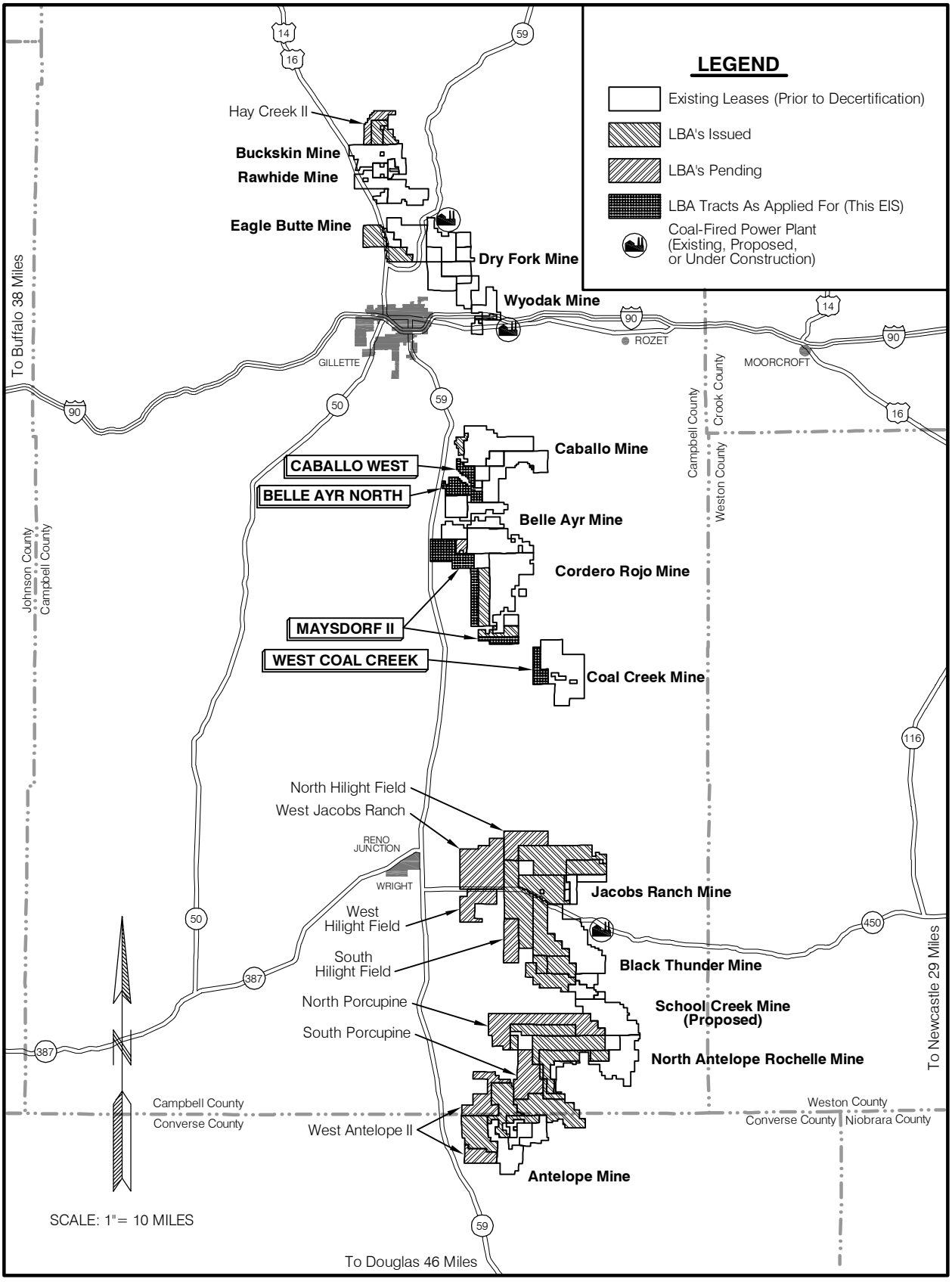

Figure E-1. General Location Map with Federal Coal Leases and LBA Tracts.

E-2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

E-2.1 The Proposed Action

On July 6, 2004, RAG Coal West, Inc. filed an application with the BLM to lease federal coal reserves in a tract located west of and immediately adjacent to the Belle Ayr Mine (Figure E-1). The tract was assigned case file number WYW161248. In August 2004, RAG Coal West, Inc. finalized the sale of the Belle Ayr Mine to Foundation Coal West, Inc. (FCW), a directly held subsidiary of Foundation Coal Corporation. Under the Proposed Action for the Belle Ayr North LBA Tract, the tract as applied for by FCW would be offered for lease at a sealed-bid, competitive lease sale. The boundaries of the tract would be consistent with the tract configuration proposed in the Belle Ayr North LBA Tract lease application (Figure E-2). The Proposed Action assumes that FCW will be the successful bidder on the Belle Ayr North LBA Tract if it is offered for sale.

The legal description of the proposed Belle Ayr North LBA Tract coal lease lands as applied for by FCW under the Proposed Action is as follows:

T. 48 N., R. 71 W., 6th PM, Campbell County, Wyoming

Section 18: Lots 17, 18, 19(W½, SE¼);	113.48 acres
Section 19: Lots 5 through 19;	606.93 acres
Section 20: Lots 3 (SW¼), 4 (W½, SE¼), 5, 6, 7 (S½), 9 (S½), 10 through 16;	450.43 acres
Section 21: Lots 13, 14;	81.52 acres
Section 28: Lots 3 through 6;	161.98 acres
Section 29: Lots 1, 6;	81.63 acres
T. 48 N., R.72 W., 6th PM, Campbell County, Wyoming	
Section 24: Lots 1, 8.	82.77 acres
Total:	1,578.74 acres

The coal estate in the tract described above is federal and the surface estate is owned by FCW. Surface ownership is shown in Figure E-3.

The tract as applied for includes approximately 1,578.74 mineable acres. It is assumed that an area larger than the tract would have to be disturbed in order to recover all of the coal in the tract. The disturbances outside of the tract

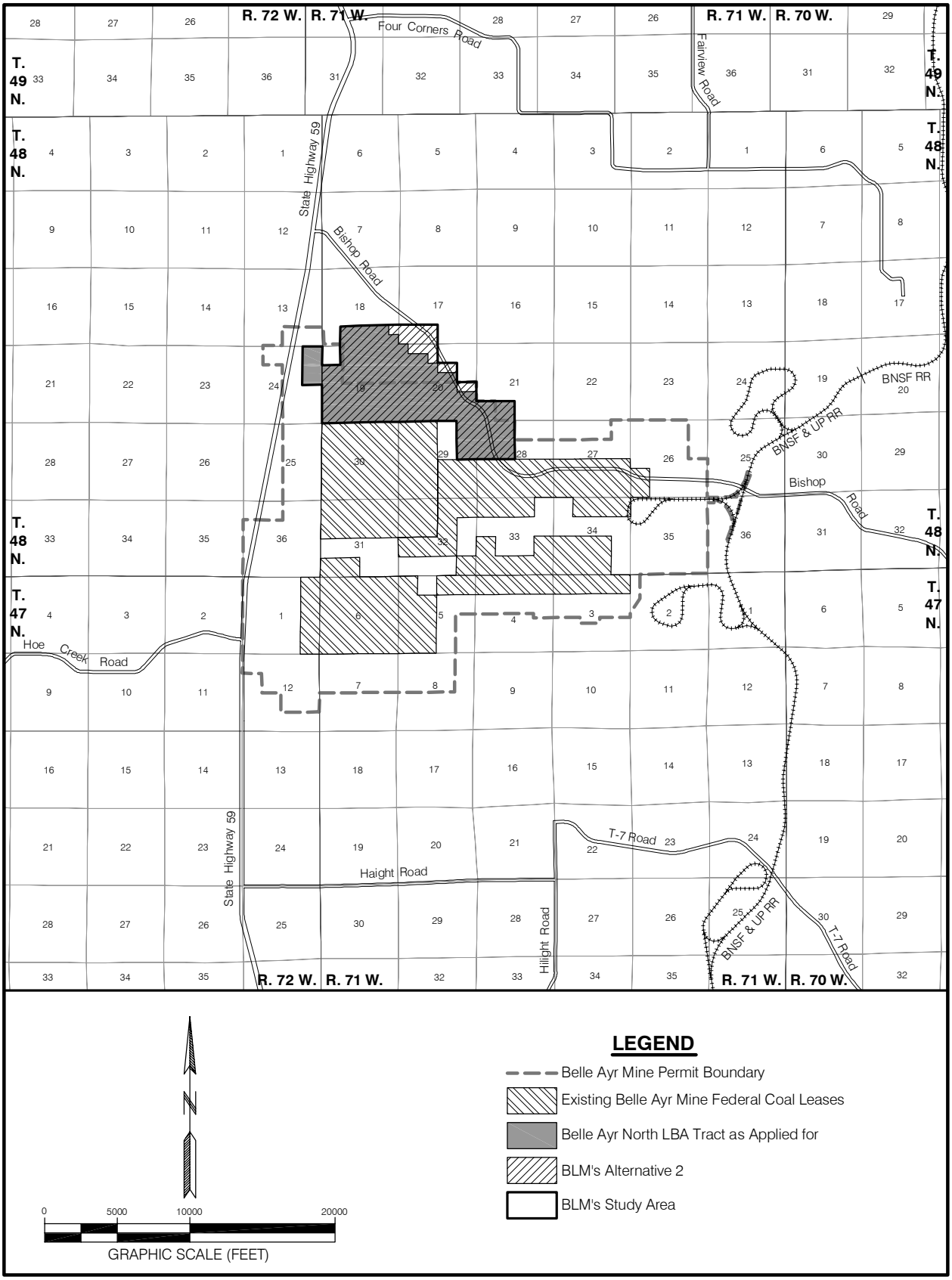

Figure E-2. Belle Ayr North LBA Tract Alternatives.

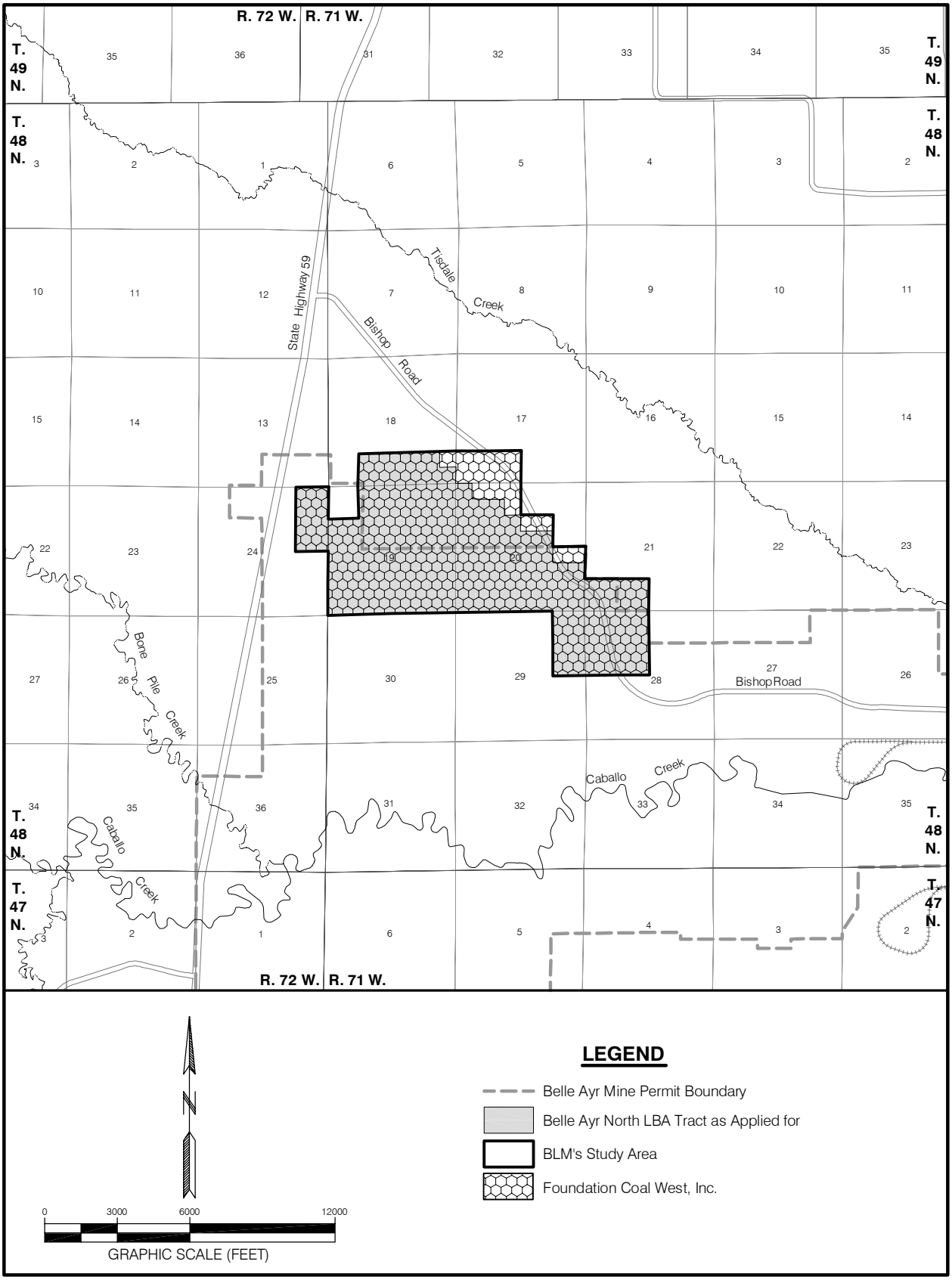

Figure E-3. Surface Ownership Within the Belle Ayr North LBA Tract Alternatives.

would be due to activities like overstripping, matching undisturbed topography, and construction of flood control and sediment control structures.

Under the Proposed Action for the Belle Ayr North LBA Tract, if a decision is made to hold a competitive lease sale and if there is a successful bidder at that sale, a lease would be issued for the tract of federal coal as applied for. Not all of the coal in the tract is suitable for mining due to the presence of the Bishop Road. The tract offered for lease would be subject to standard and special lease stipulations developed for the Wyoming Powder River Basin (PRB). The stipulations that would be attached to a lease for the Belle Ayr North LBA Tract are listed in Appendix D of the SGAC EIS document. The following stipulation relating to T&E species is one of the special stipulations developed for the Wyoming PRB:

> ***THREATENED, ENDANGERED, CANDIDATE, or OTHER SPECIAL STATUS PLANT and ANIMAL SPECIES –*** *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.*
>
> *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.*

Some of the coal in Belle Ayr North LBA Tract under the Proposed Action is not currently considered to be mineable due to the presence of the Bishop Road (County Road 12). A portion the Bishop Road overlies some of the coal included in the tract. As discussed in Chapter 1, Section 1.1, the Surface Mining Control and Reclamation Act prohibits mining within 100 ft on either side of the right-of-way of any public road (43 CFR 3461). There would also be a quantity of coal east of the Bishop Road that would be isolated from the

mining operations if the coal under the road was not mined. The coal underlying the portion of the Bishop Road, its right-of-way, and the 100 ft buffer zone within the Belle Ayr North LBA Tract could be mined if the Campbell County Board of Commissioners, the authorized agency, determines that the road can be moved [30 CFR 761.11(d)]. FCW is evaluating the feasibility of relocating the road at this time. FCW estimates that the tract as proposed includes approximately 208.1 million tons of in-place coal and 168.2 million tons of mineable coal. Using FCW's projected recovery factor of 94 percent, the tract would contain about 158.1 million tons of recoverable coal.

Under the Proposed Action, it is assumed that the LBA tract would be developed as a maintenance lease to extend the life of the adjacent existing Belle Ayr Mine. As a result, under the Proposed Action, the coal included in the tract would be mined by existing employees using existing facilities and roads.

E-2.2 Alternatives to the Proposed Action

E-2.2.1 Alternative 1

Under Alternative 1, the No Action Alternative, the application to lease the coal included in the Belle Ayr North LBA Tract would be rejected, the tract would not be offered for competitive sale, and the coal included in the tract would not be mined. This would not affect permitted mining activities and employment on the existing leases at Belle Ayr Mine and would not preclude an application to lease the federal coal included in the Belle Ayr North LBA Tract in the future. No additional surface of the Belle Ayr North LBA Tract would be disturbed due to overstripping to allow coal to be removed from the adjacent existing leases.

E-2.2.2 Alternative 2

Under Alternative 2 for the Belle Ayr North LBA Tract, BLM would reconfigure the tract, hold a competitive coal sale for the lands included in the reconfigured tract, and issue a lease to the successful bidder. In evaluating the Belle Ayr North coal lease application, BLM identified a study area, which includes unleased federal coal adjacent to the northern edge of the tract as applied for (Figure E-2). BLM is evaluating the potential that some or all of these lands could be added to the tract to provide for more efficient recovery of the federal coal, increase competitive interest in the tract, and/or reduce the potential that some of the potentially mineable federal coal in this area would be bypassed in the future if it is not included in the Belle Ayr North LBA Tract. The modified tract would be subject to standard and special lease stipulations developed for the PRB and this tract if it is offered for sale, as discussed above. Alternative 2 for the Belle Ayr North LBA Tract assumes that FCW would be the successful bidder on the tract if a lease sale is held and that the tract would be developed as a maintenance lease to extend the life of the adjacent Belle Ayr Mine. Other assumptions are the same as for the Proposed Action. The lands that BLM is considering adding to the tract are:

T. 48 N., R. 71 W., 6th PM, Campbell County, Wyoming

Section 17: Lots 13, 14;	82.53 acres
Section 18: Lots 19 (NE¼);	10.34 acres
Section 20: Lots 3 (E½, NW¼), 4 (NE¼), 7 (N½), and 9 (N½);	82.19 acres
Total Added:	175.06 acres

The area BLM is evaluating removes the following lands from the tract as applied for:

T. 48 N., R.72 W., 6th PM, Campbell County, Wyoming

Section 24: Lots 1, 8.	-82.77 acres
Total (Net Change):	92.29 acres

The legal description of BLM's reconfiguration of the Belle Ayr North LBA Tract under Alternative 2 is as follows:

T. 48 N., R. 71 W., 6th PM, Campbell County, Wyoming

Section 17: Lots 13, 14;	82.53 acres
Section 18: Lots 17, 18, 19;	123.82 acres
Section 19: Lots 5 through 19;	606.93 acres
Section 20: Lots 3 through 7, 9through 16;	532.62 acres
Section 21: Lots 13, 14;	81.52 acres
Section 28: Lots 3 through 6;	161.98 acres
Section 29: Lots 1, 6.	81.63 acres
Total:	1,671.03 acres

Not all of the coal included in the Belle Ayr North LBA Tract is considered to be mineable at this time. A portion the Bishop Road (County Road 12) overlies some of the coal included in the tract. As discussed in Chapter 1, Section 1.1, the Surface Mining Control and Reclamation Act prohibits mining within 100 ft on either side of the right-of-way of any public road (43 CFR 3461). There would also be a quantity of coal east of the Bishop Road that would be isolated from the mining operations if the coal under the road was not mined. The coal

underlying the portion of the Bishop Road and its right-of-way, and the 100 ft buffer zone within the Belle Ayr North LBA Tract could be mined if the Campbell County Board of Commissioners, the authorized agency, determines that the road can be moved [30 CFR 761.11(d)]. FCW is evaluating the feasibility of relocating the road at this time.

FCW estimates that the reconfigured tract includes approximately 221.1 million tons of in-place coal and 162.6 million tons of mineable coal. Using FCW's projected recovery factor of 94 percent, the reconfigured tract would contain about 152.8 million tons of recoverable coal.

E-3.0 CONSULTATION TO DATE

The locations of the existing Belle Ayr Mine coal leases, the existing approved mine permit area, and the Belle Ayr North LBA Tract are shown in Figure E-2.

The Belle Ayr Mine and Belle Ayr North LBA Tract are included in the area determined to be "acceptable for further consideration for leasing" as part of the coal screening process. The coal screening process is a four part process that includes application of the coal unsuitability criteria, which are defined in 43 CFR 3461.5. BLM has applied these coal screens to federal coal lands in Campbell County several times, starting in the early 1980s. Most recently, in 1993, BLM began the process of reapplying these screens to federal coal lands in Campbell, Converse, and Sheridan Counties. The results of this analysis were included as Appendix D of the 2001 *Approved Resource Management Plan for Public Lands Administered by the BLM Buffalo Field Office* (BLM 2001), which can be viewed on the Wyoming BLM website at http://www.wy.blm.gov in the NEPA documents section. Consultation with the U.S. Fish and Wildlife Service (USFWS) occurred in conjunction with the unsuitability findings under Criterion 9 (Critical Habitat for Threatened or Endangered Plant and Animal Species), Criterion 11 (Bald or Golden Eagle Nests), Criterion 12 (Bald and Golden Eagle Roost and Concentration Areas), Criterion 13 (Falcon Nesting Site(s) and Buffer Zone(s)), and Criterion 14 (Habitat for Migratory Bird Species).

Appendix B of the SGAC EIS document summarizes the unsuitability criteria, describes the general findings for the screening analyses discussed above, and presents a validation of these findings for the Belle Ayr North LBA Tract based on the current information.

Consultation with USFWS has previously been completed for the area included within the Belle Ayr Mine's existing approved mining permit area, shown in Figure E-2, as part of the mining and reclamation plan approval process. This process began when the mine was initially permitted in 1972.

A letter dated May 15, 2003, from Jodi Bush, USFWS, Cheyenne, Wyoming, to Laurel Vicklund, FCW, Gillette, Wyoming, documents approval of the current

updated Raptor and Migratory Birds of High Federal Interest (MBHFI) Monitoring and Mitigation Plan for the Belle Ayr Mine (USFWS 2003a).

USFWS provided BLM a listing of the T&E species that may be present in the Belle Ayr North coal lease project area in a memorandum letter from Brian T. Kelly, USFWS, Wyoming Field Office, Cheyenne, Wyoming, to Chris Hanson, BLM, Buffalo Field Office, Buffalo, Wyoming dated August 8, 2007 (USFWS 2007). The following list of species that was provided by USFWS represents the federally listed T&E species that may be present in Campbell County, Wyoming:

Black-footed ferret (*Mustela nigripes*): Endangered

Ute ladies'-tresses (*Spiranthes diluvialis*): Threatened

The August 8, 2007 memorandum provided recommendations for protective measures for T&E species in accordance with the Endangered Species Act. Protective measures for migratory birds in accordance with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act and recommendations for the protection of wetlands (under Executive Order 11990 and Section 404 of the Clean Water Act) and for other fish and wildlife resources (under the Fish and Wildlife Coordination Act and the Fish and Wildlife Act of 1956) were also included. The memorandum identified the greater sage-grouse as a species of specific interest and the importance of identifying grouse habitats within the lease area and appropriate mitigation measures to minimize potential impacts to this species. The memorandum also stated that the USFWS would work with the BLM to ensure that the species-specific protective measures and programs for the conservation and recovery of listed species as required by under Section 7 of the Endangered Species Act are satisfied and carried out.

The Wyoming Game and Fish Department (WGFD) provided BLM with scoping comments for the four tracts included in the SGAC EIS in a letter from John Emmerich, Deputy Director, WGFD, Cheyenne, Wyoming, to Teresa Johnson, BLM, Casper Field Office, Casper, Wyoming, dated April 10, 2007 (WGFD 2007). WGFD recommended consideration be given to possible impacts to big game, sage grouse, raptors, and nongame species and their habitat, and aquatic resources within the South Gillette Area Coal project area.

E-4.0 SPECIES HABITAT AND OCCURRENCE AND EFFECTS OF THE PROPOSED PROJECT

The Belle Ayr Mine began producing coal in 1972. Wildlife monitoring has been conducted annually for the mine since 1984. This wildlife monitoring was designed to meet the Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD), Wyoming Game and Fish Department (WGFD), and federal requirements for annual monitoring and reporting of wildlife activity on coal mining areas. Detailed procedures and site-specific requirements have been carried out as approved by WGFD and USFWS. The

monitoring program was conducted in accordance with Appendix B of WDEQ/LQD Coal Rules and Regulations. Because the areas covered in the wildlife surveys included the mine's permit area and a large perimeter around the permit boundary, the entire Belle Ayr North LBA Tract has been included in baseline inventories and annual wildlife surveys conducted for the Belle Ayr Mine since wildlife studies began.

The approved Belle Ayr Mine Permit 214 Term T6 (FCW 2005) includes monitoring and mitigation measures for the Belle Ayr Mine that are required by the Surface Mining Control and Reclamation Act and Wyoming State Law. If the Belle Ayr North LBA Tract is acquired by FCW, these monitoring and mitigation measures would be extended to cover operations on the LBA tract when the Belle Ayr Mine's mining permit is amended to include the tract. This amended permit would have to be approved before mining operations could take place on the tract. These monitoring and mitigation measures are considered to be part of the Proposed Action and Alternative 2 during the leasing process because they are regulatory requirements.

Background information on T&E species in the vicinity of the Belle Ayr North LBA Tract was drawn from several sources, including: the original baseline inventory (1974), wildlife survey reports submitted by the Belle Ayr Mine to the WDEQ/LQD from 1984 through 2006, the Final South Powder River Basin Coal EIS (BLM 2003), the Final EIS for the Maysdorf Coal Lease Application (BLM 2007), a Wyoming Natural Diversity Database search (University of Wyoming 2001), and from WGFD and USFWS records and contacts in 2007. In addition, the Belle Ayr North LBA Tract wildlife study area falls within the wildlife monitoring areas for the nearby Caballo and Cordero Rojo Mines (Figure E-1).

Site-specific data for a substantial portion of the tract as applied for and the study area for Alternative 2 were obtained from several sources, including WDEQ/LQD permit applications and annual wildlife reports for the Belle Ayr Mine and other nearby coal mines. Baseline wildlife studies were conducted by Thunderbird-Jones & Stokes, expressly for the Belle Ayr North LBA Tract in 2006 early 2007.

The Belle Ayr North LBA Tract is in an area of gently rolling terrain of moderate relief influenced by Duck Nest Creek and other tributaries of Caballo Creek. Elevations range from 4,515 to 4,666 ft within the LBA tract and from 4,515 to 4,704 ft including the area added under Alternative 2. Within the LBA tract and the area added under Alternative 2, slopes range from flat to over 28 percent in the eastern portion of the tract, south of the Bishop Road. The slopes of the gently rolling uplands, which comprise most (about 74 percent) of the LBA tract, seldom exceed 4 percent. A slope analysis would be done for the LBA tract if a lease sale is held and it is proposed for mining.

Predominant wildlife habitat types classified on the LBA tract and adjacent area correspond with the major plant communities defined during the

vegetation baseline study and consist primarily of crested wheatgrass pasture and sagebrush/grassland. Other habitats present in limited extent include disturbed areas and grassland areas. Networks of road, pipeline, tank battery, and well-pad disturbance areas associated with oil and gas development overlay much of the study area.

The Belle Ayr Mine site is situated near the center of the PRB, which is a broad structural trough that lies between the Big Horn Mountains and the Black Hills. The PRB is drained by three separate drainage systems: the Powder/Little Powder, the Cheyenne, and the Belle Fourche Rivers. Lying between the Powder River and Cheyenne River drainage basins is the Belle Fourche River drainage system, which is a narrow, linear-shaped basin extending from the Pumpkin Buttes northeast to the Black Hills. The topography of the Belle Fourche drainage basin is typified by broad, flat, inter-stream uplands and a wide, level expanse of eastward-sloping plains broken by a few isolated buttes.

The Belle Ayr Mine lies within the Caballo Creek watershed, which is a tributary of the Belle Fourche River. Caballo Creek flows from west to east through the mine's permit area and empties into the Belle Fourche River approximately 7 miles east-southeast of the Belle Ayr North LBA Tract in Section 3, T.47N., R.70W. (Figure 3-27 in the SGAC EIS document). The total drainage for Caballo Creek is approximately 260 square miles, and the mainstream channel is about 51 miles long. The Caballo Creek watershed has a dendritic drainage pattern with an approximate width (north-south) of 12.8 miles and an approximate length (east-west) of 25.0 miles. The relief of Caballo Creek's basin is 740 feet from its headwaters to its confluence with the Belle Fourche River.

The Belle Ayr Mine disturbs several drainages within the Caballo Creek watershed and Caballo Creek is currently diverted by the mining operation. The Belle Ayr Mine is currently permitted to disturb approximately 7 percent of the Caballo Creek drainage basin. The entire undisturbed Caballo Creek drainage basin was extensively studied by the Belle Ayr Mine and the results of that study are included in the mine and reclamation permit (FCW 2003). A large portion of the Belle Ayr North LBA Tract is within the mine's existing permit area, and Duck Nest Creek, a southeast-flowing ephemeral tributary of Caballo Creek, drains the western portion of the LBA tract. Two smaller, first order tributaries of Caballo Creek (called Draw No. 1 and Draw No. 2 by the Belle Ayr Mine) and three playas formed by natural topographic depressions drain the eastern portion of the Belle Ayr North LBA Tract. The Belle Aye Mine permit area, the Belle Ayr North LBA Tract, and a portion of the undisturbed Caballo Creek watershed are shown on Figure 3-27in the SGAC EIS document.

Wetland inventories have been completed on those portions of Caballo Creek and its tributaries that lie within Belle Ayr Mine's existing permit area. A large portion of the Belle Ayr North LBA Tract is within the mine's existing permit area (Figure S1-6 in the SGAC Supplementary Information document);

therefore, a wetland inventory on Duck Nest Creek, including the entire stream segment that lies within the BLM study area for the LBA tract, has been conducted and is included in the mine's approved mine permit.

There have been numerous correspondences between the U.S. Army Corps of Engineers (COE) and Belle Ayr Mine on wetland inventories and determinations related to mine permit revisions. Most recently, on September 29, 1999, the COE conducted a site visit of wetland areas within the Belle Ayr Mine's permit area. Following that visit, a revised premining wetland delineation and discussion of wetlands to be impacted for the entire permit area was presented to COE in a letter from the mine, dated September 30, 1999. A response letter from COE to the mine, dated October 1, 1999, authorized the revised delineation and impact determination (FCW 2003). These premining wetland areas that occur within and adjacent to the Belle Ayr North LBA Tract are shown on Figure S1-6 in the SGAC Supplementary Information document.

Belle Ayr Mine's most recent delineation of wetlands and other Waters of the U.S. over the existing permit area identified these four types of wetlands: Man Made, Stream Channel, Saline, and Playa (FCW 2003). The man-made wetlands are found in association with small reservoirs and stock ponds. Stream channel wetlands are primarily moist to wet grassy meadows, usually less than 20 feet wide, and restricted to the stream channel and areas immediately adjacent to the stream bank. Saline wetlands occur only along the upper section of Duck Nest Creek and are characterized by saturated soils that commonly have salt deposits on the surface. Playa wetlands occur on areas with internal drainage that are intermittently flooded in response to spring runoff or runoff from intense thunderstorms. These individual wetland units and their respective areas (in acres) are shown within the Belle Aye North LBA Tract wetlands analysis area on Figure S1-6 in the SGAC Supplementary Information document. Accordingly, a total of approximately 193.9 acres of Waters of the U.S., including a total of 14.4 acres of jurisdictional Waters of the U.S. occur within the wetlands analysis area for the Belle Ayr North LBA Tract. Approximately 11.9 of those acres are jurisdictional wetlands that occur along the watercourse of Duck Nest Creek. The 2.5 acres of jurisdictional other Waters of the U.S. that did not qualify as jurisdictional wetlands consist primarily of open water that is held within the in-channel impoundments and intermittent pools along Duck Nest Creek. The non-jurisdictional Waters of the U.S. contained in the wetlands analysis area (approximately 179.5 acres) consists of the internally drained playas.

Within the proposed lease area and adjacent study area there is no "critical" habitat designated by USFWS for T&E species. The following discussion describes species' habitat requirements and their occurrence in the area of the Belle Ayr North LBA Tract and evaluates the potential environmental effects of the Proposed Action and Alternative 2 on federal T&E species.

E-4.1 Threatened Species

E-4.1.1 Ute ladies'-tresses (*Spiranthes diluvialis*)

Ute ladies'-tresses, a member of the orchid family, was listed as threatened on January 17, 1992 due to a variety of factors, including habitat loss and modification, hydrological modifications of existing and potential habitat areas, and invasion of exotic plant species. At the time of listing, Ute ladies'-tresses was only known from north-central Colorado, northern and south-central Utah, and southeastern Nevada. As of September 2005, it had also been found in western Nebraska, southeastern Wyoming, southwestern Montana, and north-central Washington, while new populations had been documented in northwestern Colorado and northern Utah (Fertig, et al. 2005). USFWS has determined that a petition to remove the Ute ladies'-tresses orchid from federal protection under the Endangered Species Act provides substantial biological information to indicate that removal may be warranted. The petition was received from the Central Utah Water Conservancy District (USFWS 2004).

Biology and Habitat Requirements: Ute ladies'-tresses is a perennial, terrestrial orchid with erect, glandular-pubescent stems 8 to 20 inches tall arising from tuberous-thickened roots. This species typically flowers from late July through August. The flowers are white or ivory and clustered into a spike at the top of the stem; however, depending on location and climatic conditions, it may bloom in early July or still be in flower as late as early October (USFWS 2005b). Plants probably do not flower every year and may remain dormant below ground during drought years. The total known population of this species is currently estimated to be 60,000 individuals (USFWS 2004). Occurrences range in size from one plant to a few hundred individuals.

Ute ladies'-tresses occurs primarily on moist, subirrigated or seasonally flooded soils bordering wetland meadows, springs, lakes, or perennial streams. The elevation range of known occurrences is 4,200 to 7,000 feet in alluvial substrates along riparian edges, gravel bars, old oxbows, and moist to wet meadows. Soils where the orchid has been found typically range from fine silt/sand to gravels and cobbles, as well as to highly organic and peaty soil types. The Ute ladies'-tresses orchid is not found in heavy or tight clay soils or in extremely saline or alkaline soils. The orchid seems intolerant of shade and small scattered groups are found primarily in areas where vegetation is relatively open (USFWS 2005). Ute ladies'-tresses orchid is commonly associated with horsetail, milkweed, verbena, blue-eyed grass, reedgrass, goldenrod, bentgrass and arrowgrass.

Populations are often dynamic and "move" within a watershed as disturbances create new habitat or succession eliminates old habitat (Fertig and Beauvais 1999). The orchid is well adapted to disturbances from stream movement and is tolerant of other disturbances, such as grazing, that are common to grassland riparian habitats (USFWS 1995). Ute ladies'-tresses colonize early successional riparian habitats such as point bars, sand bars, and low-lying

gravelly, sandy, or cobbley edges, persisting in those areas where the hydrology provides continual dampness in the root zone through the growing season. The orchid establishes in heavily disturbed sites, such as revegetated gravel pits, heavily grazed riparian edges, and along well-traveled foot trails on old berms (USFWS 1995).

Prior to 2005, four orchid populations had been documented within Wyoming, all discovered between 1993 and 1997 (Fertig and Beauvais 1999). Four additional sites were located in 2005 and one additional site was found in 2006 (Heidel, 2007). The new locations were in the same drainages or tributaries as the original four populations. Drainages with documented orchid populations include Antelope Creek and tributaries in northern Converse County, Bear Creek in northern Laramie and southern Goshen Counties, Horse Creek in Laramie County, and Niobrara River in Niobrara County. No occurrences have been recorded in Campbell County or in the Belle Ayr North wildlife general analysis area in Converse County.

Existing Environment: Areas of suitable habitat within the Belle Ayr North LBA Tract and adjacent study area were surveyed by ESCO Associates, Inc. of Boulder, Colorado in August 2006. Topographical and wetland delineation maps for the study area were reviewed to identify all significant drainages and potential habitat that may contain the orchid.

Suitable habitat was traversed on foot during the time of actual flowering of the known population, and it involved walking entire lengths of the drainages documenting locations of potential habitat and searching for this species.

The environs of the Duck Nest Creek drainage that passes through the study area constitute the closest approximation of suitable habitat for the plant. However, while naturally prone to accumulating moisture because of topographic position, they also are underlain by Arvada soils (or the similar saline phases of Heldt and Bidman soils) that have considerable salt accumulation, and, during dry years are themselves quite dry. As such, these areas do not constitute likely habitat for the plant by virtue of lack of dependable moisture and high salinity. A pedestrian survey of these areas in August 2006 revealed no individuals of Ute Ladies'-Tresses Orchid.

Playa Grassland was suggested by USFWS (personal communication) as suitable habitat and the portion of the LBA site occupied by this type was also searched in August 2006 with the same results. Eastern Wyoming playas, except during hypothetically potential extraordinary years of unrelenting rain, would probably never naturally sustain the moist conditions required by the orchid. Even following the springs when the playas do occasionally, but only temporarily, include standing water, subsequent summer conditions accompany a thorough drying that excludes any routine manifestation of moisture-loving perennial plant species such as the orchid.

Effects of the Proposed Project: **Mining the federal coal included in the Belle Ayr North LBA Tract, if the tract is leased under the Proposed Action or Alternative 2, may affect, but is not likely to adversely affect Ute ladies'-tresses.** Typical suitable habitat for this species on the tract is very limited and found along the CBNG-impacted bottomlands of Little Duck Nest Creek and its tributaries. However, the quality of potential habitat is extremely poor. Outside of the narrow riparian strips located along these impacted watercourses, typical suitable habitat is rare or non-existent in the study area. Multiple surveys of the existing suitable habitat at the Belle Ayr Mine and other mines in this area have not found any Ute ladies'-tresses. Because of the ability of this species to persist below ground or above ground without flowering, single season surveys that meet the current USFWS survey guidelines may not detect populations. If undetected populations are present, they could be lost to surface disturbing activities.

Jurisdictional wetlands located in the Belle Ayr North LBA Tract that are destroyed by mining operations would be replaced in accordance with the requirements of Section 404 of the Clean Water Act, as determined by COE. The replaced wetlands may not duplicate the exact function and landscape features of the pre-mine wetlands. COE considers the type and function of each jurisdictional wetland that will be impacted and may require restoration of additional acres if the type and function of the restored wetlands will not completely replace the type and function of the original wetland. Replacement of non-jurisdictional and functional wetlands may be required by the surface land owner and/or WDEQ/LQD. WDEQ/LQD allows and sometimes requires mitigation of non-jurisdictional wetlands affected by mining, depending on the values associated with the wetland features.

Cumulative Effects: Alterations of stream morphology and hydrology are believed to have extirpated Ute ladies'-tresses from most of its historical range (USFWS 2002). Disturbance and reclamation of streams by surface coal mining may alter stream morphology and hydrology. The large quantities of water produced with CBNG development and discharged on the surface may also alter stream morphology and hydrology.

E-4.2 Endangered Species

E-4.2.1 Black-footed ferret (*Mustela nigripes*)

The black-footed ferret is a nocturnal mammal and an obligate associate of prairie dogs (*Cynomys* spp.). Ferrets were listed as endangered in March, 1967. This species is thought to have historically inhabited prairie dog colonies in the short-grass prairies of the eastern and southern Rockies, and across the Great Plains of North America. However, since the early 1900s, numerous factors have led to a decrease in potential habitat to less than 2 percent of its former acreage.

Conversion of grasslands to agricultural landscapes, eradication of prairie dogs, and diseases such as the plague and canine distemper have resulted in severe reductions in prairie dog colonies across the west, colonies which provided food, shelter, and habitat for black-footed ferrets. This species of ferret is currently one of the most endangered mammals in North America and was thought to be extinct until a small population was discovered in Meeteetse, Wyoming in September, 1981. Since then, successful captive breeding and reintroduction programs have released black-footed ferrets back into the wild in several western and Great Plains states including Wyoming, Montana, South Dakota, Colorado, Utah, and Arizona.

Biology and Habitat Requirements: Ferrets rely on prairie dogs to provide both shelter and food (Hillman and Clark 1980). Ferrets produce one litter per year, typically giving birth to four or five kits. The decline in ferret populations has been largely attributed to the reduction in the vast prairie dog colonies that historically existed in the western United States. Despite extensive ferret surveys over the past 20 plus years throughout Wyoming, the last known wild black-footed ferret population was discovered near Meeteetse in 1981 (Miller et al. 1996). Those surveys included numerous USFWS-approved clearances for coal mining and other development in the Powder River Basin of Wyoming, as well as USDA-FS surveys for ferrets on the TBNG. Reintroduction efforts involving captive bred individuals have successfully established one black-footed ferret population in the Shirley Basin area in south-central Wyoming. Currently, this is the only known black-footed ferret population within the state, though other populations are present elsewhere in the United States and Mexico.

Existing Environment: The Belle Ayr North LBA Tract is within the historical range of the black-footed ferret, although no black-footed ferrets are presently known to occur in northeastern Wyoming. During the 1980s, WGFD, in cooperation with other agencies, conducted searches for black-footed ferrets in Wyoming in the places they were most likely to be found, but these searches were not successful (Martin Grenier, personal communication, 10/14/2003). In a February 2, 2004 letter to interested parties, the USFWS declared that black-footed ferret surveys are no longer necessary in black-tailed prairie dog colonies within Wyoming.

No black-tailed prairie dog colonies are currently present on the Belle Ayr North wildlife general analysis area. No evidence of ferrets has been recorded during general or specific ferret surveys over the last 30 years (1976–2006) conducted by wildlife consultants for the Belle Ayr Mine and other mines in this area.

Effects of the Proposed Project: **Mining the federal coal included in the Belle Ayr North LBA Tract, if a lease is issued under the Proposed Action or Alternative 2, would have no effect on black-footed ferrets.** Given the documented absence of black-footed ferrets in the region, including the general analysis area during specific surveys for this species, the lack of colonies

within the LBA tract and surrounding area, the block clearance issued by USFWS for black-tailed prairie dog colonies throughout the entire state, and the distance of the LBA area from future reintroduction sites, mining the general analysis area will not result in any direct or indirect effects on black-footed ferrets.

Mine activities include, but are not limited to, large-scale topsoil stripping, the intense presence of heavy machinery, extended human presence, loud noise and various linear disturbances such as roads, power lines and fences. Additionally, ongoing disturbance (grazing, oil and gas production, etc.) from sources unrelated to mining would likely continue, with some activities occurring within prairie dog colonies in the area. These activities would result in less habitat disturbance than surface mining, but physical disturbance would occur.

Based on more than 20 years of historic and recent survey efforts and other general analysis area data and information, it is unlikely that ferrets exist in the Belle Ayr North wildlife general analysis area.

Cumulative Effects: Mineral development within black-tailed prairie dog colonies is a leading cause of ferret habitat loss in the PRB. Surface coal mining tends to have more intense impacts on fairly localized areas, while oil and gas development tends to be less intensive but spread over larger areas. Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. In reclaimed areas, vegetation cover may differ from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the approved plant species are native to the area; however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats, particularly in the short-term, when species composition, shrub cover, and other environmental factors are likely to be different. Shifts in habitat composition or distribution following reclamation could increase or decrease potential habitat for prairie dogs and associated habitat for black-footed ferrets. However, black-tailed prairie dogs have been recorded invading and establishing towns on reclaimed coal mined lands in northeastern Wyoming (IR 2005).

Potential ferret habitat is also affected by other impacts to prairie dog populations. Plague can infect and eliminate entire prairie dog colonies. Poisoning and recreational prairie dog shooting may locally reduce prairie dog populations, but seldom completely eliminate colonies.

E-5.0 SUMMARY OF DETERMINATIONS

Table E-1 summarizes the determinations for federally listed T&E species in the area of the Belle Ayr North LBA Tract that may result from implementing the Proposed Action or Alternative 2.

Table E-1. Effects Evaluation of Federal T&E Species in the Area of the Belle Ayr North LBA Tract.

Status	Species Common Name	Potential Effects
Threatened:	Ute ladies'-tresses	May affect[1]
Endangered:	Black-footed ferret	No effect

[1] Not likely to adversely affect individuals or populations.

E-6.0 REGULATORY REQUIREMENTS AND MITIGATION

The issuance of a Federal coal lease grants the lessee the exclusive rights to mine the coal, subject to the terms and conditions of the lease. Lease ownership is necessary for mining federal coal, but lease ownership does not authorize mining operations. Surface coal mining operations are regulated in accordance with the requirements of the Surface Mining Control and Reclamation Act of 1977 and Wyoming State regulations. The Surface Mining Control and Reclamation Act gives the Office of Surface Mining Reclamation and Enforcement (OSM) primary responsibility to administer programs that regulate surface coal mining operations and the surface effects of underground coal mining operations.

Pursuant to Section 503 of the Surface Mining Control and Reclamation Act, the WDEQ developed, and in November 1980 the Secretary of the Interior approved a permanent program authorizing WDEQ to regulate surface coal mining operations and surface effects of underground mining on nonfederal lands within the State of Wyoming. In January 1987, pursuant to Section 523(c) of the Surface Mining Control and Reclamation Act, WDEQ entered into a cooperative agreement with the Secretary of the Interior authorizing WDEQ to regulate surface coal mining operations and surface effects of underground mining on federal lands within the state. In order to get approval of this cooperative agreement, the state had to demonstrate that the state laws and regulations are no less stringent than, meet the minimum requirements of, and include all applicable provisions of the Surface Mining Control and Reclamation Act.

If the Belle Ayr North LBA Tract is leased, it would be a maintenance lease for the existing Belle Ayr Mine, which currently has both an approved Mineral Leasing Act of 1920 (MLA) mining plan and an approved State mining and reclamation permit. In the case of maintenance leases, such as the Belle Ayr North LBA Tract, the existing MLA mining plan and State mining and reclamation plan must be amended to include any newly leased area before that area can be mined.

In order to amend the existing MLA mining plan and State mining and reclamation permit, the company would be required to submit a detailed permit application package to WDEQ before starting surface coal mining operations on any newly acquired lease. WDEQ/LQD would review the permit application

package to insure the permit application complies with the permitting requirements and the coal mining operation will meet the performance standards of the approved Wyoming program. If the permit application package does comply, WDEQ would issue the applicant an amended permit that would allow the permittee to extend coal mining operations onto the newly acquired lease.

Protection of fish, wildlife, and related environmental values is required under the Surface Mining Control and Reclamation Act regulations at 30 CFR 816.97, which state:

> "No surface mining activity shall be conducted which is likely to jeopardize the continued existence of endangered or threatened species listed by the Secretary of which is likely to result in the destruction or adverse modification of designated critical habitats of such species in violation of the Endangered Species Act of 1973, as amended."

In addition to requiring the operator to minimize disturbances and adverse impacts on fish, wildlife, and related environmental values, the regulations at 30 CFR 816.97 disallow any surface mining activity which is likely to jeopardize the continued existence of endangered or threatened species and require that the operator use the best technology currently available to : 1) minimize electrocution hazards to raptors; 2) locate and operate haul and access roads to avoid or minimize impacts on important fish and wildlife species; and 3) design fences, conveyors, and other potential barriers to permit passage of large mammals.

USFWS Section 7 consultation would be required prior to approval of the mining and reclamation plan modification. Additional measures to ensure compliance with the Endangered Species Act and the Surface Mining Control and Reclamation Act can be developed when the detailed mining plan, which identifies the actual location of the disturbance areas, how and when they would be disturbed, and how they would be reclaimed, is developed and reviewed for approval. At the leasing stage, a detailed mining and reclamation plan is not available for evaluation or development of appropriate mitigation measures specific to an actual proposal to mine.

The following is a partial list of measures related to federally-listed species that are required as part of the mining and reclamation permits:

- avoiding bald and golden eagle disturbance per the Bald and Golden Eagle Protection Act of 1940 and the Migratory Bird Treaty Act;
- restoring bald eagle foraging areas disturbed by mining;
- using raptor safe power lines; and
- surveying for Ute ladies'-tresses if habitat is present.

E-7.0 CUMULATIVE IMPACTS

Existing habitat-disturbing activities in the PRB include surface coal mining; conventional oil and gas and CBNG development; uranium mining; sand and gravel, and scoria mining; ranching; agriculture; road, railroad, and power plant construction and operation; recreational activities; and rural and urban housing development. Mining, construction and agricultural activities, and urban development tend to have more intense impacts on fairly localized areas, while ranching, recreational activities, and oil and gas development tend to be less intensive but spread over larger areas. Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. The net area of energy disturbance in the Wyoming PRB has been increasing. In the short term, this means a reduction in the available habitat for T&E plant and wildlife species. In the long term, habitat is being and will continue to be restored as reclamation proceeds.

BLM is in the process of completing a regional technical study of current and proposed or potential development activity in the PRB to help the agency evaluate the impacts of coal development in the PRB. The *Powder River Basin Coal Review* consists of three tasks: Task 1 updates the BLM's 1996 status check for coal development in the PRB, Task 2 develops a forecast of reasonably foreseeable development in the PRB through the year 2020, and Task 3 predicts cumulative impacts that would be expected to occur as a result of the projected development. The information about existing development in the following paragraphs is taken from the *Powder River Basin Coal Review* Task 2 report (BLM 2005) and BLM lease records. The completed PRB Coal Review reports can be accessed at the BLM Wyoming website at http://www.wy.blm.gov/minerals/coal/prb/prbdocs.htm. The project area for Tasks 1 and 2 of the PRB Coal Review encompasses over eight million acres and includes all of Campbell, Sheridan, and Johnson Counties and the northern portion of Converse County in northeastern Wyoming.

Oil and gas exploration and production have been ongoing in the PRB for more than 100 years. Conventional (non CBNG) oil and gas fields are, for the most part, concentrated in the central and southern parts of the structural basin. Development of the CBNG resources from the coal beds is a more recent occurrence, with CBNG production in the Wyoming PRB starting in the late 1980s. As of 2003, an estimated 187,761 acres had been disturbed in the coal review project area as a result of oil and gas development activities, but approximately 115,045 acres of that disturbance has been reclaimed. This includes conventional oil and gas and CBNG wells and associated facilities and major transportation pipelines.

BLM estimates that the existing federal coal leases in the Wyoming PRB include approximately 121,185 acres. The currently pending federal coal LBA tracts (including the Belle Ayr North LBA Tract) include approximately 25,585 additional acres. The majority of the coal in the areas permitted for surface coal mining is federal, but some state and private leases are included within

some of the existing mine permit areas. All of the current and proposed federal coal leases are concentrated near the outcrop of the Wyodak coal bed, which is located in eastern Campbell County and the extreme northeastern edge of Converse County.

As of 2003, the base year for the PRB Coal Review, the surface coal mining operations along the Wyodak outcrop had disturbed approximately 68,794 acres. Approximately 24,097 of those acres of disturbance are occupied by "permanent" mine facilities, such as roads, buildings, coal handling facilities, etc., which are not available for reclamation until after coal mining operations end. Of the remaining 44,697 acres of disturbance available for reclamation, approximately 21,238 acres had been reclaimed.

The *Powder River Basin Coal Review* identified an estimated 4,891 additional acres of coal-related development disturbance (i.e., coal-fired power plants, railroads, and coal technology projects) as of 2003.

The estimated total development-related disturbance in the Wyoming PRB in 2003 was 264,704 acres. In addition to the coal and oil and gas development discussed above, this total includes other types of development disturbance, such as reservoirs and industrial fabrication firms, as well as public and private infrastructure, such as highways and roads, government buildings, and residential and commercial real estate development. It should be noted that some of these disturbances overlap one another. In such cases, the disturbance acreage is counted separately under each category, but is not counted twice in determining the total area of disturbance.

Cumulative effects would also occur to T&E plant and wildlife resources as a result of indirect impacts. One factor is the potential import and spread of noxious weeds around roads and facilities. Noxious weeds have the ability to displace native vegetation and hinder reclamation efforts. Control of noxious weeds is addressed in surface coal mining and reclamation plans. If weed mitigation and preventative procedures are applied to all construction and reclamation practices, the impact of noxious weeds on T&E plants and wildlife would be minimized.

In reclaimed areas, vegetation cover often differs from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the species in the approved reclamation seed mixtures are native to the area; however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats. In the short-term in particular, species composition, shrub cover, and other environmental factors are likely to differ from pre-disturbance vegetation communities and habitats. Establishment of noxious weeds and alteration of vegetation in reclaimed areas has the potential to alter T&E plant and wildlife habitat composition and distribution.

Potential adverse effects to listed and proposed species that have occurred and would continue to occur as a result of existing and potential future activities in the PRB would include direct loss of habitat, indirect loss of habitat due to human and equipment disturbance, and habitat fragmentation. The existing mines have developed mitigation procedures, as required by the Surface Mining Control and Reclamation Act (at 30 CFR 816.97) and Wyoming State regulations, to protect T&E species. These procedural requirements would be extended to include mining operations on the Belle Ayr North LBA Tract, if it is leased as proposed and after required detailed plans to mine the coal and reclaim the mined-out areas are developed and approved.

E-8.0 CREDENTIALS OF SURVEY PERSONNEL

Thunderbird-Jones & Stokes of Gillette, Wyoming

Gwyn McKee

Ms. McKee obtained a Master of Science degree in Wildlife Ecology/Management from the University of Missouri-Columbia. She has accumulated nearly 20 years of professional experience, with the last 14 spent working with the energy industry in Wyoming, Montana, and South Dakota. Ms. McKee has conducted the wildlife surveys and impact analyses for most of the surface coal mines in the Powder River Basin during her tenure in Wyoming, including two of the three properties analyzed in the South Gillette Area Coal EIS. She has also provided and/or reviewed the pertinent text related to impact assessments for vertebrate species of concern for most of the coal EISs that have been prepared in the Powder River Basin since 2000.

Jennifer Ottinger

Ms. Ottinger received a B.S. in Zoology from Colorado State University in 1993, with a minor in Microbiology. She has 12 years of professional experience with a variety of vertebrate species, including surveys for sage-grouse and mountain plovers, though her work has focused on raptors during that period. Ms. Ottinger has worked throughout the U.S. and abroad. She joined Jones & Stokes as a Wildlife Biologist in 2004. She has strong raptor identification and handling skills, research experience, proven abilities in data analysis and technical writing, and has presented and/or published several articles in a variety of professional meetings and publications, respectively.

ESCO Associates Inc. (ESCO) of Boulder, Colorado

David L. Buckner

Education: B.A., M.A., and Ph.D. in Plant Ecology, University of Colorado, Boulder

Familiarity with Spiranthes diluvialis: observation of flowering populations in Boulder County, 1991-2005; observation of vegetative sprouts of individuals

occurring in Boulder County populations, January to April 1992, June 1993, May 1995.

Other Rare Plant Survey Experience (representative): *Asclepias ruthiae*, Grand County, Utah, 1982; *Stellaria irrigua*, La Plata County, Colorado; *Sclerocactus glaucus*, Mesa and Garfield Counties, Colorado, 1987; *Penstemon harringtonii*, Eagle, Grand, and Routt Counties, Colorado, 1982, 1990, 1991, 1993, and 1994; *Ptilagrostis porteri*, Teller County, Colorado, 1992, *Carex oreocharis, Carex scirpoidea, Rubus (Cylactis) arctica* ssp. *acaulis, Mimulus gemmiparus, Salix candida, Aquilegia saximontana, Botrychium lunaria*, and *Listera borealis*, Clear Creek and Park Counties, Colorado 1995, 1996; *Lesquerella congesta, Physaria obcordata, Astragalus lutosus, Festuca dasyclada, Gentianella tortuosa, Lesquerella parviflora*, and *Thalictrum heliophilum*, Rio Blanco County, Colorado 2002.

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_____, 2005b, Memorandum from Brian Kelly, Field Supervisor, USFWS Wyoming Field Office, Cheyenne, Wyoming, to Nancy Doelger, BLM, Casper Field Office, Casper, Wyoming, dated July 26, 2005.

APPENDIX F

BIOLOGICAL ASSESSMENT
FOR THE WEST COAL CREEK LBA TRACT,
SOUTH GILLETTE AREA EIS

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F-1.0 INTRODUCTION

Between 2004 and 2006, operators of four coal mines in Campbell County, Wyoming applied for four tracts of federal coal as maintenance leases under the Leasing on Application regulations at 43 CFD 3425. The environmental impacts of leasing these four Lease by Application (LBA) tracts are being evaluated in one environmental impact statement (EIS), the South Gillette Area Coal (SGAC) EIS. The four tracts, which are shown in Figure F-1, and applicant mines are:

- Belle Ayr North LBA Tract adjacent to and north of the Belle Ayr Mine;
- West Coal Creek LBA Tract adjacent to and west of the Coal Creek Mine;
- Caballo West LBA Tract adjacent to and southwest of the Caballo Mine; and
- Maysdorf II LBA Tract adjacent to and west of the Cordero Rojo Complex.

The purpose of this Biological Assessment is to provide information about the potential effects that leasing one of the tracts, the West Coal Creek LBA Tract, would have on federally listed threatened or endangered (T&E) species. T&E species are managed under the authority of the Endangered Species Act of 1973 (PL 93-205, as amended). The Endangered Species Act requires Federal agencies to ensure that all actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any federally listed species or result in the destruction or adverse modification of their critical habitat. BLM does not authorize mining by issuing a lease for federal coal, but the impacts of mining the coal are considered at the leasing stage because it is a logical consequence of issuing a lease.

This Biological Assessment was prepared to disclose the possible effects to T&E species (plant and animal) that are known to be present or that may be present within the area influenced by the Proposed Action and the alternative to the Proposed Action being evaluated by the BLM. It was prepared in accordance with Section 7 of the Endangered Species Act.

Biological Assessment objectives are:

1. To comply with the requirements of the Endangered Species Act that actions of federal agencies not jeopardize or adversely modify critical habitat of federally listed species.

2. To provide a process and standard by which to ensure that threatened or endangered species receive full consideration in the decision making process.

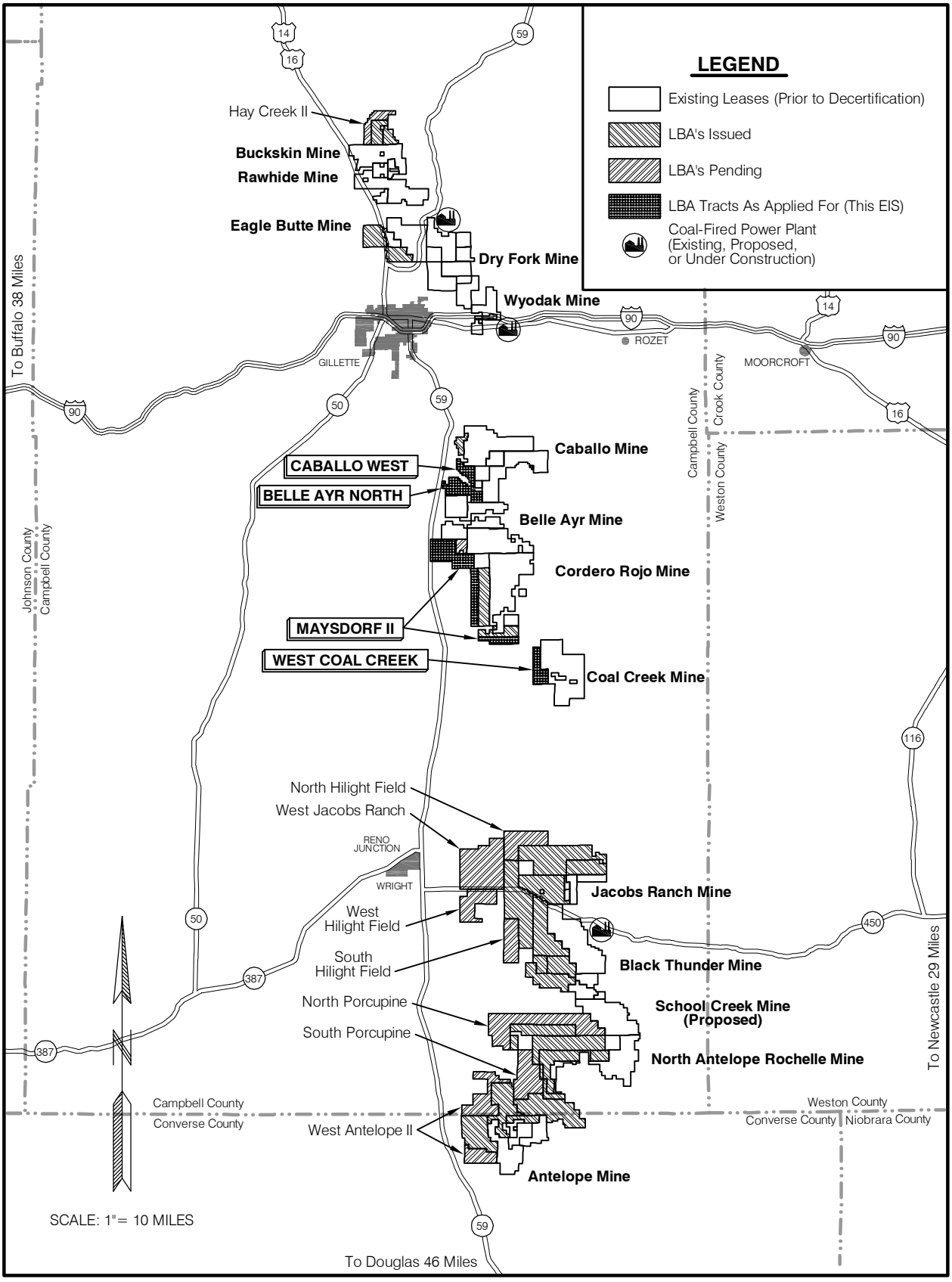

Figure F-1. General Location Map with Federal Coal Leases and LBA Tracts.

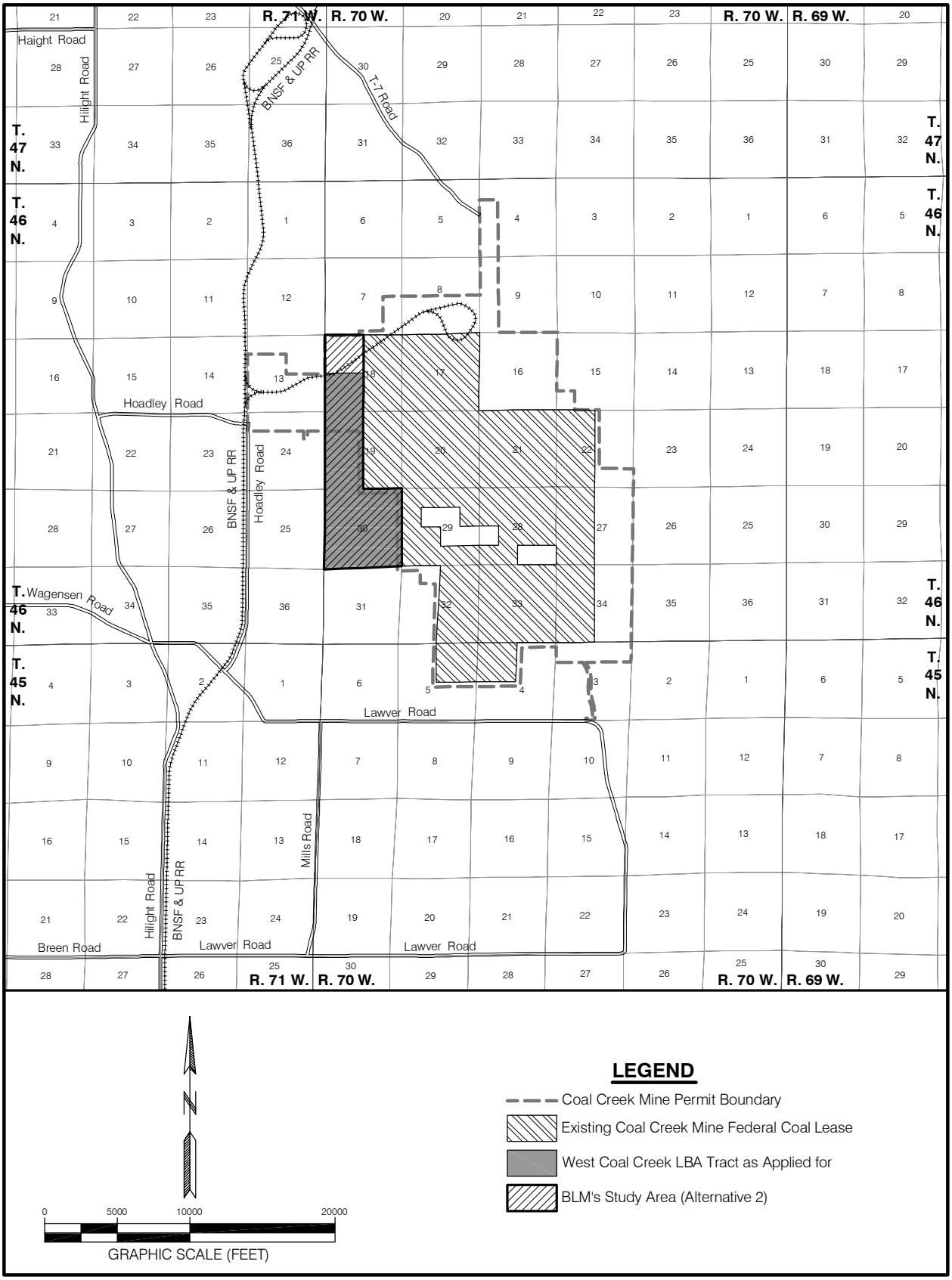

Figure F-2. West Coal Creek LBA Tract Alternatives.

F-2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

F-2.1 The Proposed Action

On February 10, 2006, Ark Land Company (ALC) filed an application with the BLM to lease federal coal reserves in a tract located west of and immediately adjacent to the Coal Creek Mine (Figure F-1). The Coal Creek Mine is operated by Thunder Basin Coal Company (TBCC), a subsidiary of Arch Western Resources, LLC. In this EIS, ALC is referred to as the applicant and TBCC is referred to in discussions of mine operations. The West Coal Creek LBA Tract was assigned case file number WYW172388. Under the Proposed Action the tract as applied for by ALC would be offered for lease at a sealed-bid, competitive lease sale. The boundaries of the tract would be consistent with the tract configuration proposed in the West Coal Creek LBA Tract lease application (Figure F-2). The Proposed Action assumes that ALC will be the successful bidder on the West Coal Creek LBA Tract if it is offered for sale.

The legal description of the proposed West Coal Creek LBA Tract coal lease lands as applied for by ALC under the Proposed Action is as follows:

T. 46 N., R. 70 W., 6th PM, Campbell County, Wyoming

Section 18: Lots 14 through 17;	161.95 acres
Section 19: Lots 7 through 10, 15 through 18;	323.60 acres
Section 30: Lots 5 through 20.	665.71 acres
Total:	1,151.26 acres

The coal estate underlying this tract described above is owned by the federal government and administered by the BLM. The surface estate of the tract is privately owned. Surface ownership is shown in Figure F-3.

The tract as applied for includes approximately 1,151.26 mineable acres. It is assumed that an area larger than the tract would have to be disturbed in order to recover all of the coal in the tract. The disturbances outside of the tract would be due to activities like overstripping, matching undisturbed topography, and construction of flood control and sediment control structures.

Under the Proposed Action for the West Coal Creek LBA Tract, if a decision is made to hold a competitive lease sale and if there is a successful bidder at that sale, a lease would be issued for the tract of federal coal as applied for. The tract offered for lease would be subject to standard and special lease stipulations developed for the Wyoming Powder River Basin (PRB). The stipulations that would be attached to a lease for the West Coal Creek LBA Tract are listed in Appendix D of the SGAC EIS document. The following

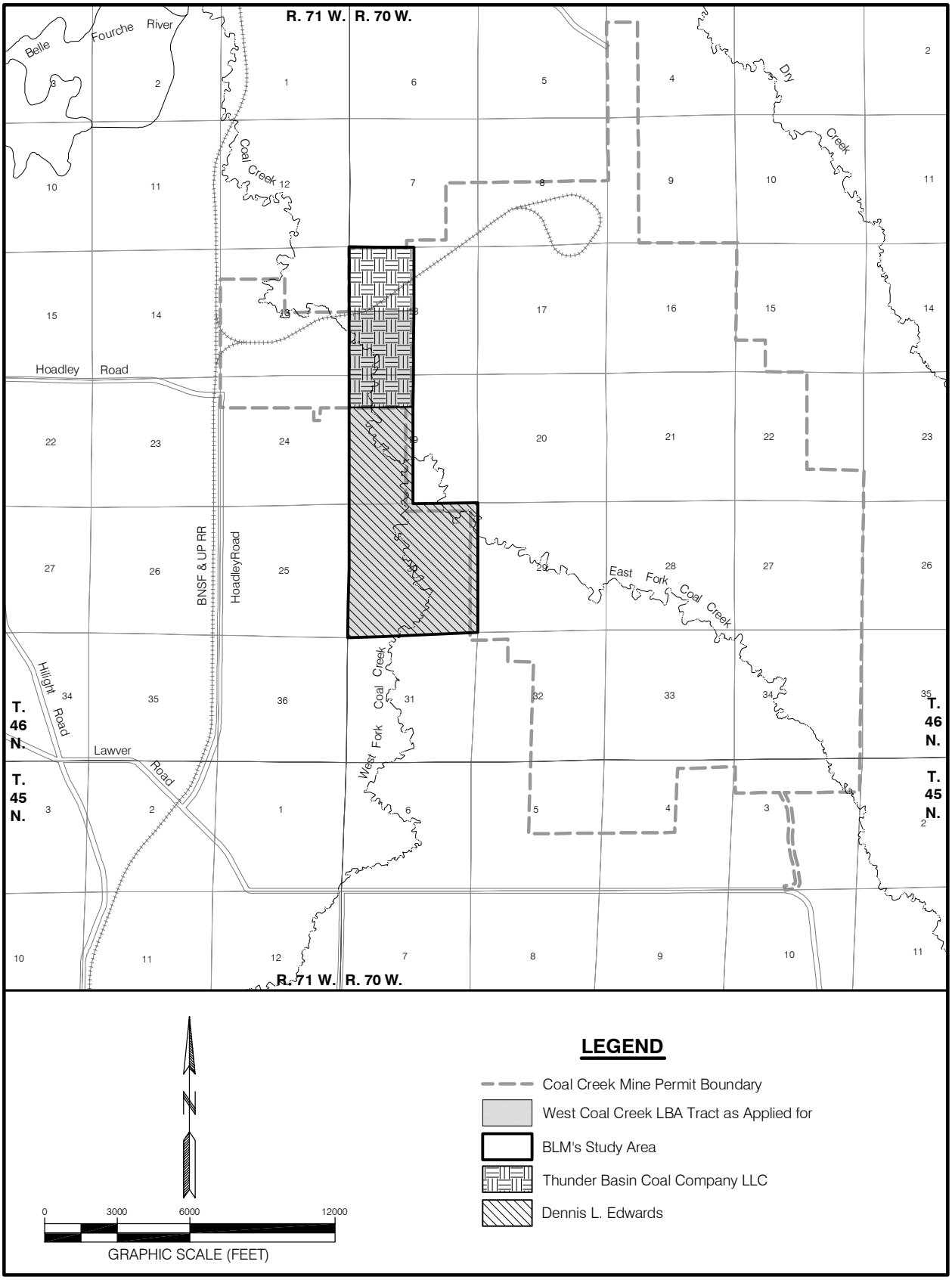

Figure F-3. Surface Ownership Within the West Coal Creek LBA Tract Alternatives.

stipulation relating to T&E species is one of the special stipulations developed for the Wyoming PRB:

THREATENED, ENDANGERED, CANDIDATE, or OTHER SPECIAL STATUS PLANT and ANIMAL SPECIES – *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.*

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.

TBCC estimates that the West Coal Creek LBA Tract under the Proposed Action includes approximately 63.3 million tons of in-place and mineable coal. Using TBCC's projected recovery factor of 90 percent, the tract would contain about 57.0 million tons of recoverable coal.

Under the Proposed Action, it is assumed that the LBA tract would be developed as a maintenance lease to extend the life of the adjacent existing Coal Creek Mine. As a result, under the Proposed Action, the coal included in the tract would be mined by existing employees using existing facilities and roads.

F-2.2 Alternatives to the Proposed Action

F-2.2.1 Alternative 1

Under Alternative 1, the No Action Alternative, the application to lease the coal included in the West Coal Creek LBA Tract would be rejected, the tract would not be offered for competitive sale, and the coal included in the tract would not

be mined. This would not affect permitted mining activities and employment on the existing leases at Coal Creek Mine and would not preclude an application to lease the federal coal included in the West Coal Creek LBA Tract in the future. No additional surface of the West Coal Creek LBA Tract would be disturbed due to overstripping to allow coal to be removed from the adjacent existing leases.

F-2.2.2 Alternative 2

Under Alternative 2 for the West Coal Creek LBA Tract, BLM would reconfigure the tract, hold a competitive coal sale for the lands included in the reconfigured tract, and issue a lease to the successful bidder. In evaluating the West Coal Creek coal lease application, BLM identified a study area, which includes unleased federal coal adjacent to the northern edge of the tract as applied for (Figure E-2). BLM is evaluating the potential that some or all of these lands could be added to the tract to provide for more efficient recovery of the federal coal, increase competitive interest in the tract, and/or reduce the potential that some of the potentially mineable federal coal in this area would be bypassed in the future if it is not included in the West Coal Creek LBA Tract. The modified tract would be subject to standard and special lease stipulations developed for the PRB and this tract if it is offered for sale, as discussed above. Alternative 2 for the West Coal Creek LBA Tract assumes that ALC would be the successful bidder on the tract if a lease sale is held and that the tract would be developed as a maintenance lease to extend the life of the adjacent Coal Creek Mine. Other assumptions are the same as for the Proposed Action. The lands that BLM is considering adding to the tract are:

T.46N., R.70W., 6th P.M., Campbell County, Wyoming

Section 18: Lots 7 through 10;	162.00 acres
Total:	162.00 acres

The legal description of BLM's reconfiguration of the West Coal Creek LBA Tract under Alternative 2 is as follows:

T.46N., R.70W., 6th P.M., Campbell County, Wyoming

Section 18: Lots 7 through 10, 14 through 17;	323.95 acres
Section 19: Lots 7 through 10, 15 through 18;	323.60 acres
Section 30: Lots 5 through 20.	665.71 acres
Total:	1,313.26 acres

TBCC estimates that the reconfigured tract includes approximately 69.3 million tons of in-place coal and approximately 63.3 million tons of mineable

coal. Using TBCC's projected recovery factor of 90 percent, the reconfigured tract would contain about 57.0 million tons of recoverable coal.

F-3.0 CONSULTATION TO DATE

The location of the existing Coal Creek Mine coal leases, the existing approved mine permit area, and the West Coal Creek LBA Tract are shown in Figure F-2.

The Coal Creek Mine and West Coal Creek LBA Tract are included in the area determined to be "acceptable for further consideration for leasing" as part of the coal screening process. The coal screening process is a four part process that includes application of the coal unsuitability criteria, which are defined in 43 CFR 3461.5. BLM has applied these coal screens to federal coal lands in Campbell County several times, starting in the early 1980s. Most recently, in 1993, BLM began the process of reapplying these screens to federal coal lands in Campbell, Converse, and Sheridan Counties. The results of this analysis were included as Appendix D of the 2001 *Approved Resource Management Plan for Public Lands Administered by the BLM Buffalo Field Office* (BLM 2001), which can be viewed on the Wyoming BLM website at http://www.wy.blm.gov in the NEPA documents section. Consultation with the U.S. Fish and Wildlife Service (USFWS) occurred in conjunction with the unsuitability findings under Criterion 9 (Critical Habitat for Threatened or Endangered Plant and Animal Species), Criterion 11 (Bald or Golden Eagle Nests), Criterion 12 (Bald and Golden Eagle Roost and Concentration Areas), Criterion 13 (Falcon Nesting Site(s) and Buffer Zone(s)), and Criterion 14 (Habitat for Migratory Bird Species).

Appendix B of the SGAC EIS document summarizes the unsuitability criteria, describes the general findings for the screening analyses discussed above, and presents a validation of these findings for the West Coal Creek LBA Tract based on the current information.

Consultation with USFWS has previously been completed for the area included within the Coal Creek Mine's existing approved mining permit area, shown in Figure F-2, as part of the mining and reclamation plan approval process. This process began when the mine was initially permitted in 1979.

A letter dated February 17, 2006, from Brian Kelly, USFWS, Cheyenne, Wyoming, to Monica Cummins (TBCC), Wright, Wyoming, documents approval of the current updated Raptor and Migratory Birds of High Federal Interest Monitoring and Mitigation Plan for the Coal Creek Mine (USFWS 2006a).

USFWS provided BLM a listing of the T&E species that may be present in the West Coal Creek coal lease project area in a memorandum letter from Brian T. Kelly, USFWS, Wyoming Field Office, Cheyenne, Wyoming, to Chris Hanson, BLM, Buffalo Field Office, Buffalo, Wyoming dated August 8, 2007 (USFWS 2007). The following list of species that was provided by USFWS represents the

federally listed T&E species that may be present in Campbell County, Wyoming:

Black-footed ferret (*Mustela nigripes*): Endangered

Ute ladies'-tresses (*Spiranthes diluvialis*): Threatened

The August 8, 2007 memorandum provided recommendations for protective measures for T&E species in accordance with the Endangered Species Act. Protective measures for migratory birds in accordance with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act and recommendations for the protection of wetlands (under Executive Order 11990 and Section 404 of the Clean Water Act) and for other fish and wildlife resources (under the Fish and Wildlife Coordination Act and the Fish and Wildlife Act of 1956) were also included. The memorandum identified the greater sage-grouse as a species of specific interest and the importance of identifying grouse habitats within the lease area and appropriate mitigation measures to minimize potential impacts to this species. The memorandum also stated that the USFWS would work with the BLM to ensure that the species-specific protective measures and programs for the conservation and recovery of listed species as required by under Section 7 of the Endangered Species Act are satisfied and carried out.

The Wyoming Game and Fish Department (WGFD) provided BLM with scoping comments for the four tracts included in the SGAC EIS in a letter from John Emmerich, Deputy Director, WGFD, Cheyenne, Wyoming, to Teresa Johnson, BLM, Casper Field Office, Casper, Wyoming, dated April 10, 2007 (WGFD 2007). WGFD recommended consideration be given to possible impacts to big game, sage grouse, raptors, and nongame species and their habitat, and aquatic resources within the South Gillette Area Coal project area.

F-4.0 SPECIES HABITAT AND OCCURRENCE AND EFFECTS OF THE PROPOSED PROJECT

The Coal Creek Mine began producing coal in 1982. Wildlife monitoring has been conducted annually for the mine since 1983. This wildlife monitoring was designed to meet the Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD), Wyoming Game and Fish Department (WGFD), and federal requirements for annual monitoring and reporting of wildlife activity on coal mining areas. Detailed procedures and site-specific requirements have been carried out as approved by WGFD and USFWS. The monitoring program was conducted in accordance with Appendix B of WDEQ/LQD Coal Rules and Regulations. Because the areas covered in the wildlife surveys included the mine's permit area and a large perimeter around the permit boundary, the entire West Coal Creek LBA Tract has been included in baseline inventories and annual wildlife surveys conducted for the Coal Creek Mine since wildlife studies began.

The approved Coal Creek Mine Permit 483 Term T5 (TBCC 2005) includes monitoring and mitigation measures for the Coal Creek Mine that are required by Surface Mining Control and Reclamation Act and Wyoming State Law. If the West Coal Creek LBA Tract is acquired by FCW, these monitoring and mitigation measures would be extended to cover operations on the LBA tract when the Coal Creek Mine's mining permit is amended to include the tract. This amended permit would have to be approved before mining operations could take place on the tract. These monitoring and mitigation measures are considered to be part of the Proposed Action and Alternative 2 during the leasing process because they are regulatory requirements.

Background information on T&E species in the vicinity of the West Coal Creek LBA Tract was drawn from several sources, including: wildlife survey reports submitted by the Coal Creek Mine to the WDEQ/LQD from 1983 through 2006, the Final South Powder River Basin Coal EIS (BLM 2003), the Maysdorf Coal FEIS (BLM 2007), and from WGFD and USFWS records and contacts in 2006 and 2007. In addition, the entire West Coal Creek LBA Tract and all but the southwestern corner of its corresponding two-mile perimeter wildlife study area fall within the wildlife monitoring areas for the nearby Cordero Rojo Mine (Figure F-1).

Site-specific data for a substantial portion of the tract as applied for and the study area for Alternative 2 were obtained from several sources, including WDEQ/LQD permit applications and annual wildlife reports for the Coal Creek Mine and other nearby coal mines. Baseline wildlife studies were conducted by Thunderbird-Jones & Stokes, (TJS) expressly for the West Coal Creek LBA Tract during 2006 and 2007. Figure F-4 depicts TJS's T&E animal species survey areas for the West Coal Creek LBA Tract.

The West Coal Creek general analysis area is situated in an area of gently rolling terrain of moderate relief influenced by the East and West forks of Coal Creek. Elevations range from 4,555 to 4,710 ft within the LBA tract and from 4,580 to 4,725 ft within the area added under Alternative 2. Within the LBA tract and the area added under Alternative 2, slopes range from flat to over 33 percent, with the steeper slopes primarily occurring in the southern portion of the study area. The slopes of the gently rolling uplands, which comprise most (about 65 percent) of the BLM study area, seldom exceed 4.4 percent.

Predominant wildlife habitat types classified on the LBA tract and adjacent area correspond with the major plant communities defined during the vegetation baseline study and consist primarily of sagebrush/grassland and mixed grass prairie. Other habitats present in limited extent include streamside meadow and premine disturbance. Networks of road, pipeline, tank battery, and well-pad disturbance areas associated with oil and gas development overlay much of the study area.

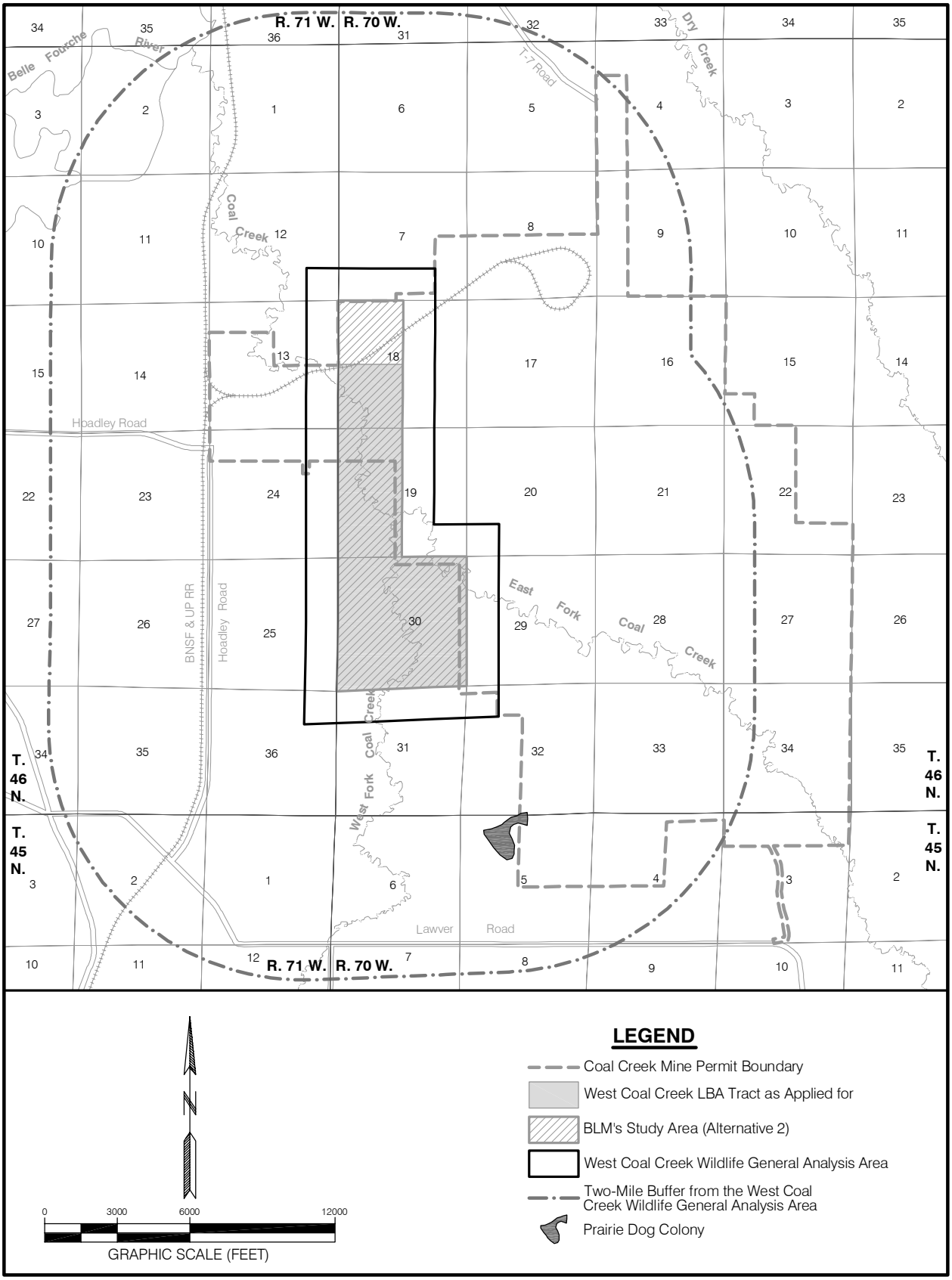

Figure F-4. T&E Species Survey Area for the Coal Creek Mine and the West Coal Creek LBA Tract.

All streams within and adjacent to the general analysis area are ephemeral. Storm runoff is typically of short duration and exhibits temporal patterns similar to the precipitation events. Streamflow is characteristically low to nonexistent from October through January. Streamflow frequently results from snowmelt during the late winter and early spring. Although peak discharges from such events are generally small, the duration and therefore the percentage of annual runoff volume can be considerable. During the spring, storms (both rain and snow) can result in both large runoff volumes and high peak discharges. Intense, short-duration summer thunderstorms also result in large runoff volumes and high peak discharges.

All streams draining the general analysis area are categorized as class 3B waters of the state by the WDEQ/Water Quality Division. No playas or topographic depressions have been identified within the general analysis area. Springs are uncommon in the general area and have not been identified in the general analysis area.

Four reservoirs used for livestock watering have been identified in the West Coal Creek general analysis area. None of these reservoirs have been permitted through the SEO. Most appear to have been in place for several decades. Three permitted sediment ponds (industrial and miscellaneous use) for the Coal Creek Mine are also located within the general analysis area. Each of these sediment ponds is associated with a WYPDES outfall.

A preliminary wetlands inventory, based on USFWS National Wetlands Inventory (NWI) mapping and vegetation mapping in the field, was conducted in 2004. The wetland analysis area includes the West Coal Creek LBA Tract as applied for, the lands added under Alternative 2, and a ¼-mile disturbance buffer around the tract sufficient to mine and reclaim the tract as a part of the existing Coal Creek Mine operation. A formal wetland delineation has been confirmed by the U.S. Army Corps of Engineers (COE) for the portion of the LBA tract wetlands analysis area that is within the adjacent existing Coal Creek Mine permit area (TBCC 2006).

Coal Creek Mine conducted a preliminary wetlands inventory in 2007, based on U.S. Fish and Wildlife Service (USFWS) National Wetlands Inventory (NWI) mapping and vegetation mapping in the field (BKS 2007), for the non-delineated portions of the wetlands analysis area. Some wetland areas previously mapped by the USFWS NWI project have been recently altered somewhat due to CBNG-related water production within and upstream of the West Coal Creek wetlands analysis area. The boundaries of the existing potential wetlands may vary to a greater or lesser extent from the boundaries shown on the NWI maps, and current field conditions may not be representative of the field conditions in the future. A formal wetland delineation survey of the lands proposed for mining disturbance would be conducted and submitted to the COE for verification as part of the mining and reclamation permit process, if the West Coal Creek LBA Tract is leased and proposed for mining.

Based on the existing USFWS NWI mapping data (which may be somewhat outdated), the wetlands confirmed to be present within the adjacent Coal Creek Mine's permit area, and the vegetation mapping that was conducted in 2007, a total of approximately 16.92 acres of wetlands and other Waters of the U.S. occur within the West Coal Creek wetlands analysis area. The earlier wetland delineation confirmed by the COE identified a total of approximately 3.48 acres of wetlands, which are associated with the stream channels (both riverine- and palustrine marsh-types), within the wetlands analysis area. The 2007 preliminary wetlands survey identified approximately 13.44 acres of other Waters of the U.S., which were areas of open water held within the stream channels, or in-channel impoundments identified by NWI mapping that were found to be dry at the time. These areas that occur within and adjacent to the West Coal Creek LBA Tract are shown on Figure S2-5 in the Supplementary Information document.

Within the proposed lease area and adjacent study area there is no "critical" habitat designated by USFWS for T&E species. The following discussion describes species' habitat requirements and their occurrence in the area of the West Coal Creek LBA Tract and evaluates the potential environmental effects of the Proposed Action and Alternative 1 on federal T&E species.

F-4.1 Threatened Species

F-4.1.1 Ute ladies'-tresses (*Spiranthes diluvialis*)

Ute ladies'-tresses, a member of the orchid family, was listed as threatened on January 17, 1992 due to a variety of factors, including habitat loss and modification, hydrological modifications of existing and potential habitat areas, and invasion of exotic plant species. At the time of listing, Ute ladies'-tresses was only known from north-central Colorado, northern and south-central Utah, and southeastern Nevada. As of September 2005, it had also been found in western Nebraska, southeastern Wyoming, southwestern Montana, and north-central Washington, while new populations had been documented in northwestern Colorado and northern Utah (Fertig, et al. 2005). USFWS has determined that a petition to remove the Ute ladies'-tresses orchid from federal protection under the Endangered Species Act provides substantial biological information to indicate that removal may be warranted. The petition was received from the Central Utah Water Conservancy District (USFWS 2004).

Biology and Habitat Requirements: Ute ladies'-tresses is a perennial, terrestrial orchid with erect, glandular-pubescent stems 8 to 20 inches tall arising from tuberous-thickened roots. This species typically flowers from late July through August. The flowers are white or ivory and clustered into a spike at the top of the stem; however, depending on location and climatic conditions, it may bloom in early July or still be in flower as late as early October (USFWS 2005b). Plants probably do not flower every year and may remain dormant below ground during drought years. The total known population of this species

is currently estimated to be 60,000 individuals (USFWS 2004). Occurrences range in size from one plant to a few hundred individuals.

Ute ladies'-tresses occurs primarily on moist, subirrigated or seasonally flooded soils bordering wetland meadows, springs, lakes, or perennial streams. The elevation range of known occurrences is 4,200 to 7,000 feet in alluvial substrates along riparian edges, gravel bars, old oxbows, and moist to wet meadows. Soils where the orchid has been found typically range from fine silt/sand to gravels and cobbles, as well as to highly organic and peaty soil types. The Ute ladies'-tresses orchid is not found in heavy or tight clay soils or in extremely saline or alkaline soils. The orchid seems intolerant of shade and small scattered groups are found primarily in areas where vegetation is relatively open (USFWS 2005). Ute ladies'-tresses orchid is commonly associated with horsetail, milkweed, verbena, blue-eyed grass, reedgrass, goldenrod, bentgrass and arrowgrass.

Populations are often dynamic and "move" within a watershed as disturbances create new habitat or succession eliminates old habitat (Fertig and Beauvais 1999). The orchid is well adapted to disturbances from stream movement and is tolerant of other disturbances, such as grazing, that are common to grassland riparian habitats (USFWS 1995). Ute ladies'-tresses colonize early successional riparian habitats such as point bars, sand bars, and low-lying gravelly, sandy, or cobbley edges, persisting in those areas where the hydrology provides continual dampness in the root zone through the growing season. The orchid establishes in heavily disturbed sites, such as revegetated gravel pits, heavily grazed riparian edges, and along well-traveled foot trails on old berms (USFWS 1995).

Prior to 2005, four orchid populations had been documented within Wyoming, all discovered between 1993 and 1997 (Fertig and Beauvais 1999). Four additional sites were located in 2005 and one additional site was found in 2006 (Heidel, 2007). The new locations were in the same drainages or tributaries as the original four populations. Drainages with documented orchid populations include Antelope Creek and tributaries in northern Converse County, Bear Creek in northern Laramie and southern Goshen Counties, Horse Creek in Laramie County, and Niobrara River in Niobrara County. No occurrences have been recorded in Campbell County or in the West Coal Creek wildlife general analysis area in Converse County.

Existing Environment: Areas of potential habitat within the West Coal Creek LBA Tract and adjacent study area were surveyed by BKS Environmental Associates, Inc during vegetation and wetland sampling in July 2007. The Coal Creek channel and its tributaries primarily had water present but for the most part lacked hydrophytic wetland vegetation or in some areas no vegetation was present along the steeply incised creek banks, with soils that primarily had clay textures.

Potential habitat was traversed on foot during the time of typical flowering of the known population, and it involved walking entire lengths of the drainages documenting locations of potential habitat and searching for this species.

No individuals of the Ute ladies'-tresses orchid were located during the 2007 survey. The land within the West Coal Creek LBA Tract and adjacent study area is not potential suitable Ute ladies'-tresses habitat. This includes highly disturbed or modified sites, upland habitat types, and sites inundated by standing water. Poor habitat (3.48 acres of Riverine and palustrine wetland channel) within the study area is very limited and is mostly found along the CBNG-impacted bottomlands of the Middle and West Forks of Coal Creek. Poor habitat factors included areas within and immediately adjacent to stream channels and floodplains, less steep stream banks, light soil texture having close lateral or vertical distance (within approximately 18 inches) to perennial water source during the flowering period, lack of plant competition, lack of general soil alkalinity/salinity, and current or historical management practices that did not promote overgrazing and extensive use of riparian areas.

As discussed above, a total of approximately 16.92 acres of wetlands and other Waters of the U.S. occur within the West Coal Creek wetlands analysis area.

Effects of the Proposed Project: **Mining the federal coal included in the West Coal Creek LBA Tract, if the tract is leased under the Proposed Action or Alternative 1, may affect, but is not likely to adversely affect Ute ladies'-tresses.** Potential habitat for this species on the tract is very limited and found along the CBNG-impacted bottomlands of West Fork, Middle Fork, and East Fork Coal Creek. However, the quality of potential habitat is extremely poor. Outside of the narrow riparian strips located along these impacted watercourses, potential habitat is rare or non-existent in the study area. Multiple surveys of the existing habitat at the Coal Creek Mine and other mines in this area have not found any Ute ladies'-tresses. Because of the ability of this species to persist below ground or above ground without flowering, single season surveys that meet the current USFWS survey guidelines may not detect populations. If undetected populations are present, they could be lost to surface disturbing activities.

Jurisdictional wetlands located in the West Coal Creek LBA Tract that are destroyed by mining operations would be replaced in accordance with the requirements of Section 404 of the Clean Water Act, as determined by COE. The replaced wetlands may not duplicate the exact function and landscape features of the pre-mine wetlands. COE considers the type and function of each jurisdictional wetland that will be impacted and may require restoration of additional acres if the type and function of the restored wetlands will not completely replace the type and function of the original wetland. Replacement of non-jurisdictional and functional wetlands may be required by the surface land owner and/or WDEQ/LQD. WDEQ/LQD allows and sometimes requires mitigation of non-jurisdictional wetlands affected by mining, depending on the values associated with the wetland features.

Cumulative Effects: Alterations of stream morphology and hydrology are believed to have extirpated Ute ladies'-tresses from most of its historical range (USFWS 2002). Disturbance and reclamation of streams by surface coal mining may alter stream morphology and hydrology. The large quantities of water produced with CBNG development and discharged on the surface may also alter stream morphology and hydrology.

F-4.2 Endangered Species

F-4.2.1 Black-footed ferret (*Mustela nigripes*)

The black-footed ferret is a nocturnal mammal and an obligate associate of prairie dogs (*Cynomys* spp.). Ferrets were listed as endangered in March 1967. This species is thought to have historically inhabited prairie dog colonies in the short-grass prairies of the eastern and southern Rockies, and across the Great Plains of North America. However, since the early 1900s, numerous factors have led to a decrease in potential habitat to less than 2% of its former acreage. Conversion of grasslands to agricultural landscapes, eradication of prairie dogs, and diseases such as the plague and canine distemper have resulted in severe reductions in prairie dog colonies across the west; colonies which provided both food and shelter for black-footed ferrets. This species of ferret is currently one of the most endangered mammals in North America, and was thought to be extinct until a small population was discovered in Meeteetse, Wyoming in September 1981. Since then, successful captive breeding and reintroduction programs have released black-footed ferrets in several western and Great Plains states, including Wyoming, Montana, South Dakota, Colorado, Utah, and Arizona.

Biology and Habitat Requirements: Ferrets rely on prairie dogs to provide both shelter and food (Hillman and Clark 1980). Ferrets produce one litter per year, typically giving birth to four or five kits. The decline in ferret populations has been largely attributed to the reduction in the vast prairie dog colonies that historically existed in the western United States. Despite extensive ferret surveys over the past 20 plus years throughout Wyoming, the last known wild black-footed ferret population was discovered near Meeteetse in 1981 (Miller et al. 1996). Those surveys included numerous USFWS-approved clearances for coal mining and other developments in the Powder River Basin of Wyoming, as well as USFS surveys for ferrets on the TBNG. Reintroduction efforts involving captive bred individuals have successfully established one black-footed ferret population in the Shirley Basin area in south-central Wyoming. Currently, this is the only known black-footed ferret population within the state, though other populations are present elsewhere in the United States and Mexico.

Existing Environment: Few ferrets have historically been recorded in locations away from prairie dog colonies. The Coal Creek Mine and LBA study area are beyond the focus area for ferret reintroduction efforts on the nearby Thunder Basin National Grassland and elsewhere in the general region (USFS 2002, Grenier 2003). One small (approximately 34 acres) prairie dog colony is

present just south of the BLM study area and its one-mile perimeter (Figure F-4). As indicated, that colony does not meet the 80-acre minimum, nor does it fall within a larger complex of colonies, to be considered as potential black-footed ferret habitat by the USFWS (1989). Likewise, the colony does not provide sufficient habitat to persistently support individuals or breeding females, whose needs are estimated to be at least 30 and 123.5 acres, respectively (Forrest et al. 1985). Ferrets have never been documented at Coal Creek Mine or in the surrounding region during surveys conducted over the last 20 plus years by a variety of private, state, and federal entities. The lack of black-footed ferret observations and scat in the BLM study area leads to the conclusion that ferrets are not present in the area. On 2 February 2004, the USFWS declared that surveys for black-footed ferrets are no longer required in black-tailed prairie dog colonies throughout Wyoming (file letter ES-61411/BFF/WY7746).

Effects of the Proposed Project: **Mining the federal coal included in the WCC LBA Tract, should the tract be leased under the Proposed Action Alternative, will have no effect on black-footed ferrets.** Given the documented absence of this species in the region, including the LBA study area, during specific surveys for this species, the isolated nature and small size of the lone colony within the LBA survey area, the block clearance issued by the USFWS for black-tailed prairie dog colonies throughout the entire state, and the location of the LBA area beyond future reintroduction sites, mining the LBA area will not result in any direct or indirect effects on black-footed ferrets.

Cumulative Effects: As indicated, coal mining and natural gas development have occurred in the general project area for more than 20 years, with energy extraction activities expected to increase in the immediate future. Leasing and mining the West Coal Creek LBA Tract would not contribute to cumulative adverse effects to black-footed ferrets within either the study area or region. No black-footed ferret populations exist within northeastern Wyoming. The USFWS issued a block clearance for this species in black-tailed prairie dog colonies throughout the state. The LBA study area and surrounding perimeter are beyond the focus area for future ferret reintroduction efforts in the general region (USFS 2002, Grenier 2003). Furthermore, the Proposed Action Alternative would not conflict with any future objectives to manage the area for, or reintroduce black-footed ferrets into, northeast Wyoming.

F-5.0 SUMMARY OF DETERMINATIONS

Table F-1 summarizes the determinations for federally listed T&E species in the area of the West Coal Creek LBA Tract that may result from implementing the Proposed Action or Alternative 1.

F-6.0 REGULATORY REQUIREMENTS AND MITIGATION

The issuance of a Federal coal lease grants the lessee the exclusive rights to mine the coal, subject to the terms and conditions of the lease. Lease

Table F-1. Effects Evaluation of Federal T&E Species in the Area of the West Coal Creek LBA Tract.

Status	Species Common Name	Potential Effects
Threatened:	Ute ladies'-tresses	May affect[1]
Endangered:	Black-footed ferret	No effect

[1] Not likely to adversely affect individuals or populations.

ownership is necessary for mining federal coal, but lease ownership does not authorize mining operations. Surface coal mining operations are regulated in accordance with the requirements of the Surface Mining Control and Reclamation Act of 1977 and Wyoming State regulations. The Surface Mining Control and Reclamation Act gives the Office of Surface Mining Reclamation and Enforcement (OSM) primary responsibility to administer programs that regulate surface coal mining operations and the surface effects of underground coal mining operations. Pursuant to Section 503 of the Surface Mining Control and Reclamation Act, the WDEQ developed, and in November 1980 the Secretary of the Interior approved a permanent program authorizing WDEQ to regulate surface coal mining operations and surface effects of underground mining on nonfederal lands within the State of Wyoming. In January 1987, pursuant to Section 523(c) of the Surface Mining Control and Reclamation Act, WDEQ entered into a cooperative agreement with the Secretary of the Interior authorizing WDEQ to regulate surface coal mining operations and surface effects of underground mining on federal lands within the state. In order to get approval of this cooperative agreement, the state had to demonstrate that the state laws and regulations are no less stringent than, meet the minimum requirements of, and include all applicable provisions of the Surface Mining Control and Reclamation Act.

If the West Coal Creek LBA Tract is leased, it would be a maintenance lease for the existing Coal Creek Mine, which currently has both an approved Mineral Leasing Act of 1920 (MLA) mining plan and an approved State mining and reclamation permit. In the case of maintenance leases, such as the West Coal Creek LBA Tract, the existing MLA mining plan and State mining and reclamation plan must be amended to include any newly leased area before that area can be mined. In order to amend the existing MLA mining plan and State mining and reclamation permit, the company would be required to submit a detailed permit application package to WDEQ before starting surface coal mining operations on any newly acquired lease. WDEQ/LQD would review the permit application package to insure the permit application complies with the permitting requirements and the coal mining operation will meet the performance standards of the approved Wyoming program. If the permit application package does comply, WDEQ would issue the applicant an amended permit that would allow the permittee to extend coal mining operations onto the newly acquired lease.

Protection of fish, wildlife, and related environmental values is required under the Surface Mining Control and Reclamation Act regulations at 30 CFR 816.97, which state:

> "No surface mining activity shall be conducted which is likely to jeopardize the continued existence of endangered or threatened species listed by the Secretary of which is likely to result in the destruction or adverse modification of designated critical habitats of such species in violation of the Endangered Species Act of 1973, as amended."

In addition to requiring the operator to minimize disturbances and adverse impacts on fish, wildlife, and related environmental values, the regulations at 30 CFR 816.97 disallow any surface mining activity which is likely to jeopardize the continued existence of endangered or threatened species and require that the operator use the best technology currently available to minimize electrocution hazards to raptors; locate and operate haul and access roads to avoid or minimize impacts on important fish and wildlife species; and design fences, conveyors, and other potential barriers to permit passage of large mammals. Section 7 consultation would be required prior to approval of the mining and reclamation plan modification. Additional measures to ensure compliance with the Endangered Species Act and the Surface Mining Control and Reclamation Act can be developed when the detailed mining plan, which identifies the actual location of the disturbance areas, how and when they would be disturbed, and how they would be reclaimed, is developed and reviewed for approval. At the leasing stage, a detailed mining and reclamation plan is not available for evaluation or development of appropriate mitigation measures specific to an actual proposal to mine.

The following is a partial list of measures related to federally-protected species that are required as part of the mining and reclamation permits:

- avoiding bald and golden eagle disturbance per the Bald and Golden Eagle Protection Act of 1940 and the Migratory Bird Treaty Act;
- restoring bald eagle foraging areas disturbed by mining;
- using raptor safe power lines; and
- surveying for Ute ladies'-tresses if habitat is present.

F-7.0 CUMULATIVE IMPACTS

Existing habitat-disturbing activities in the PRB include surface coal mining; conventional oil and gas and CBNG development; uranium mining; sand and gravel, and scoria mining; ranching; agriculture; road, railroad, and power plant construction and operation; recreational activities; and rural and urban housing development. Mining, construction and agricultural activities, and urban development tend to have more intense impacts on fairly localized areas, while ranching, recreational activities, and oil and gas development tend to be less intensive but spread over larger areas. Oil and gas development and mining activities have requirements for reclamation of disturbed areas as

resources are depleted. The net area of energy disturbance in the Wyoming PRB has been increasing. In the short term, this means a reduction in the available habitat for T&E plant and wildlife species. In the long term, habitat is being and will continue to be restored as reclamation proceeds.

BLM is in the process of completing a regional technical study of current and proposed or potential development activity in the PRB to help the agency evaluate the impacts of coal development in the PRB. The *Powder River Basin Coal Review* consists of three tasks: Task 1 updates the BLM's 1996 status check for coal development in the PRB, Task 2 develops a forecast of reasonably foreseeable development in the PRB through the year 2020, and Task 3 predicts cumulative impacts that would be expected to occur as a result of the projected development. The information about existing development in the following paragraphs is taken from the *Powder River Basin Coal Review* Task 2 report (BLM 2005) and BLM lease records. The completed PRB Coal Review reports can be accessed at the BLM Wyoming website at http://www.wy.blm.gov/minerals/coal/prb/prbdocs.htm. The project area for Tasks 1 and 2 of the PRB Coal Review encompasses over eight million acres and includes all of Campbell, Sheridan, and Johnson Counties and the northern portion of Converse County in northeastern Wyoming.

Oil and gas exploration and production have been ongoing in the PRB for more than 100 years. Conventional (non CBNG) oil and gas fields are, for the most part, concentrated in the central and southern parts of the structural basin. Development of the CBNG resources from the coal beds is a more recent occurrence, with CBNG production in the Wyoming PRB starting in the late 1980s. As of 2003, an estimated 187,761 acres had been disturbed in the coal review project area as a result of oil and gas development activities, but approximately 115,045 acres of that disturbance has been reclaimed. This includes conventional oil and gas and CBNG wells and associated facilities and major transportation pipelines.

BLM estimates that the existing federal coal leases in the Wyoming PRB include approximately 121,185 acres. The currently pending federal coal LBA tracts (including the West Coal Creek LBA Tract) include approximately 25,585 additional acres. The majority of the coal in the areas permitted for surface coal mining is federal, but some state and private leases are included within some of the existing mine permit areas. All of the current and proposed federal coal leases are concentrated near the outcrop of the Wyodak coal bed, which is located in eastern Campbell County and the extreme northeastern edge of Converse County.

As of 2003, the base year for the PRB Coal Review, the surface coal mining operations along the Wyodak outcrop had disturbed approximately 68,794 acres. Approximately 24,097 of those acres of disturbance are occupied by "permanent" mine facilities, such as roads, buildings, coal handling facilities, etc., which are not available for reclamation until after coal mining operations

end. Of the remaining 44,697 acres of disturbance available for reclamation, approximately 21,238 acres had been reclaimed.

The *Powder River Basin Coal Review* identified an estimated 4,891 additional acres of coal-related development disturbance (i.e., coal-fired power plants, railroads, and coal technology projects) as of 2003.

The estimated total development-related disturbance in the Wyoming PRB in 2003 was 264,704 acres. In addition to the coal and oil and gas development discussed above, this total includes other types of development disturbance, such as reservoirs and industrial fabrication firms, as well as public and private infrastructure, such as highways and roads, government buildings, and residential and commercial real estate development. It should be noted that some of these disturbances overlap one another. In such cases, the disturbance acreage is counted separately under each category, but is not counted twice in determining the total area of disturbance.

Cumulative effects would also occur to T&E plant and wildlife resources as a result of indirect impacts. One factor is the potential import and spread of noxious weeds around roads and facilities. Noxious weeds have the ability to displace native vegetation and hinder reclamation efforts. Control of noxious weeds is addressed in surface coal mining and reclamation plans. If weed mitigation and preventative procedures are applied to all construction and reclamation practices, the impact of noxious weeds on T&E plants and wildlife would be minimized.

In reclaimed areas, vegetation cover often differs from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the species in the approved reclamation seed mixtures are native to the area; however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats. In the short-term in particular, species composition, shrub cover, and other environmental factors are likely to differ from pre-disturbance vegetation communities and habitats. Establishment of noxious weeds and alteration of vegetation in reclaimed areas has the potential to alter T&E plant and wildlife habitat composition and distribution.

Potential adverse effects to listed and proposed species that have occurred and would continue to occur as a result of existing and potential future activities in the PRB would include direct loss of habitat, indirect loss of habitat due to human and equipment disturbance, and habitat fragmentation. The existing mines have developed mitigation procedures, as required by the Surface Mining Control and Reclamation Act (at 30 CFR 816.97) and Wyoming State regulations, to protect T&E species. These procedural requirements would be extended to include mining operations on the West Coal Creek LBA Tract, if it is leased as proposed and after required detailed plans to mine the coal and reclaim the mined-out areas are developed and approved.

F-8.0 CREDENTIALS OF SURVEY PERSONNEL

Thunderbird-Jones & Stokes of Gillette, Wyoming

Gwyn McKee

Ms. McKee obtained a Master of Science degree in Wildlife Ecology/Management from the University of Missouri-Columbia. She has accumulated nearly 20 years of professional experience, with the last 14 spent working with the energy industry in Wyoming, Montana, and South Dakota. Ms. McKee has conducted the wildlife surveys and impact analyses for most of the surface coal mines in the Powder River Basin during her tenure in Wyoming, including two of the three properties analyzed in the South Gillette Area Coal EIS. She has also provided and/or reviewed the pertinent text related to impact assessments for vertebrate species of concern for most of the coal EISs that have been prepared in the Powder River Basin since 2000.

Jennifer Ottinger

Ms. Ottinger received a B.S. in Zoology from Colorado State University in 1993, with a minor in Microbiology. She has 12 years of professional experience with a variety of vertebrate species, including surveys for sage-grouse and mountain plovers, though her work has focused on raptors during that period. Ms. Ottinger has worked throughout the U.S. and abroad. She joined Jones & Stokes as a Wildlife Biologist in 2004. She has strong raptor identification and handling skills, research experience, proven abilities in data analysis and technical writing, and has presented and/or published several articles in a variety of professional meetings and publications, respectively.

BKS Environmental Associates, Inc of Gillette, Wyoming

Dr. Brenda K. Schladweiler

Dr. Brenda K. Schladweiler obtained her Ph.D. in Soil Science from the University of Wyoming, 2003. M.S. in Soil Science from University of Wyoming 1995, and B.S. Range Management (Land Rehabilitation) from Colorado State University, Fort Collins, Colorado 1980.

Dr. Schladweiler has extensive experience over the last 26 years in conducting rare plant surveys. The following is a list of recent threatened and endangered plant studies she has conducted:

Location	Date	Plants Surveyed
Wharf Mine, Lawrence Co., SD	1992	Various, State of SD Heritage Plants
Ferris Haggerty Mine, Carbon Co., WY	1998	Various, State of WY
Crow AML, Big Horn Co., MT	1999	Various, State of MT
Caballo Mine	1999	*Spiranthes diluvialis*
Wright Clinic AML, Campbell Co., WY	1999	*Spiranthes diluvialis*
Kane Environmental, Campbell Co., WY	1999	*Spiranthes diluvialis*
Atlantic City Mine, Knight Piesold, Fremont Co., WY	2000	*Spiranthes diluvialis*

Eagle Butte Mine, Campbell Co., WY		*Spiranthes diluvialis*
West Antelope Mine, Converse Co., WY	2001	*Spiranthes diluvialis*
BRS, Bighorn Basin Water Project, Washakie Co., WY	2001	Various, State of Wyoming Plant
URS, Transmission Line, Campbell Co., WY	2001	*Spiranthes diluvialis*
Wright, (bike path) Campbell Co., WY	2001	*Spiranthes diluvialis*
Gillette, PCA sewer line, Campbell Co., WY	2002-2004	*Spiranthes diluvialis*
Gillette, PCA trunk line, Campbell Co., WY	2002-2004	*Spiranthes diluvialis*
Pinehaven (Wester-Wetstein), Crook Co., WY	2003	*Spiranthes diluvialis*
Spotted Horse, (CBMA CH4), Campbell Co., WY	2003	*Spiranthes diluvialis*
Bowers Oil (Antelope Creek)Campbell/ Converse Co., WY	2003	*Spiranthes diluvialis*
Gillette, PCA Swanson Rd., Campbell Co., WY	2003	*Spiranthes diluvialis*
North Rochelle Mine USFS Survey, Campbell Co., WY	2004	Various USFS Sensitive Species for TBNG
Westport Oil & Gas, Nicholson POD, Campbell Co., WY	2004	*Spiranthes diluvialis*
Devon Energy, Mustang POD, Campbell Co., WY	2004	*Spiranthes diluvialis*
NARM, Beckwith Rd., Campbell Co., WY	2004	*Spiranthes diluvialis*
Yates Petroleum, Campbell Co., WY	2004	*Spiranthes diluvialis*; various USFS Sensitive Species for TBNG
PRCC, Ridgeroad USFS, Campbell Co., WY	2004	*Spiranthes diluvialis*
Lance, Black Thunder POD, Campbell Co., WY	2004	*Spiranthes diluvialis*
Devon Energy, Mulie POD, Campbell Co., WY	2004	*Spiranthes diluvialis*
Devon Energy Whitetail POD, Campbell Co., WY	2004	*Spiranthes diluvialis*
Devon Energy, Bighorn POD, Campbell Co., WY	2004	*Spiranthes diluvialis*

Numerous actions have been taken by Dr. Schladweiler to become acquainted with the known locations and the appearance of *Spiranthes diluvialis*. Research has been conducted through the Wyoming Natural Diversity Database and the Internet for sensitive plants. In addition, she has actually visited the population on the Unnamed Tributary to Antelope Creek numerous times over the last approximate 10 years. This known population verification was completed as part of a field survey conducted for Yates Petroleum Company in the Rochelle Hills POD, Campbell County, Wyoming on August 29, 2004. She has also visited the known population near Chugwater, Wyoming.

Dr. Schladweiler on numerous occasions has been in contact with Mr. Ernie Nelson, University of Wyoming, Rocky Mountain Herbarium, and George Jones, Wyoming Natural Diversity Database. In addition, she has consulted with Mr. Walt Fertig, previously from the University of Wyoming.

Katie Halvorson

Katie Halvorson holds a B.S. in Environmental Studies with a minor in Biology from Bemidji State University, Bemidji, Minnesota (2005). Ms. Halvorson has been employed by BKS Environmental since the spring of 2005. She has been conducting mineland reclamation monitoring for various coal mines in Campbell and Converse County, Wyoming since her employment. She has also performed vegetation sampling for numerous CBM projects and baseline vegetation surveys in the Powder River Basin. In addition, she has conducted rare plant species surveys, wetland delineations, and environmental compliance assessments. Threatened, endangered, proposed and sensitive plant survey experience includes:

- Visited a tributary of Antelope Creek and observed a *Spiranthes diluvialis* (Ute Ladies' Tresses orchid) population. 2005.
- Powder River Coal LLC – North Antelope Rochelle Mine Umbrella Botany Evaluation, in Campbell County, Wyoming. 2005.
- Powder River Coal LLC – Gold Mine Draw AVF Exchange – Ute Ladies' Tresses orchid survey, in Campbell County, Wyoming. 2005.
- West Roundup Resources, Inc. – School Creek Mine – Ute Ladies' Tresses orchid survey in Campbell County, Wyoming. 2005 and 2006.
- Devon Energy Corporation – Juniper Draw Unit – Ute Ladies' Tresses orchid survey in Johnson County, Wyoming. 2005.
- Devon Energy Corporation – Crossroads Unit – Ute Ladies' Tresses orchid survey in Johnson County, Wyoming. 2005.
- Marathon Oil Company – Knudson 9 Unit – Ute Ladies' Tresses orchid survey in Campbell County, Wyoming. 2006.
- Marathon Oil Company – Twenty Mile Butte Unit – Ute Ladies' Tresses orchid survey in Campbell County, Wyoming. 2006.
- Marathon Oil Company – West Innes 27 Unit – Ute Ladies' Tresses orchid survey in Campbell County, Wyoming. 2006
- Rio Tinto Energy America – Antelope Mine – Ute Ladies' Tresses orchid habitat survey in Converse County, Wyoming. 2007

Cindy Robinson

Cindy Robinson holds a Masters of Business Administration (MBA) and a B.S. in Environmental Science from the University of Denver, Denver, Colorado (2005). Ms. Robinson has been employed by BKS Environmental since April of 2006. She has been conducting mineland reclamation monitoring for various coal mines in Campbell County, Wyoming during the last year. In addition, she has conducted rare plant species surveys, wetland delineations, and environmental compliance assessments. Ms. Robinson has also visited an *Astragalus barrii* site, on USFS lands at the proposed School Creek Mine area when the species was blooming. Threatened and endangered and sensitive plant survey experience includes:

- West Roundup Resources, Inc., – School Creek Mine – Barr's Milkvetch survey in Campbell County, Wyoming, 2006.

- West Roundup Resources, Inc., – School Creek Mine – Ute Ladies' Tresses orchid survey in Campbell County, Wyoming, 2006.
- Thunder Basin Coal Company, Black Thunder Mine – West Hilight – Barr's Milkvetch survey, August 2006.
- Wellstar Corporation (Jones and Stokes), Ute Ladies Tresses orchid survey, 2007.

Jamie Eberly

Jamie Eberly holds a B.S. in Range Management, Rangeland Livestock Option with a Business Administrations minor from Chadron State College, Chadron, Nebraska (2005). Ms. Eberly has been employed by BKS Environmental since the fall of 2006. She has been conducting mineland reclamation monitoring for various coal mines in Campbell and Converse County, Wyoming since her employment. She has also performed vegetation sampling for numerous CBM projects and baseline vegetation surveys in the Powder River Basin. In addition, she has conducted rare plant species surveys, wetland delineations, and environmental compliance assessments. Threatened, endangered, proposed and sensitive plant survey experience includes:

- Williams Production Company, West Cripple Creek POD, Biological Evaluation/Biological Assessment in Campbell County, Wyoming. 2007.

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APPENDIX G

BIOLOGICAL ASSESSMENT
FOR THE CABALLO WEST TRACT,
SOUTH GILLETTE AREA EIS

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G-1.0 INTRODUCTION

Between 2004 and 2006, operators of four coal mines in Campbell County, Wyoming applied for four tracts of federal coal as maintenance leases under the Leasing on Application regulations at 43 CFD 3425. The environmental impacts of leasing these four Lease by Application (LBA) tracts are being evaluated in one environmental impact statement (EIS), the South Gillette Area Coal (SGAC) EIS. The four tracts, which are shown in Figure G-1, and applicant mines are:

- Belle Ayr North LBA Tract adjacent to and north of the Belle Ayr Mine;
- West Coal Creek LBA Tract adjacent to and west of the Coal Creek Mine;
- Caballo West LBA Tract adjacent to and southwest of the Caballo Mine; and
- Maysdorf II LBA Tract adjacent to and west of the Cordero Rojo Complex.

The purpose of this Biological Assessment is to provide information about the potential effects that leasing one of the tracts, the Caballo West LBA Tract, would have on federally listed threatened or endangered (T&E) species. T&E species are managed under the authority of the Endangered Species Act of 1973 (PL 93-205, as amended). The Endangered Species Act requires Federal agencies to ensure that all actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any federally listed species or result in the destruction or adverse modification of their critical habitat. BLM does not authorize mining by issuing a lease for federal coal, but the impacts of mining the coal are considered at the leasing stage because it is a logical consequence of issuing a lease.

This Biological Assessment was prepared to disclose the possible effects to T&E species (plant and animal) that are known to be present or that may be present within the area influenced by the Proposed Action and the alternative to the Proposed Action being evaluated by the BLM. It was prepared in accordance with Section 7 of the Endangered Species Act.

Biological Assessment objectives are:

1. To comply with the requirements of the Endangered Species Act that actions of federal agencies not jeopardize or adversely modify critical habitat of federally listed species.

2. To provide a process and standard by which to ensure that threatened or endangered species receive full consideration in the decision making process.

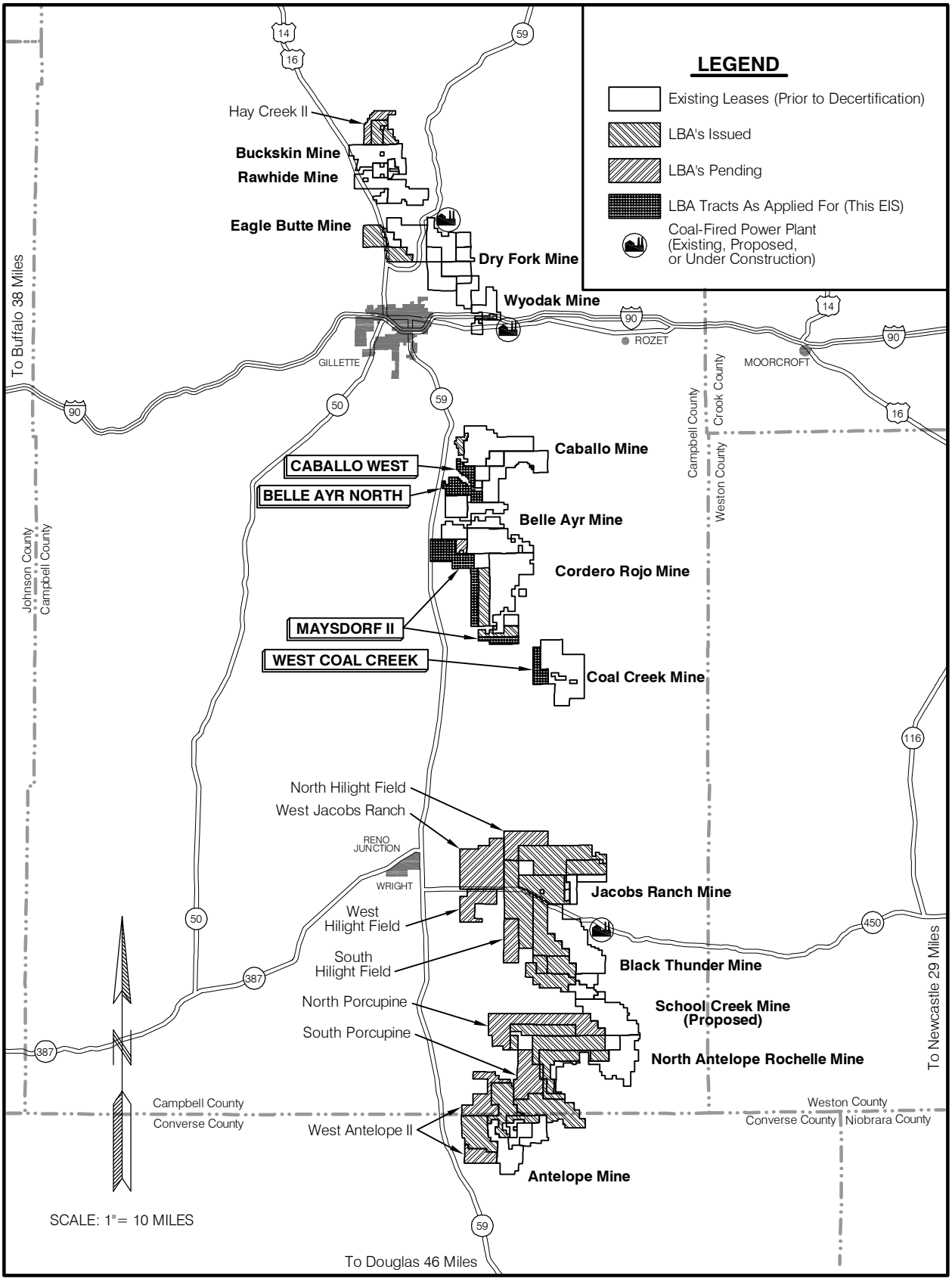

Figure G-1. General Location Map with Federal Coal Leases and LBA Tracts.

G-2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

G-2.1 The Proposed Action

On March 15, 2006, Caballo Coal Company (CCC) filed an application with the BLM to lease federal coal reserves in a tract located west of and immediately adjacent to the Caballo Mine (Figure G-1). The tract was assigned case file number WYW172657. Under the Proposed Action for the Caballo West LBA Tract, the tract as applied for by CCC would be offered for lease at a sealed-bid, competitive lease sale. The boundaries of the tract would be consistent with the tract configuration proposed in the Caballo West LBA Tract lease application (Figure G-2). The Proposed Action assumes that CCC will be the successful bidder on the Caballo West LBA Tract if it is offered for sale.

The legal description of the proposed Caballo West LBA Tract coal lease lands as applied for by CCC under the Proposed Action is as follows:

T. 48 N., R. 71 W., 6th PM, Campbell County, Wyoming

Section 7: Lots 12, 19;	81.88 acres
Section 8: Lot 10;	39.67 acres
Section 17: Lots 1 through 10, 11 (N½, SE¼), 12 (NE¼), 15 (N½, SE¼), 16;	521.76 acres
Section 18: Lot 5, 12 (NE¼); 52.32 acres	
Section 20: Lots 1, 2 (NE¼), 8 (N½, SE¼).	81.86 acres
Total:	777.49 acres

The coal estate underlying this tract described above is owned by the federal government and administered by the BLM. The surface estate of the tract is privately owned. The federal surface estate is administered by BLM. Surface ownership is shown in Figure G-3

The tract as applied for includes approximately 777.49 mineable acres. It is assumed that an area larger than the tract would have to be disturbed in order to recover all of the coal in the tract. The disturbances outside of the tract would be due to activities like overstripping, matching undisturbed topography, and construction of flood control and sediment control structures.

Under the Proposed Action for the Caballo West LBA Tract, if a decision is made to hold a competitive lease sale and if there is a successful bidder at that sale, a lease would be issued for the tract of federal coal as applied for. The

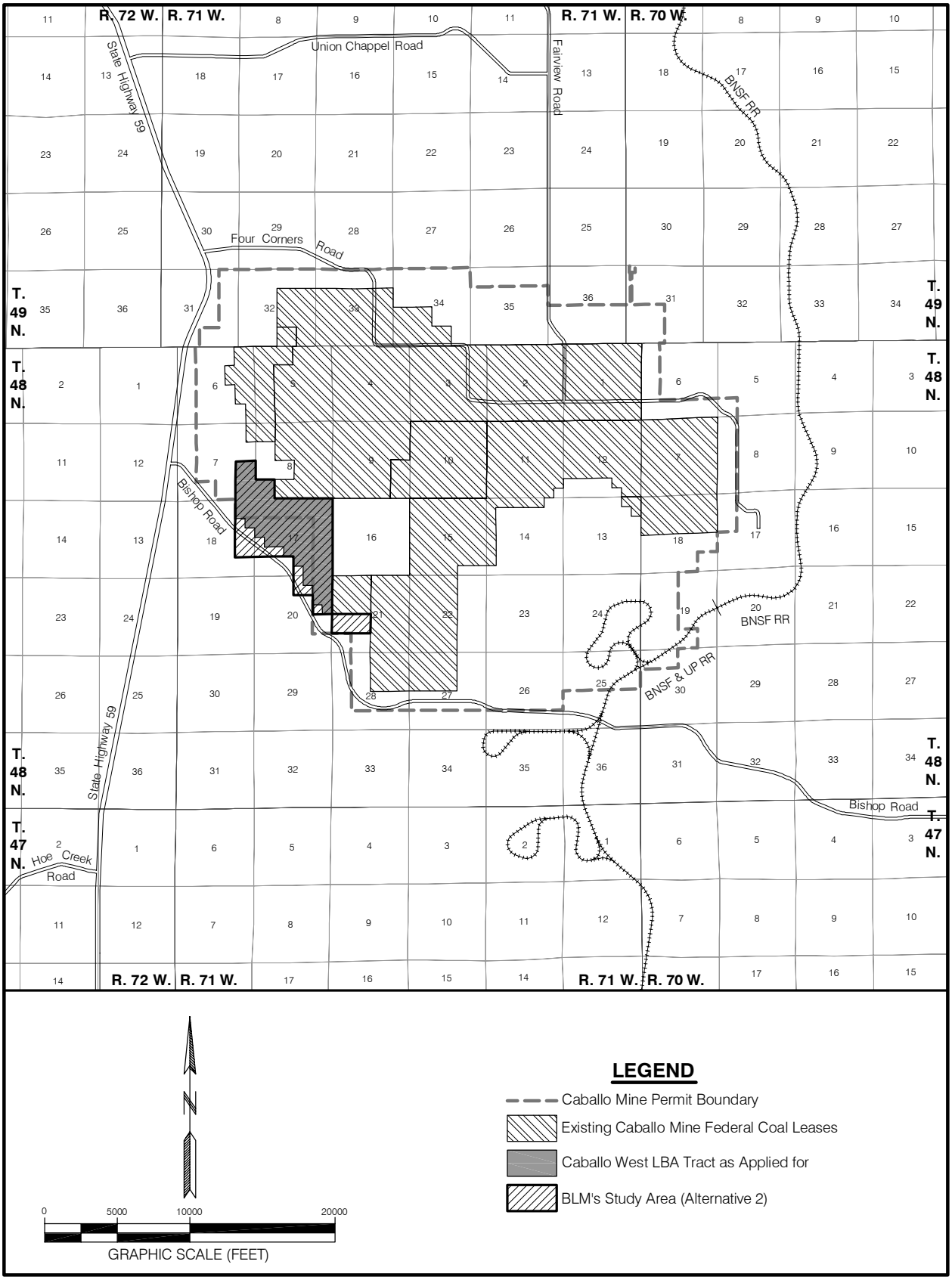

Figure G-2. Caballo West LBA Tract Alternatives.

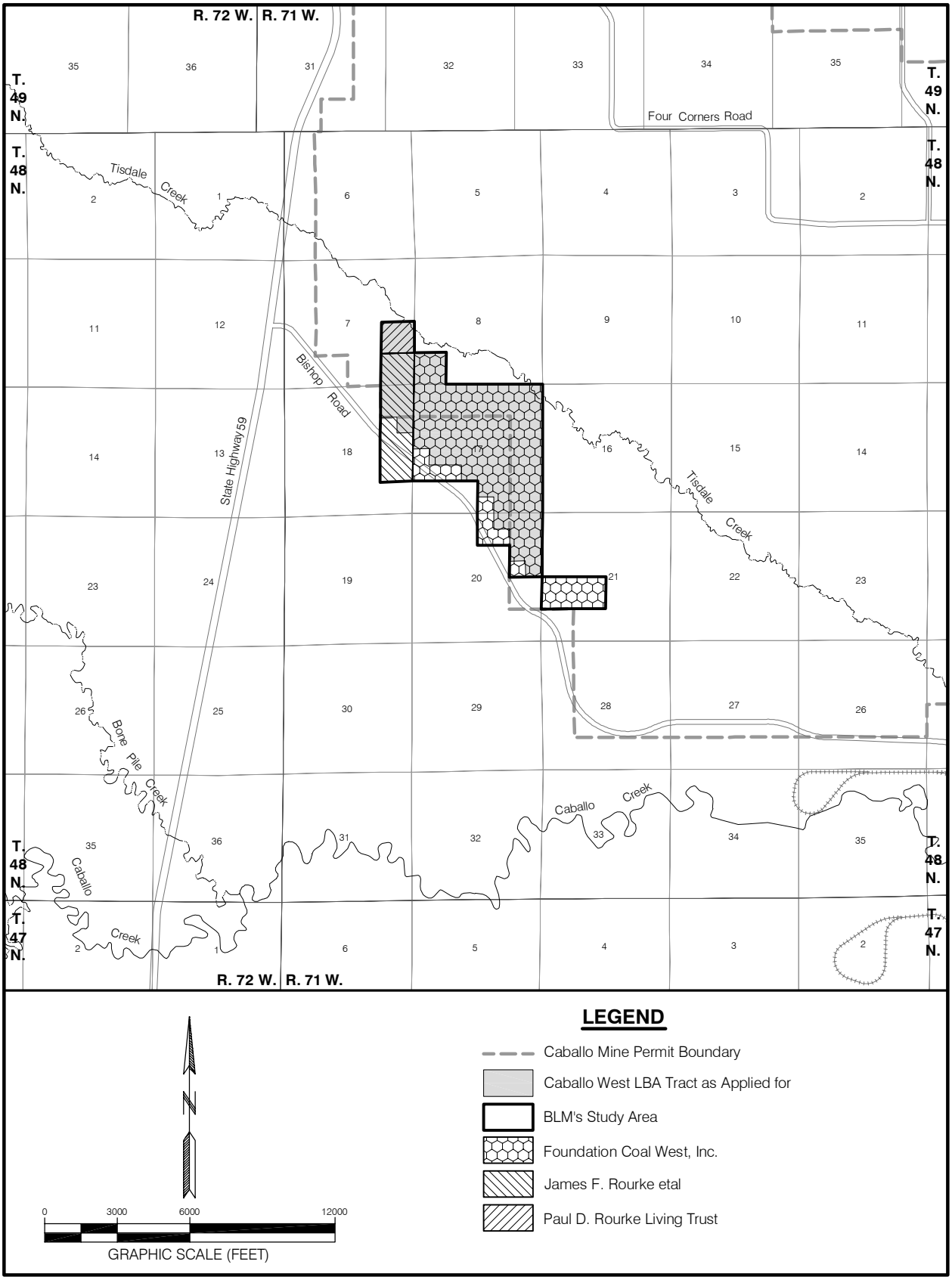

Figure G-3. Surface Ownership Within the Caballo West LBA Tract Alternatives.

tract offered for lease would be subject to standard and special lease stipulations developed for the Wyoming Powder River Basin (PRB). The stipulations that would be attached to a lease for the Caballo West LBA Tract are listed in Appendix D of the SGAC EIS document. The following stipulation relating to T&E species is one of the special stipulations developed for the Wyoming PRB:

> ***THREATENED, ENDANGERED, CANDIDATE, or OTHER SPECIAL STATUS PLANT and ANIMAL SPECIES –*** *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.*
>
> *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.*

CCC estimates that the tract as proposed includes approximately 98.2 million tons of in-place coal and 87.5 million tons of mineable coal. Using CCC's projected recovery factor of 93.5 percent, the tract would contain about 81.8 million tons of recoverable coal.

Under the Proposed Action, it is assumed that the LBA tract would be developed as a maintenance lease to extend the life of the adjacent existing Caballo Mine. As a result, under the Proposed Action, the coal included in the tract would be mined by existing employees using existing facilities and roads.

G-2.2 Alternatives to the Proposed Action

G-2.2.1 Alternative 1

Under Alternative 1, the No Action Alternative, the application to lease the coal included in the Caballo West LBA Tract would be rejected, the tract would not be offered for competitive sale, and the coal included in the tract would not be mined. This would not affect permitted mining activities and employment on the existing leases at Caballo Mine and would not preclude an application to lease the federal coal included in the Caballo West LBA Tract in the future. No additional surface of the Caballo West LBA Tract would be disturbed due to overstripping to allow coal to be removed from the adjacent existing leases.

G-2.2.2 Alternative 2

Under Alternative 2 for the Caballo West LBA Tract, BLM would reconfigure the tract, hold a competitive coal sale for the lands included in the reconfigured tract, and issue a lease to the successful bidder. In evaluating the Caballo West coal lease application, BLM identified a study area, which includes unleased federal coal adjacent to the southwestern edge of the tract as applied for (Figure G-2). BLM is evaluating the potential that some or all of these lands could be added to the tract to provide for more efficient recovery of the federal coal, increase competitive interest in the tract, and/or reduce the potential that some of the potentially mineable federal coal in this area would be bypassed in the future if it is not included in the Caballo West LBA Tract. The modified tract would be subject to standard and special lease stipulations developed for the PRB and this tract if it is offered for sale, as discussed above. Alternative 2 for the Caballo West LBA Tract assumes that CCC would be the successful bidder on the tract if a lease sale is held and that the tract would be developed as a maintenance lease to extend the life of the adjacent Caballo Mine. Other assumptions are the same as for the Proposed Action. The lands that BLM is considering adding to the tract are:

T. 48 N., R. 71 W., 6th PM, Campbell County, Wyoming

Section 17: Lots 11 (SW¼), 12 (NW¼, S½), 15 (SW¼);	51.42 acres
Section 18: Lot 12 (NW¼, S½), 13;	72.82 acres
Section 20: Lots 2 (NW¼, S½), 8 (SW¼);	41.02 acres
Section 21: Lots 11, 12.	81.25 acres
Total:	246.51 acres

The legal description of BLM's reconfiguration of the Caballo West LBA Tract under Alternative 2 is as follows:

T. 48 N., R. 71 W., 6th PM, Campbell County, Wyoming

Section 7: Lots 12, 19;	81.88 acres
Section 8: Lot 10;	39.67 acres
Section 17: Lots 1 through 12, 15, 16;	573.18 acres
Section 18: Lot 5, 12, 13;	125.14 acres
Section 20: Lots 1, 2, 8.	122.88 acres
Section 21: Lots 11, 12.	81.25 acres
Total:	1,024.00 acres

Some of the coal in Caballo West LBA Tract under this alternative is not currently considered to be mineable due to the presence of the Bishop Road (County Road 12). A portion the Bishop Road overlies some of the coal included in the tract under Alternative 2. As discussed in Chapter 1, Section 1.1, the Surface Mining Control and Reclamation Act prohibits mining within 100 ft on either side of the right-of-way of any public road (43 CFR 3461). There would also be a quantity of coal south of the Bishop Road that would be isolated from the mining operations if the coal under the road was not mined. The coal underlying the portion of the Bishop Road, its right-of-way, and the estimated layback needed on both sides of the county road to safely recover the coal (including the 100 ft buffer zone) within the Caballo West LBA Tract under Alternative 2 could be mined if the Campbell County Board of Commissioners, the authorized agency, determines that the road can be moved [30 CFR 761.11(d)]. CCC is evaluating the feasibility of relocating the road at this time.

CCC estimates that the reconfigured tract includes approximately 131.4 million tons of in-place coal and approximately 98.1 million tons of mineable coal. Using CCC's projected recovery factor of 93.5 percent, the reconfigured tract would contain about 91.7 million tons of recoverable coal.

G-3.0 CONSULTATION TO DATE

The location of the existing Caballo Mine coal leases, the existing approved mine permit area, and the Caballo West LBA Tract are shown in Figure G-2.

The Caballo Mine and Caballo West LBA Tract are included in the area determined to be "acceptable for further consideration for leasing" as part of the coal screening process. The coal screening process is a four part process that includes application of the coal unsuitability criteria, which are defined in 43 CFR 3461.5. BLM has applied these coal screens to federal coal lands in Campbell County several times, starting in the early 1980s. Most recently, in 1993, BLM began the process of reapplying these screens to federal coal lands

in Campbell, Converse, and Sheridan Counties. The results of this analysis were included as Appendix D of the 2001 *Approved Resource Management Plan for Public Lands Administered by the BLM Buffalo Field Office* (BLM 2001), which can be viewed on the Wyoming BLM website at http://www.wy.blm.gov in the NEPA documents section. Consultation with the U.S. Fish and Wildlife Service (USFWS) occurred in conjunction with the unsuitability findings under Criterion 9 (Critical Habitat for Threatened or Endangered Plant and Animal Species), Criterion 11 (Bald or Golden Eagle Nests), Criterion 12 (Bald and Golden Eagle Roost and Concentration Areas), Criterion 13 (Falcon Nesting Site(s) and Buffer Zone(s)), and Criterion 14 (Habitat for Migratory Bird Species).

Appendix B of the SGAC EIS document summarizes the unsuitability criteria, describes the general findings for the screening analyses discussed above, and presents a validation of these findings for the Caballo West LBA Tract based on the current information.

Consultation with USFWS has previously been completed for the area included within the Caballo Mine's existing approved mining permit area, shown in Figure G-2, as part of the mining and reclamation plan approval process. This process began when the mine was initially permitted in 1976.

A letter dated May 17, 2004, from Brian Kelly, USFWS, Cheyenne, Wyoming, to Marilee O'Rourke, PRCC, Gillette, Wyoming, documents approval of the current updated Migratory Birds of Management Concern and Raptor Mitigation Plan for the Caballo Mine (USFWS 2005a).

USFWS provided BLM a listing of the T&E species that may be present in the Caballo West coal lease project area in a memorandum letter from Brian T. Kelly, USFWS, Wyoming Field Office, Cheyenne, Wyoming, to Chris Hanson, BLM, Buffalo Field Office, Buffalo, Wyoming dated August 8, 2007 (USFWS 2007). The following list of species that was provided by USFWS represents the federally listed T&E species that may be present in Campbell County, Wyoming:

Black-footed ferret (*Mustela nigripes*): Endangered

Ute ladies'-tresses (*Spiranthes diluvialis*): Threatened

The August 8, 2007 memorandum provided recommendations for protective measures for T&E species in accordance with the Endangered Species Act. Protective measures for migratory birds in accordance with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act and recommendations for the protection of wetlands (under Executive Order 11990 and Section 404 of the Clean Water Act) and for other fish and wildlife resources (under the Fish and Wildlife Coordination Act and the Fish and Wildlife Act of 1956) were also included. The memorandum identified the greater sage-grouse as a species of specific interest and the importance of identifying grouse habitats within the

lease area and appropriate mitigation measures to minimize potential impacts to this species. The memorandum also stated that the USFWS would work with the BLM to ensure that the species-specific protective measures and programs for the conservation and recovery of listed species as required by under Section 7 of the Endangered Species Act are satisfied and carried out.

The Wyoming Game and Fish Department (WGFD) provided BLM with scoping comments for the four tracts included in the SGAC EIS in a letter from John Emmerich, Deputy Director, WGFD, Cheyenne, Wyoming, to Teresa Johnson, BLM, Casper Field Office, Casper, Wyoming, dated April 10, 2007 (WGFD 2007). WGFD recommended consideration be given to possible impacts to big game, sage grouse, raptors, and nongame species and their habitat, and aquatic resources within the South Gillette Area Coal project area.

G-4.0 SPECIES HABITAT AND OCCURRENCE AND EFFECTS OF THE PROPOSED PROJECT

The Caballo Mine began producing coal in 1978. Wildlife monitoring has been conducted annually for the mine since 1986. This wildlife monitoring was designed to meet the Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD), WGFD, and federal requirements for annual monitoring and reporting of wildlife activity on coal mining areas. Detailed procedures and site-specific requirements have been carried out as approved by WGFD and USFWS. The monitoring program was conducted in accordance with Appendix B of WDEQ/LQD Coal Rules and Regulations. Because the areas covered in the wildlife surveys included the mine's permit area and a large perimeter around the permit boundary, the entire Caballo West LBA Tract has been included in baseline inventories and annual wildlife surveys conducted for the Caballo Mine since wildlife studies began in the early 1970s.

The approved Caballo Mine Permit 433 Term T5 (CCC 2005) includes monitoring and mitigation measures for the Caballo Mine that are required by Surface Mining Control and Reclamation Act of 1977 (SMCRA) and Wyoming State Law. If the Caballo West LBA Tract is acquired by CCC, these monitoring and mitigation measures would be extended to cover operations on the LBA tract when the Caballo Mine's mining permit is amended to include the tract. This amended permit would have to be approved before mining operations could take place on the tract. These monitoring and mitigation measures are considered to be part of the Proposed Action and Alternative 2 during the leasing process because they are regulatory requirements.

Background information on T&E species in the vicinity of the Caballo West LBA Tract was drawn from several sources, including: wildlife survey reports submitted by the Caballo Mine to the WDEQ/LQD from 1974 through 2005, the Final South Powder River Basin Coal EIS (BLM 2003), the Final South Powder River Basin Coal EIS (BLM 2003), the Maysdorf Coal FEIS (BLM 2007), a Wyoming Natural Diversity Database search (University of Wyoming 2001), and from WGFD and USFWS records and contacts in 2004 and 2005. In

addition, the Caballo West LBA Tract wildlife study area falls within the wildlife monitoring area for the nearby Belle Ayr Mine (Figure G-1).

Site-specific data for a substantial portion of the tract as applied for and the study area for Alternative 2 were obtained from several sources, including WDEQ/LQD permit applications and annual wildlife reports for the Caballo Mine and other nearby coal mines. Baseline wildlife studies were conducted by Thunderbird-Jones & Stokes, (TJS) expressly for the Caballo West LBA Tract beginning in April of 2004 and continuing through December of 2004. Figure G-3 depicts TJS's T&E animal species survey areas for the Caballo West LBA Tract.

The Caballo West LBA Tract is in an area of gently rolling terrain of moderate relief influenced by Tisdale Creek and its tributaries. Elevations range from 4,532 to 4,704 ft within the LBA tract and from 4,532 to 4,572 ft within the area added under Alternative 2. Within the LBA tract and the area added under Alternative 2, slopes range from flat to over 26 percent in the central portion of the tract. The slopes of the gently rolling uplands, which comprise most (about 60 percent) of the LBA tract, seldom exceed 4.5 percent. A slope analysis would be done for the LBA tract if a lease sale is held and it is proposed for mining.

Predominant wildlife habitat types classified on the LBA tract and adjacent area correspond with the major plant communities defined during the vegetation baseline study and consist primarily of big and silver sagebrush, cropland, and grassland. Other habitats present in limited extent include disturbance and bottomlands. Networks of road, pipeline, tank battery, and well-pad disturbance areas associated with oil and gas development overlay much of the study area.

The Caballo West LBA Tract consists predominantly of upland topography between Tisdale and Caballo Creeks, although a portion of Tisdale Creek overlies an AVF. Tisdale Creek flows roughly east-southeast through the northern portion of the tract. Tisdale Creek is now interrupted to the north of the Caballo West LBA tract by Caballo's T7 Reservoir, from where water is pumped around the mine to Gold Mine Draw. Gold Mine Draw and North Tisdale Creek are tributaries to Tisdale Creek, which is a tributary to Caballo Creek and the Belle Fourche River.

All streams, including Tisdale Creek, within and adjacent to the tract are typical for the region, in that flow events are ephemeral. Stream runoff is typically of short duration and exhibits temporal patterns similar to precipitation events. All streams in the region show the characteristic extreme low-flow period from October through January. Flow events frequently result from snowmelt during the late winter and early spring. Although peak discharges from such events are generally small, the duration and corresponding percentage of annual runoff volume can be considerable. During the spring, general storms (both rain and snow) increase soil moisture

which decreases infiltration capacity, and subsequent rainstorms can result in both large runoff volumes and high peak discharges. Portions of Tisdale Creek downstream of the Caballo Mine receive recharge from bank storage (groundwater stored in the alluvium and bedrock along the stream channel) creating intermittent reaches.

Wetland inventories have been completed and confirmed by the U.S. Army Corps of Engineers on those portions of Caballo Creek and its tributaries that lie within the adjacent Caballo Mine's existing permit area. A large portion of the Caballo West LBA Tract is within Caballo Mine's permit area; therefore, a wetland inventory on Tisdale Creek that lies within the BLM study area for the LBA tract has been conducted and is included in the mine's approved mine permit.

Figure S3-6 in the Supplementary Information document depicts the wetlands analysis area for the Caballo West LBA Tract, which includes the BLM study area for the LBA tract plus a ¼-mile disturbance buffer around the study area sufficient to mine and reclaim the tract as a part of the Caballo Mine operation. Caballo Mine conducted a preliminary wetlands inventory in 2007, based on USFWS NWI mapping and vegetation mapping in the field, on the portions of the wetlands analysis area that are outside of the current Caballo Mine permit area. A formal wetland delineation survey would be conducted and submitted to the COE for verification as part of the mining and reclamation permit process, if the tract is leased and proposed for mining.

Based on preliminary wetlands mapping completed in 2007 and earlier wetland delineation confirmed by the COE, a total of approximately 15.0 acres of Waters of the U.S., including a total of 8.63 acres of jurisdictional Waters of the U.S., occur within the entire wetlands analysis area. Approximately 6.51 of those acres are jurisdictional wetlands that occur along the water courses of Tisdale Creek. The 2.12 acres of jurisdictional other Waters of the U.S. that did not qualify as wetlands consist primarily of open water that is held within the in-channel impoundments along Tisdale Creek. The internally drained playa located near the center of Section 7, T.48N., R.71W., adjacent to the LBA tract as applied for and within the wetlands analysis area, was delineated in 1996 as a jurisdictional wetland, but was later declared non-jurisdictional by the COE following a decision of the U.S. Supreme Court in *Solid Waste Agency of Northern Cook County v U.S. Army Corps of Engineers* (No. 99-1178, January 9, 2001). Approximately 6.37 acres of non-jurisdictional wetlands are included in this playa.

Within the proposed lease area and adjacent study area there is no "critical" habitat designated by USFWS for T&E species. The following discussion describes species' habitat requirements and their occurrence in the area of the Caballo West LBA Tract and evaluates the potential environmental effects of the Proposed Action and Alternative 2 on federal T&E species.

G-4.1 Threatened Species

G-4.1.1 Ute ladies'-tresses (*Spiranthes diluvialis*)

Ute ladies'-tresses, a member of the orchid family, was listed as threatened on January 17, 1992 due to a variety of factors, including habitat loss and modification, hydrological modifications of existing and potential habitat areas, and invasion of exotic plant species. At the time of listing, Ute ladies'-tresses was only known from north-central Colorado, northern and south-central Utah, and southeastern Nevada. As of September 2005, it had also been found in western Nebraska, southeastern Wyoming, southwestern Montana, and north-central Washington, while new populations had been documented in northwestern Colorado and northern Utah (Fertig, et al. 2005). USFWS has determined that a petition to remove the Ute ladies'-tresses orchid from federal protection under the Endangered Species Act of 1973 (ESA) provides substantial biological information to indicate that removal may be warranted. The petition was received from the Central Utah Water Conservancy District (USFWS 2004).

Biology and Habitat Requirements: Ute ladies'-tresses is a perennial, terrestrial orchid with erect, glandular-pubescent stems 8 to 20 inches tall arising from tuberous-thickened roots. This species typically flowers from late July through August. The flowers are white or ivory and clustered into a spike at the top of the stem; however, depending on location and climatic conditions, it may bloom in early July or still be in flower as late as early October (USFWS 2005b). Plants probably do not flower every year and may remain dormant below ground during drought years. The total known population of this species is currently estimated to be 60,000 individuals (USFWS 2004). Occurrences range in size from one plant to a few hundred individuals.

Ute ladies'-tresses has been found in a variety of habitats, including moist meadows associated with perennial stream terraces, floodplain and oxbows, seasonally flooded river terraces, subirrigated or spring-fed abandoned stream channels and valleys, and lakeshores. They have also been discovered along irrigation canals, berms, levees, irrigated meadows, excavated gravel pits, roadside barrow pits, reservoirs, and other human-modified wetlands. The elevation range of known occurrences is from 720-1,830 feet in Washington to 7,000 feet in northern Utah (Fertig, et al. 2005). Soils where the orchid has been found typically range from fine silt/sand to gravels and cobbles, as well as to highly organic and peaty soil types. The Ute ladies'-tresses orchid is not found in heavy or tight clay soils or in extremely saline or alkaline soils and seems intolerant of shade. Small scattered groups are found primarily in areas where vegetation is relatively open (USFWS 2005b). The Ute ladies'-tresses orchid is commonly associated with horsetail, milkweed, verbena, blue-eyed grass, reedgrass, goldenrod, and arrowgrass.

Populations are often dynamic and "move" within a watershed as disturbances create new habitat or succession eliminates old habitat (Fertig and Beauvais

1999). The orchid is well adapted to disturbances from stream movement and is tolerant of other disturbances, such as grazing, that are common to grassland riparian habitats (USFWS 1995). Ute ladies'-tresses colonize early successional riparian habitats such as point bars, sand bars, and low-lying gravelly, sandy, or cobbley edges, persisting in those areas where the hydrology provides continual dampness in the root zone through the growing season. The orchid establishes in heavily disturbed sites, such as revegetated gravel pits, heavily grazed riparian edges, and along well-traveled foot trails on old berms (USFWS 1995).

This species is known from four occurrences in Wyoming, within Converse, Goshen, Laramie, and Niobrara Counties, all discovered between 1993 and 1997 (Fertig and Beauvais 1999). No occurrences have been recorded in Campbell County.

Existing Environment: Areas of suitable habitat within the Caballo West LBA Tract and adjacent study area were surveyed by BKS Environmental Associates, Inc. in the latter half of August 2007. Topographical and wetland delineation maps for the study area were reviewed to identify all drainages that may contain the orchid. Suitable habitat factors included less steep stream banks, light soil texture and well drained soils, close lateral or vertical distance to perennial water source during the flowering period, lack of plant competition, lack of general soil alkalinity/salinity, and current or historical management practices that did not promote overgrazing and extensive use of riparian areas. Suitable habitat was traversed on foot during the time of actual flowering of the known population, and it involved walking entire lengths of the drainages documenting locations of potential habitat and searching for this species.

No individuals of the Ute ladies'-tresses orchid were located during the 2007 survey. Most of the habitat suitable for Ute ladies'-tresses orchid within the Caballo West LBA Tract and adjacent study area is found within the Lowland Grassland vegetation type. This area covers 21.6 acres of the Caballo West LBA Tract. The ephemeral drainage containing Lowland Grassland generally flows from south to north through the northern portion of the Caballo West LBA Tract. In response to surface discharge of groundwater associated with CBNG development within the drainage, which is a relatively recent phenomenon, streamflow occurrence is now more persistent and the drainage channel is seldom completely dry. A total of 8.63 acres of jurisdictional Waters of the U.S., occur within the entire wetlands analysis area.

Effects of the Proposed Project: **Mining the federal coal included in the Caballo West LBA Tract, if the tract is leased under the Proposed Action or Alternative 2, may affect, but is not likely to adversely affect Ute ladies'-tresses.** Marginal habitat for this species is present within the Lowland Grassland vegetation type only. Surveys of the existing suitable habitat at the Caballo Mine and other mines in this area have not found any Ute ladies'-tresses. Because of the ability of this species to persist below ground or above

ground without flowering, single season surveys that meet the current USFWS survey guidelines may not detect populations. If undetected populations are present, they could be lost to surface disturbing activities.

Jurisdictional wetlands located in the Caballo West LBA Tract that are destroyed by mining operations would be replaced in accordance with the requirements of Section 404 of the Clean Water Act, as determined by the U.S. Army Corps of Engineers (COE). The replaced wetlands may not duplicate the exact function and landscape features of the pre-mine wetlands. COE considers the type and function of each jurisdictional wetland that will be impacted and may require restoration of additional acres if the type and function of the restored wetlands will not completely replace the type and function of the original wetland. Replacement of non-jurisdictional and functional wetlands may be required by the surface landowner and/or WDEQ/LQD. WDEQ/LQD allows and sometimes requires mitigation of non-jurisdictional wetlands affected by mining, depending on the values associated with the wetland features. WDEQ/LQD also requires replacement of playas with hydrologic significance.

Cumulative Effects: Alterations of stream morphology and hydrology are believed to have extirpated Ute ladies'-tresses from most of its historical range (USFWS 2002). Disturbance and reclamation of streams by surface coal mining may alter stream morphology and hydrology. The large quantities of water produced with CBNG development and discharged on the surface may also alter stream morphology and hydrology.

G-4.2 Endangered Species

G-4.2.1 Black-footed ferret (*Mustela nigripes*)

The black-footed ferret is a nocturnal mammal and an obligate associate of prairie dogs (*Cynomys* spp.). Ferrets were listed as endangered in March 1967. This species is thought to have historically inhabited prairie dog colonies in the short-grass prairies of the eastern and southern Rockies, and across the Great Plains of North America. However, since the early 1900s, numerous factors have led to a decrease in potential habitat to less than 2% of its former acreage. Conversion of grasslands to agricultural landscapes, eradication of prairie dogs, and diseases such as the plague and canine distemper have resulted in severe reductions in prairie dog colonies across the west; colonies which provided both food and shelter for black-footed ferrets. This species of ferret is currently one of the most endangered mammals in North America, and was thought to be extinct until a small population was discovered in Meeteetse, Wyoming in September 1981. Since then, successful captive breeding and reintroduction programs have released black-footed ferrets in several western and Great Plains states, including Wyoming, Montana, South Dakota, Colorado, Utah, and Arizona.

Biology and Habitat Requirements: Ferrets rely on prairie dogs to provide both shelter and food (Hillman and Clark 1980). Ferrets produce one litter per year, typically giving birth to four or five kits. The decline in ferret populations has been largely attributed to the reduction in the vast prairie dog colonies that historically existed in the western United States. Despite extensive ferret surveys over the past 20 plus years throughout Wyoming, the last known wild black-footed ferret population was discovered near Meeteetse in 1981 (Miller et al. 1996). Those surveys included numerous USFWS-approved clearances for coal mining and other developments in the Powder River Basin of Wyoming, as well as USFS surveys for ferrets on the TBNG. Reintroduction efforts involving captive bred individuals have successfully established one black-footed ferret population in the Shirley Basin area in south-central Wyoming. Currently, this is the only known black-footed ferret population within the state, though other populations are present elsewhere in the United States and Mexico.

Existing Environment: The Caballo West LBA Tract is within the historical range of the black-footed ferret, although no black-footed ferrets are presently known to occur in northeastern Wyoming. During the 1980s, WGFD, in cooperation with other agencies, conducted searches for black-footed ferrets in Wyoming in the places they were most likely to be found, but these searches were not successful (Martin Grenier, personal communication, 10/14/2003). In a February 2, 2004 letter to interested parties, the USFWS declared that black-footed ferret surveys are no longer necessary in black-tailed prairie dog colonies within Wyoming.

TJS has mapped the current acreage of prairie dog colonies in the vicinity of the Caballo Mine by walking the perimeters of colonies and delineating them on topographic maps. No black-tailed prairie dog colonies are currently present within the Caballo West wildlife general analysis area. No evidence of ferrets has been recorded during general or specific ferret surveys over conducted by wildlife consultants for the Caballo Mine and other mines in this area.

Effects of the Proposed Project: **Mining the federal coal included in the Caballo West LBA Tract, if a lease is issued under the Proposed Action or Alternative 2, would have no effect on black-footed ferrets.** Given the documented absence of black-footed ferrets in the region, including the general analysis area during specific surveys for this species, the block clearance issued by USFWS for black-tailed prairie dog colonies throughout the entire state, and the distance of the LBA area from future reintroduction sites, mining the generally analysis area will not result in any direct or indirect effects on black-footed ferrets.

Mine activities include, but are not limited to, large-scale topsoil stripping, the intense presence of heavy machinery, extended human presence, loud noise and various linear disturbances such as roads, power lines and fences. Additionally, ongoing disturbance (grazing, oil and gas production, etc.) from sources unrelated to mining would likely continue, with some activities occurring within prairie dog colonies in the area. These activities would result

in less habitat disturbance than surface mining, but physical disturbance would occur.

Based on more than 20 years of historic and recent survey efforts and other general analysis area data and information, it is unlikely that ferrets exist in the Belle Ayr North wildlife general analysis area.

Cumulative Effects: Mineral development within black-tailed prairie dog colonies is a leading cause of ferret habitat loss in the PRB. Surface coal mining tends to have more intense impacts on fairly localized areas, while oil and gas development tends to be less intensive but spread over larger areas. Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. In reclaimed areas, vegetation cover may differ from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the approved plant species are native to the area; however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats, particularly in the short-term, when species composition, shrub cover, and other environmental factors are likely to be different. Shifts in habitat composition or distribution following reclamation could increase or decrease potential habitat for prairie dogs and associated habitat for black-footed ferrets. However, black-tailed prairie dogs have been recorded invading and establishing towns on reclaimed coal mined lands in northeastern Wyoming (IR 2005).

Potential ferret habitat is also affected by other impacts to prairie dog populations. Plague can infect and eliminate entire prairie dog colonies. Poisoning and recreational prairie dog shooting may locally reduce prairie dog populations, but seldom completely eliminate colonies.

G-5.0 SUMMARY OF DETERMINATIONS

Table G-1 summarizes the determinations for federally listed T&E species in the area of the Caballo West LBA Tract that may result from implementing the Proposed Action or Alternative 2.

Table G-1. Effects Evaluation of Federal T&E Species in the Area of the Caballo West LBA Tract.

Status	Species Common Name	Potential Effects
Threatened:	Ute ladies'-tresses	May affect[1]
Endangered:	Black-footed ferret	No effect

[1] Not likely to adversely affect individuals or populations.

G-6.0 REGULATORY REQUIREMENTS AND MITIGATION

The issuance of a Federal coal lease grants the lessee the exclusive rights to mine the coal, subject to the terms and conditions of the lease. Lease ownership is necessary for mining federal coal, but lease ownership does not authorize mining operations. Surface coal mining operations are regulated in accordance with the requirements of the Surface Mining Control and Reclamation Act of 1977 (SMCRA) and Wyoming State regulations. SMCRA gives the Office of Surface Mining Reclamation and Enforcement (OSM) primary responsibility to administer programs that regulate surface coal mining operations and the surface effects of underground coal mining operations. Pursuant to Section 503 of SMCRA, the WDEQ developed, and in November 1980 the Secretary of the Interior approved a permanent program authorizing WDEQ to regulate surface coal mining operations and surface effects of underground mining on nonfederal lands within the State of Wyoming. In January 1987, pursuant to Section 523(c) of SMCRA, WDEQ entered into a cooperative agreement with the Secretary of the Interior authorizing WDEQ to regulate surface coal mining operations and surface effects of underground mining on federal lands within the state. In order to get approval of this cooperative agreement, the state had to demonstrate that the state laws and regulations are no less stringent than, meet the minimum requirements of, and include all applicable provisions of SMCRA.

If the Caballo West LBA Tract is leased, it would be a maintenance lease for the existing Caballo Mine, which currently has both an approved Mineral Leasing Act of 1920 (MLA) mining plan and an approved State mining and reclamation permit. In the case of maintenance leases, such as the Caballo West LBA Tract, the existing MLA mining plan and State mining and reclamation plan must be amended to include any newly leased area before that area can be mined. In order to amend the existing MLA mining plan and State mining and reclamation permit, the company would be required to submit a detailed permit application package to WDEQ before starting surface coal mining operations on any newly acquired lease. WDEQ/LQD would review the permit application package to insure the permit application complies with the permitting requirements and the coal mining operation will meet the performance standards of the approved Wyoming program. If the permit application package does comply, WDEQ would issue the applicant an amended permit that would allow the permittee to extend coal mining operations onto the newly acquired lease.

Protection of fish, wildlife, and related environmental values is required under SMCRA regulations at 30 CFR 816.97, which state:

> "No surface mining activity shall be conducted which is likely to jeopardize the continued existence of endangered or threatened species listed by the Secretary of which is likely to result in the destruction or adverse modification of designated critical habitats of such species in violation of the Endangered Species Act of 1973, as amended."

In addition to requiring the operator to minimize disturbances and adverse impacts on fish, wildlife, and related environmental values, the regulations at 30 CFR 816.97 disallow any surface mining activity which is likely to jeopardize the continued existence of endangered or threatened species and require that the operator use the best technology currently available to minimize electrocution hazards to raptors; locate and operate haul and access roads to avoid or minimize impacts on important fish and wildlife species; and design fences, conveyors, and other potential barriers to permit passage of large mammals. Section 7 consultation would be required prior to approval of the mining and reclamation plan modification. Additional measures to ensure compliance with the ESA and SMCRA can be developed when the detailed mining plan, which identifies the actual location of the disturbance areas, how and when they would be disturbed, and how they would be reclaimed, is developed and reviewed for approval. At the leasing stage, a detailed mining and reclamation plan is not available for evaluation or development of appropriate mitigation measures specific to an actual proposal to mine.

The following is a partial list of measures related to federally-listed species that are required as part of the mining and reclamation permits:

- avoiding bald and golden eagle disturbance per the Bald and Golden Eagle Protection Act of 1940 and the Migratory Bird Treaty Act;
- restoring bald eagle foraging areas disturbed by mining;
- using raptor safe power lines; and
- surveying for Ute ladies'-tresses if habitat is present.

G-7.0 CUMULATIVE IMPACTS

Existing habitat-disturbing activities in the PRB include surface coal mining; conventional oil and gas and CBNG development; uranium mining; sand and gravel, and scoria mining; ranching; agriculture; road, railroad, and power plant construction and operation; recreational activities; and rural and urban housing development. Mining, construction and agricultural activities, and urban development tend to have more intense impacts on fairly localized areas, while ranching, recreational activities, and oil and gas development tend to be less intensive but spread over larger areas. Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. The net area of energy disturbance in the Wyoming PRB has been increasing. In the short term, this means a reduction in the available habitat for T&E plant and wildlife species. In the long term, habitat is being and will continue to be restored as reclamation proceeds.

BLM is in the process of completing a regional technical study of current and proposed or potential development activity in the PRB to help the agency evaluate the impacts of coal development in the PRB. The *Powder River Basin Coal Review* consists of three tasks: Task 1 updates the BLM's 1996 status check for coal development in the PRB, Task 2 develops a forecast of reasonably foreseeable development in the PRB through the year 2020, and Task 3 predicts cumulative impacts that would be expected to occur as a result

of the projected development. The information about existing development in the following paragraphs is taken from the *Powder River Basin Coal Review* Task 2 report (BLM 2005) and BLM lease records. The completed PRB Coal Review reports can be accessed at the BLM Wyoming website at http://www.wy.blm.gov/minerals/coal/prb/prbdocs.htm. The project area for Tasks 1 and 2 of the PRB Coal Review encompasses over eight million acres and includes all of Campbell, Sheridan, and Johnson Counties and the northern portion of Converse County in northeastern Wyoming.

Oil and gas exploration and production have been ongoing in the PRB for more than 100 years. Conventional (non CBNG) oil and gas fields are, for the most part, concentrated in the central and southern parts of the structural basin. Development of the CBNG resources from the coal beds is a more recent occurrence, with CBNG production in the Wyoming PRB starting in the late 1980s. As of 2003, an estimated 187,761 acres had been disturbed in the coal review project area as a result of oil and gas development activities, but approximately 115,045 acres of that disturbance has been reclaimed. This includes conventional oil and gas and CBNG wells and associated facilities and major transportation pipelines.

BLM estimates that the existing federal coal leases in the Wyoming PRB include approximately 121,185 acres. The currently pending federal coal LBA tracts (including the Caballo West LBA Tract) include approximately 25,585 additional acres. The majority of the coal in the areas permitted for surface coal mining is federal, but some state and private leases are included within some of the existing mine permit areas. All of the current and proposed federal coal leases are concentrated near the outcrop of the Wyodak coal bed, which is located in eastern Campbell County and the extreme northeastern edge of Converse County.

As of 2003, the base year for the PRB Coal Review, the surface coal mining operations along the Wyodak outcrop had disturbed approximately 68,794 acres. Approximately 24,097 of those acres of disturbance are occupied by "permanent" mine facilities, such as roads, buildings, coal handling facilities, etc., which are not available for reclamation until after coal mining operations end. Of the remaining 44,697 acres of disturbance available for reclamation, approximately 21,238 acres had been reclaimed.

The *Powder River Basin Coal Review* identified an estimated 4,891 additional acres of coal-related development disturbance (i.e., coal-fired power plants, railroads, and coal technology projects) as of 2003.

The estimated total development-related disturbance in the Wyoming PRB in 2003 was 264,704 acres. In addition to the coal and oil and gas development discussed above, this total includes other types of development disturbance, such as reservoirs and industrial fabrication firms, as well as public and private infrastructure, such as highways and roads, government buildings, and residential and commercial real estate development. It should be noted that

some of these disturbances overlap one another. In such cases, the disturbance acreage is counted separately under each category, but is not counted twice in determining the total area of disturbance.

Cumulative effects would also occur to T&E plant and wildlife resources as a result of indirect impacts. One factor is the potential import and spread of noxious weeds around roads and facilities. Noxious weeds have the ability to displace native vegetation and hinder reclamation efforts. Control of noxious weeds is addressed in surface coal mining and reclamation plans. If weed mitigation and preventative procedures are applied to all construction and reclamation practices, the impact of noxious weeds on T&E plants and wildlife would be minimized.

In reclaimed areas, vegetation cover often differs from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the species in the approved reclamation seed mixtures are native to the area; however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats. In the short-term in particular, species composition, shrub cover, and other environmental factors are likely to differ from pre-disturbance vegetation communities and habitats. Establishment of noxious weeds and alteration of vegetation in reclaimed areas has the potential to alter T&E plant and wildlife habitat composition and distribution.

Potential adverse effects to listed and proposed species that have occurred and would continue to occur as a result of existing and potential future activities in the PRB would include direct loss of habitat, indirect loss of habitat due to human and equipment disturbance, and habitat fragmentation. The existing mines have developed mitigation procedures, as required by SMCRA (at 30 CFR 816.97) and Wyoming State regulations, to protect T&E species. These procedural requirements would be extended to include mining operations on the Caballo West LBA Tract, if it is leased as proposed and after required detailed plans to mine the coal and reclaim the mined-out areas are developed and approved.

G-8.0 CREDENTIALS OF SURVEY PERSONNEL

Thunderbird –Jones & Stokes of Gillette, Wyoming

Gwyn McKee

Ms. McKee obtained a Master of Science degree in Wildlife Ecology/Management from the University of Missouri-Columbia. She has accumulated nearly 20 years of professional experience, with the last 14 spent working with the energy industry in Wyoming, Montana, and South Dakota. Ms. McKee has conducted the wildlife surveys and impact analyses for most of the surface coal mines in the Powder River Basin during her tenure in Wyoming, including two of the three properties analyzed in the South Gillette

Area Coal EIS. She has also provided and/or reviewed the pertinent text related to impact assessments for vertebrate species of concern for most of the coal EISs that have been prepared in the Powder River Basin since 2000.

Jennifer Ottinger

Ms. Ottinger received a B.S. in Zoology from Colorado State University in 1993, with a minor in Microbiology. She has 12 years of professional experience with a variety of vertebrate species, including surveys for sage-grouse and mountain plovers, though her work has focused on raptors during that period. Ms. Ottinger has worked throughout the U.S. and abroad. She joined Jones & Stokes as a Wildlife Biologist in 2004. She has strong raptor identification and handling skills, research experience, proven abilities in data analysis and technical writing, and has presented and/or published several articles in a variety of professional meetings and publications, respectively.

BKS Environmental Associates, Inc of Gillette, Wyoming

Dr. Brenda K. Schladweiler

Dr. Brenda K. Schladweiler obtained her Ph.D. in Soil Science from the University of Wyoming, 2003. M.S. in Soil Science from University of Wyoming 1995, and B.S. Range Management (Land Rehabilitation) from Colorado State University, Fort Collins, Colorado 1980.

Dr. Schladweiler has extensive experience over the last 26 years in conducting rare plant surveys. The following is a list of recent threatened and endangered plant studies she has conducted:

Location	**Date**	**Plants Surveyed**
Wharf Mine, Lawrence Co., SD	1992	Various, State of SD Heritage Plants
Ferris Haggerty Mine, Carbon Co., WY	1998	Various, State of WY
Crow AML, Big Horn Co., MT	1999	Various, State of MT
Caballo Mine	1999	*Spiranthes diluvialis*
Wright Clinic AML, Campbell Co., WY	1999	*Spiranthes diluvialis*
Kane Environmental, Campbell Co., WY	1999	*Spiranthes diluvialis*
Atlantic City Mine, Knight Piesold, Fremont Co., WY	2000	*Spiranthes diluvialis*
Eagle Butte Mine, Campbell Co., WY		*Spiranthes diluvialis*
West Antelope Mine, Converse Co., WY	2001	*Spiranthes diluvialis*
BRS, Bighorn Basin Water Project, Washakie Co., WY	2001	Various, State of Wyoming Plant
URS, Transmission Line, Campbell Co., WY	2001	*Spiranthes diluvialis*
Wright, (bike path) Campbell Co., WY	2001	*Spiranthes diluvialis*
Gillette, PCA sewer line, Campbell Co., WY	2002-2004	*Spiranthes diluvialis*
Gillette, PCA trunk line, Campbell Co., WY	2002-2004	*Spiranthes diluvialis*
Pinehaven (Wester-Wetstein), Crook Co., WY	2003	*Spiranthes diluvialis*
Spotted Horse, (CBMA CH4), Campbell Co.,	2003	*Spiranthes diluvialis*

WY		
Bowers Oil (Antelope Creek)Campbell/ Converse Co., WY	2003	*Spiranthes diluvialis*
Gillette, PCA Swanson Rd., Campbell Co., WY	2003	*Spiranthes diluvialis*
North Rochelle Mine USFS Survey, Campbell Co., WY	2004	Various USFS Sensitive Species for TBNG
Westport Oil & Gas, Nicholson POD, Campbell Co., WY	2004	*Spiranthes diluvialis*
Devon Energy, Mustang POD, Campbell Co., WY	2004	*Spiranthes diluvialis*
NARM, Beckwith Rd., Campbell Co., WY	2004	*Spiranthes diluvialis*
Yates Petroleum, Campbell Co., WY	2004	*Spiranthes diluvialis*; various USFS Sensitive Species for TBNG
PRCC, Ridgeroad USFS, Campbell Co., WY	2004	*Spiranthes diluvialis*
Lance, Black Thunder POD, Campbell Co., WY	2004	*Spiranthes diluvialis*
Devon Energy, Mulie POD, Campbell Co., WY	2004	*Spiranthes diluvialis*
Devon Energy Whitetail POD, Campbell Co., WY	2004	*Spiranthes diluvialis*
Devon Energy, Bighorn POD, Campbell Co., WY	2004	*Spiranthes diluvialis*

Numerous actions have been taken by Dr. Schladweiler to become acquainted with the known locations and the appearance of *Spiranthes diluvialis*. Research has been conducted through the Wyoming Natural Diversity Database and the Internet for sensitive plants. In addition, she has actually visited the population on the Unnamed Tributary to Antelope Creek numerous times over the last approximate 10 years. This known population verification was completed as part of a field survey conducted for Yates Petroleum Company in the Rochelle Hills POD, Campbell County, Wyoming on August 29, 2004. She has also visited the known population near Chugwater, Wyoming.

Dr. Schladweiler on numerous occasions has been in contact with Mr. Ernie Nelson, University of Wyoming, Rocky Mountain Herbarium, and George Jones, Wyoming Natural Diversity Database. In addition, she has consulted with Mr. Walt Fertig, previously from the University of Wyoming.

Katie Halvorson

Katie Halvorson holds a B.S. in Environmental Studies with a minor in Biology from Bemidji State University, Bemidji, Minnesota (2005). Ms. Halvorson has been employed by BKS Environmental since the spring of 2005. She has been conducting mineland reclamation monitoring for various coal mines in Campbell and Converse County, Wyoming since her employment. She has also performed vegetation sampling for numerous CBM projects and baseline vegetation surveys in the Powder River Basin. In addition, she has conducted rare plant species surveys, wetland delineations, and environmental compliance assessments. Threatened, endangered, proposed and sensitive plant survey experience includes:

- Visited a tributary of Antelope Creek and observed a *Spiranthes diluvialis* (Ute Ladies' Tresses orchid) population. 2005.
- Powder River Coal LLC – North Antelope Rochelle Mine Umbrella Botany Evaluation, in Campbell County, Wyoming. 2005.
- Powder River Coal LLC – Gold Mine Draw AVF Exchange – Ute Ladies' Tresses orchid survey, in Campbell County, Wyoming. 2005.
- West Roundup Resources, Inc. – School Creek Mine – Ute Ladies' Tresses orchid survey in Campbell County, Wyoming. 2005 and 2006.
- Devon Energy Corporation – Juniper Draw Unit – Ute Ladies' Tresses orchid survey in Johnson County, Wyoming. 2005.
- Devon Energy Corporation – Crossroads Unit – Ute Ladies' Tresses orchid survey in Johnson County, Wyoming. 2005.
- Marathon Oil Company – Knudson 9 Unit – Ute Ladies' Tresses orchid survey in Campbell County, Wyoming. 2006.
- Marathon Oil Company – Twenty Mile Butte Unit – Ute Ladies' Tresses orchid survey in Campbell County, Wyoming. 2006.
- Marathon Oil Company – West Innes 27 Unit – Ute Ladies' Tresses orchid survey in Campbell County, Wyoming. 2006
- Rio Tinto Energy America – Antelope Mine – Ute Ladies' Tresses orchid habitat survey in Converse County, Wyoming. 2007

Cindy Robinson

Cindy Robinson holds a Masters of Business Administration (MBA) and a B.S. in Environmental Science from the University of Denver, Denver, Colorado (2005). Ms. Robinson has been employed by BKS Environmental since April of 2006. She has been conducting mineland reclamation monitoring for various coal mines in Campbell County, Wyoming during the last year. In addition, she has conducted rare plant species surveys, wetland delineations, and environmental compliance assessments. Ms. Robinson has also visited an *Astragalus barrii* site, on USFS lands at the proposed School Creek Mine area when the species was blooming. Threatened and endangered and sensitive plant survey experience includes:

- West Roundup Resources, Inc., – School Creek Mine – Barr's Milkvetch survey in Campbell County, Wyoming. 2006.
- West Roundup Resources, Inc., – School Creek Mine – Ute Ladies' Tresses orchid survey in Campbell County, Wyoming. 2006.
- Thunder Basin Coal Company, Black Thunder Mine – West Hilight – Barr's Milkvetch survey. August 2006.
- Wellstar Corporation (Jones and Stokes), Ute Ladies Tresses orchid survey. 2007.

Jamie Eberly

Jamie Eberly holds a B.S. in Range Management, Rangeland Livestock Option with a Business Administrations minor from Chadron State College, Chadron, Nebraska (2005). Ms. Eberly has been employed by BKS Environmental since the fall of 2006. She has been conducting mineland reclamation monitoring

for various coal mines in Campbell and Converse County, Wyoming since her employment. She has also performed vegetation sampling for numerous CBM projects and baseline vegetation surveys in the Powder River Basin. In addition, she has conducted rare plant species surveys, wetland delineations, and environmental compliance assessments. Threatened, endangered, proposed and sensitive plant survey experience includes:

- Williams Production Company, West Cripple Creek POD, Biological Evaluation/Biological Assessment in Campbell County, Wyoming. 2007.

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APPENDIX H

BIOLOGICAL ASSESSMENT
FOR THE MAYSDORF II LBA TRACT,
SOUTH GILLETTE AREA EIS

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H-1.0 INTRODUCTION

Between 2004 and 2006, operators of four coal mines in Campbell County, Wyoming applied for four tracts of federal coal as maintenance leases under the Leasing on Application regulations at 43 CFD 3425. The environmental impacts of leasing these four Lease by Application (LBA) tracts are being evaluated in one environmental impact statement (EIS), the South Gillette Area Coal (SGAC) EIS. The four tracts, which are shown in Figure H-1, and applicant mines are:

- Belle Ayr North LBA Tract adjacent to and north of the Belle Ayr Mine;
- West Coal Creek LBA Tract adjacent to and west of the Coal Creek Mine;
- Caballo West LBA Tract adjacent to and southwest of the Caballo Mine; and
- Maysdorf II LBA Tract adjacent to and west of the Cordero Rojo Complex.

The purpose of this Biological Assessment is to provide information about the potential effects that leasing one of the tracts, the Maysdorf II LBA Tract, would have on federally listed threatened or endangered (T&E) species. T&E species are managed under the authority of the Endangered Species Act of 1973 (PL 93-205, as amended). The Endangered Species Act requires Federal agencies to ensure that all actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any federally listed species or result in the destruction or adverse modification of their critical habitat. BLM does not authorize mining by issuing a lease for federal coal, but the impacts of mining the coal are considered at the leasing stage because it is a logical consequence of issuing a lease.

This Biological Assessment was prepared to disclose the possible effects to T&E species (plant and animal) that are known to be present or that may be present within the area influenced by the Proposed Action and the alternative to the Proposed Action being evaluated by the BLM. It was prepared in accordance with Section 7 of the Endangered Species Act.

Biological Assessment objectives are:

1. To comply with the requirements of the Endangered Species Act that actions of federal agencies not jeopardize or adversely modify critical habitat of federally listed species.

2. To provide a process and standard by which to ensure that threatened or endangered species receive full consideration in the decision making process.

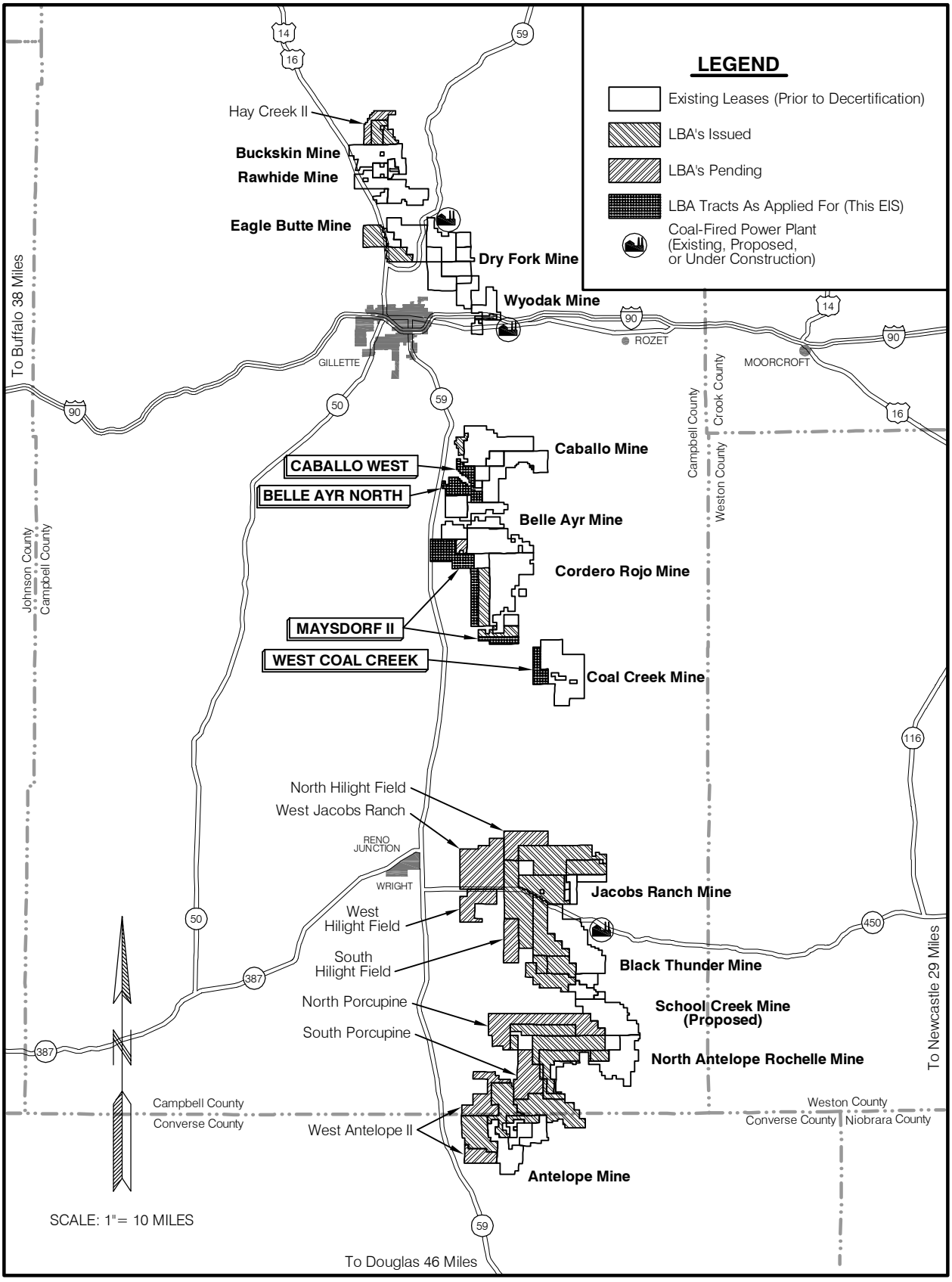

Figure H-1. General Location Map with Federal Coal Leases and LBA Tracts.

H-2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

H-2.1 The Proposed Action

On September 1, 2006, Cordero Mining Company filed an application with the BLM to lease federal coal reserves in a tract located west of and immediately adjacent to the Cordero Rojo Mine (Figure H-1). The tract was assigned case file number WYW173360. Under the Proposed Action for the Maysdorf II LBA Tract, the tract as applied for by CMC would be offered for lease at a sealed-bid, competitive lease sale. The boundaries of the tract would be consistent with the tract configuration proposed in the Maysdorf II LBA Tract lease application (Figure H-2). The Proposed Action assumes that CMC will be the successful bidder on the Maysdorf II LBA Tract if it is offered for sale.

The legal description of the proposed Maysdorf II LBA Tract coal lease lands as applied for by CMC under the Proposed Action is as follows:

T. 46 N., R. 71 W., 6th PM, Campbell County, Wyoming

Section 4: Lots 8, 9, 16, 17;	163.79 acres
Section 5: Lots 5, 12, 13, 20;	165.03 acres
Section 9: Lots 6 through 8;	122.86 acres
Section 10: Lots 7 through 10;	162.62 acres
Section 11: Lots 13 through 16;	161.87 acres
Section 14: Lots 1 through 4;	161.69 acres
Section 15: Lots 1 through 4;	162.59 acres

T. 47 N., R. 71 W., 6th PM, Campbell County, Wyoming

Section 7: Lots 6 through 11, 14 through 19;	490.18 acres
Section 17: Lots 1 through 15, and W½;	639.73 acres
Section 18: Lots 5 through 14, 19, 20;	481.50 acres
Section 20: Lots 1, 8, 9, 16;	154.31 acres
Section 21: Lots 4, 5, 12, 13;	157.69 acres
Section 28: Lots 4, 5, 12, 13;	165.80 acres
Section 29: Lots 1, 8, 9, 16;	164.45 acres

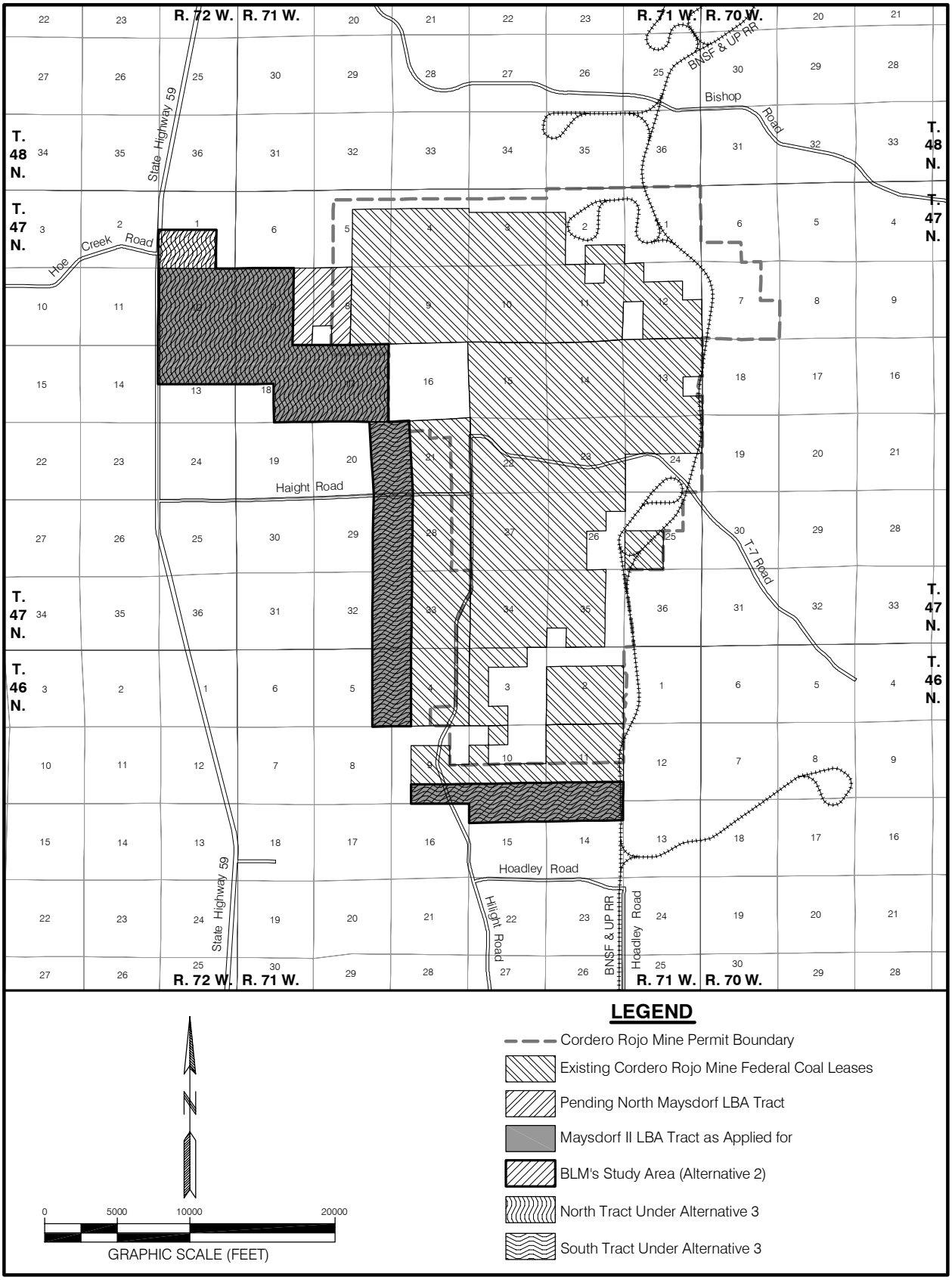

Figure H-2. Maysdorf II LBA Tract Alternatives.

Section 32: Lots 1, 8, 9, 16;	162.94 acres
Section 33: Lots 4, 5, 12, 13;	164.64 acres
T. 47 N., R. 72 W., 6th PM, Campbell County, Wyoming	
Section 12: Lots 1 through 16;	647.10 acres
Section 13: Lots 1 through 8.	325.04 acres
Total:	4,653.83 acres

The coal estate underlying this tract described above is owned by the federal government and administered by the BLM. The surface estate of the tract is privately and federally owned. The federal surface estate is administered by BLM. Surface ownership is shown in Figure H-3.

The tract as applied for includes approximately 4,653.8 mineable acres. It is assumed that an area larger than the tract would have to be disturbed in order to recover all of the coal in the tract. The disturbances outside of the tract would be due to activities like overstripping, matching undisturbed topography, and construction of flood control and sediment control structures.

Under the Proposed Action for the Maysdorf II LBA Tract, if a decision is made to hold a competitive lease sale and if there is a successful bidder at that sale, a lease would be issued for the tract of federal coal as applied for. The tract offered for lease would be subject to standard and special lease stipulations developed for the Wyoming Powder River Basin (PRB). The stipulations that would be attached to a lease for the Maysdorf II LBA Tract are listed in Appendix D of the SGAC EIS document. The following stipulation relating to T&E species is one of the special stipulations developed for the Wyoming PRB:

> *THREATENED, ENDANGERED, CANDIDATE, or OTHER SPECIAL STATUS PLANT and ANIMAL SPECIES – 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.*

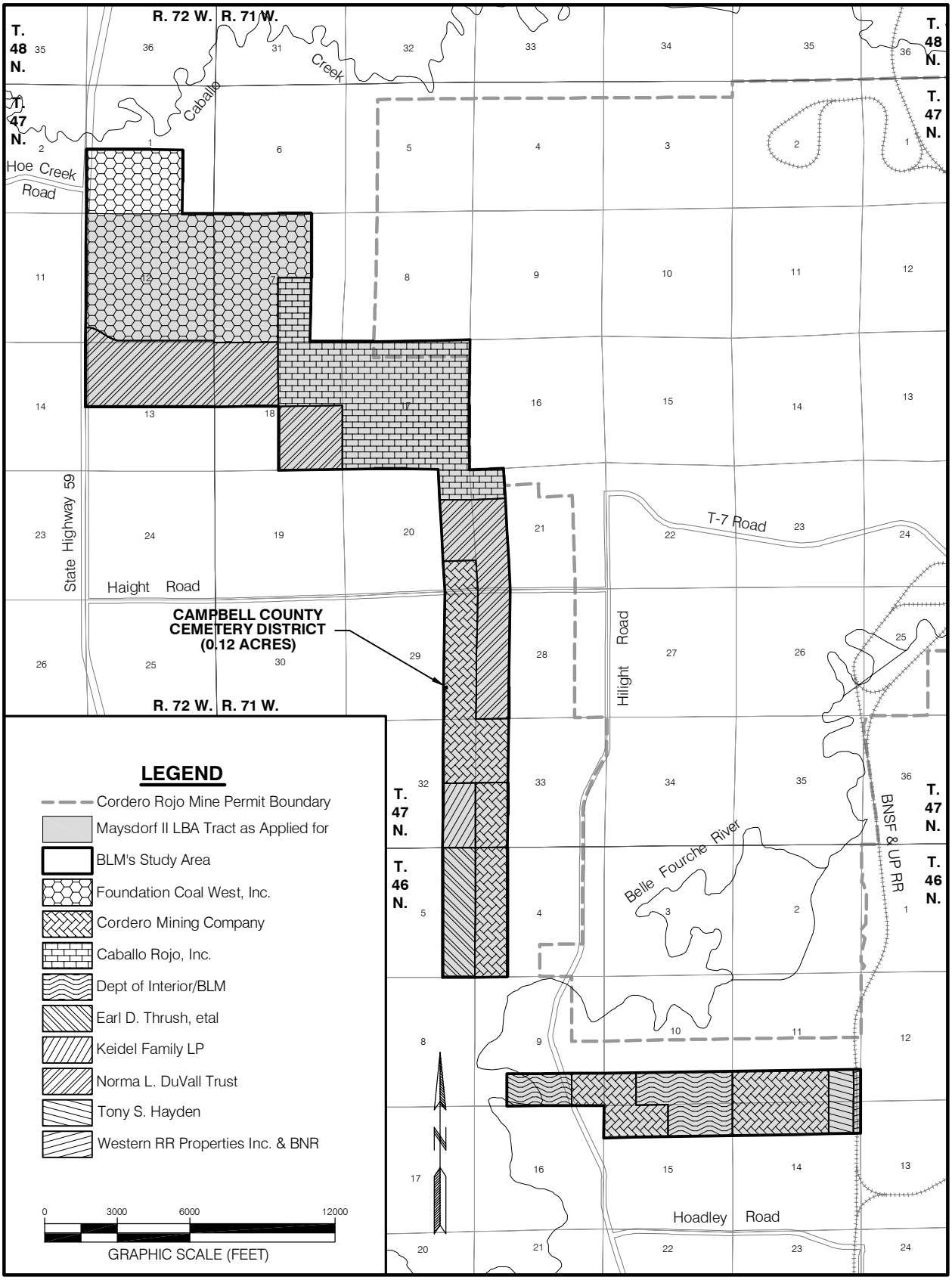

Figure H-3. Surface Ownership Within the Maysdorf II LBA Tract Alternatives.

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.

Not all of the coal included in the Maysdorf II LBA Tract is considered to be mineable at this time. A portion Wyoming State Highway 59 and portions of the Haight Road (County Road 44) and the Hilight Road (County Road 52) overlie some of the coal included in the tract. As discussed in Chapter 1, Section 1.1, the Surface Mining Control and Reclamation Act prohibits mining within 100 ft on either side of the right-of-way of any public road (43 CFR 3461). The coal underlying the portions of Highway 59, the Haight and Hilight Roads, and their rights-of-way, and the 100 ft buffer zones within the Maysdorf II LBA Tract could be mined if WYDOT and the Campbell County Board of Commissioners, the authorized agencies, determine that the roads can be moved [30 CFR 761.11(d)]. CMC does not have plans to relocate the highway at this time but CMC is evaluating the feasibility of relocating the county roads. CMC estimates that approximately 3.0 million tons of mineable coal are included within the right-of-way of Highway 59 and associated 100 ft buffer zone that is within the LBA tract. CMC estimates that approximately 17 million tons of mineable coal are included within the rights-of-way of the Haight and Hilight Roads and associated 100 ft buffer zones that are within the LBA tract.

The Maysdorf Point Cemetery, a small rural cemetery owned by the Campbell County Cemetery District, overlies some of the coal included in the tract. SMCRA prohibits mining within 100 ft of a cemetery [30 CFR 761.11(g) and 43 CFR 3461.5(c)(1)]. The coal underlying the cemetery and the buffer zone could be mined if the cemetery is relocated in accordance with all applicable laws and regulations. CMC, the Campbell County Cemetery District, and the Haight Family are working on a plan to relocate the remains currently located in the cemetery. CMC estimates that approximately 0.2 million tons of mineable coal are included within 100 ft of the cemetery.

CMC estimates that within the BNSF & UP railroad ROW, the Maysdorf II BLM study area contains approximately 1.6 million tons of mineable coal. The coal underlying the ROW is not considered to be mineable at this time because the cost that would be associated with moving the railroad would make it economically unfeasible to recover the underlying coal.

The Maysdorf II LBA Tract as applied for contains approximately 504.0 million tons of in-place coal reserves. Excluding the federal coal reserves within the railroad right-of-way, the highway and county road rights-of-way and buffer

zones, the Maysdorf Point Cemetery and buffer zone, and taking into account the no-coal zone, CMC estimates that the Maysdorf II LBA Tract as applied for contains approximately 482.5 million tons of mineable coal reserves. Using CMC's projected recovery factor of 90 percent of the mineable coal reserves included in BLM's tract reconfiguration, the tract would contain about 434.3 million tons of recoverable coal. At the average annual coal production rate of 46.3 mmtpy, mining this coal would extend mine life by over 9 years.

Under this scenario, a total of 708.1 million tons of coal would be mined after January 1, 2008, with an estimated 434.0 million tons coming from the LBA tract. Under the Proposed Action, it is assumed that the LBA tract would be developed as a maintenance lease to extend the life of the adjacent existing Cordero Rojo Mine. As a result, under the Proposed Action, the coal included in the tract would be mined by existing employees using existing facilities and roads.

H-2.2 Alternatives to the Proposed Action

H-2.2.1 Alternative 1

Under Alternative 1, the No Action Alternative, the application to lease the coal included in the Maysdorf II LBA Tract would be rejected, the tract would not be offered for competitive sale, and the coal included in the tract would not be mined. This would not affect permitted mining activities and employment on the existing leases at Cordero Rojo Mine and would not preclude an application to lease the federal coal included in the Maysdorf II LBA Tract in the future. No additional surface of the Maysdorf II LBA Tract would be disturbed due to overstripping to allow coal to be removed from the adjacent existing leases.

H-2.2.2 Alternative 2

Under Alternative 2 for the Maysdorf II LBA Tract, BLM would reconfigure the tract, hold a competitive coal sale for the lands included in the reconfigured tract, and issue a lease to the successful bidder. In evaluating the Maysdorf II coal lease application, BLM identified a study area, which includes unleased federal coal adjacent to the northern edge of the tract as applied for (Figure E-2). BLM is evaluating the potential that some or all of these lands could be added to the tract to provide for more efficient recovery of the federal coal, increase competitive interest in the tract, and/or reduce the potential that some of the potentially mineable federal coal in this area would be bypassed in the future if it is not included in the Maysdorf II LBA Tract. The modified tract would be subject to standard and special lease stipulations developed for the PRB and this tract if it is offered for sale, as discussed above. Alternative 2 for the Maysdorf II LBA Tract assumes that CMC would be the successful bidder on the tract if a lease sale is held and that the tract would be developed as a maintenance lease to extend the life of the adjacent Cordero Rojo Mine. Other assumptions are the same as for the Proposed Action. The lands that BLM is considering adding to the tract are:

T.47N., R.72W., 6th P.M., Campbell County, Wyoming

Section 1: Lots 9 through 13, and NW¼SE¼; 241.80 acres

The legal description of BLM's reconfiguration of the Maysdorf II LBA Tract under Alternative 2 is as follows:

T. 46 N., R. 71 W., 6th PM, Campbell County, Wyoming

Section 4: Lots 8, 9, 16, 17; 163.79 acres

Section 5: Lots 5, 12, 13, 20; 165.03 acres

Section 9: Lots 6 through 8; 122.86 acres

Section 10: Lots 7 through 10; 162.62 acres

Section 11: Lots 13 through 16; 161.87 acres

Section 14: Lots 1 through 4; 161.69 acres

Section 15: Lots 1 through 4; 162.59 acres

T. 47 N., R. 71 W., 6th PM, Campbell County, Wyoming

Section 7: Lots 6 through 11, 14 through 19; 490.18 acres

Section 17: Lots 1 through 15, and W½; 639.73 acres

Section 18: Lots 5 through 14, 19, 20; 481.50 acres

Section 20: Lots 1, 8, 9, 16; 154.31 acres

Section 21: Lots 4, 5, 12, 13; 157.69 acres

Section 28: Lots 4, 5, 12, 13; 165.80 acres

Section 29: Lots 1, 8, 9, 16; 164.45 acres

Section 32: Lots 1, 8, 9, 16; 162.94 acres

Section 33: Lots 4, 5, 12, 13; 164.64 acres

T. 47 N., R. 72 W., 6th PM, Campbell County, Wyoming

Section 1: Lots 9 through 13, and NW¼SE¼; 241.80 acres

Section 12: Lots 1 through 16; 647.10 acres

Section 13: Lots 1 through 8.	325.04 acres
Total:	4,895.63 acres

A portion Wyoming State Highway 59 and portions of the Haight Road (County Road 44) and the Hilight Road (County Road 52) overlie some of the coal included in the tract. As discussed in Chapter 1, Section 1.1, the Surface Mining Control and Reclamation Act prohibits mining within 100 ft on either side of the right-of-way of any public road (43 CFR 3461). The coal underlying the portions of Highway 59, the Haight and Hilight Roads, and their rights-of-way, and the 100 ft buffer zones within the Maysdorf II LBA Tract could be mined if WYDOT and the Campbell County Board of Commissioners, the authorized agencies, determine that the road can be moved [30 CFR 761.11(d)]. CMC does not have plans to relocate the highway at this time but CMC is evaluating the feasibility of relocating the county roads. CMC estimates that approximately 3.0 million tons of mineable coal are included within the right-of-way of Highway 59 and associated 100 ft buffer zone that is within the LBA tract. CMC estimates that approximately 17 million tons of mineable coal are included within the rights-of-way of the Haight and Hilight Roads and associated 100 ft buffer zones that are within the LBA tract.

CMC estimates that the reconfigured tract includes approximately 533.0 million tons of in-place coal. After eliminating coal that lies within the railroad ROW, the public road rights-of-way and buffer zones, and the Maysdorf Point Cemetery and buffer zone, CMC estimates that the reconfigured tract includes approximately 510.3 million tons of mineable coal. Using CMC's projected recovery factor of 90 percent, the reconfigured tract would contain about 459.3 million tons of recoverable coal.

H-2.2.3 Alternative 3

Under Alternative 3 for the Maysdorf II LBA Tract, BLM is considering dividing the tract and offering two tracts for sale at separate, competitive sealed bid sales (Figure H-2). The two tracts would each be subject to standard and special lease stipulations developed for the PRB and for each tract if they are offered for sale, as discussed above.

Alternative 3 for the Maysdorf II LBA Tract assumes that CMC would be the successful bidder on the two tracts if lease sales are held and that the tracts would be mined as maintenance leases for the Cordero Rojo Mine. Other assumptions would be the same as for the Maysdorf II LBA Tract Proposed Action.

As shown in Figure H-2, the Maysdorf II LBA Tract is comprised of two non-contiguous blocks of federal coal. Under Alternative 3, the North Maysdorf II LBA Tract would consist of the northernmost block of coal and the South Maysdorf II LBA Tract would consist of the two southern blocks of coal, as

shown in Figure H-2. BLM is considering dividing the tract because the north tract would potentially be of competitive interest to more than one mine.
As discussed under Alternative 2, BLM has identified a study area, described above and shown in Figure H-2. Under Alternative 3, the BLM could add all, part, or none of the study area to the Maysdorf II LBA Tract as applied for.

The lands that BLM is considering including in the north tract are:

T. 47 N., R. 71 W., 6th PM, Campbell County, Wyoming

Section 7: Lots 6 through 11, 14 through 19;	490.18 acres
Section 17: Lots 1 through 15, and W½;	639.73 acres
Section 18: Lots 5 through 14, 19, 20;	481.50 acres

T. 47 N., R. 72 W., 6th PM, Campbell County, Wyoming

Section 1: Lots 9 through 13, and NW¼SE¼;	241.80 acres
Section 12: Lots 1 through 16;	647.10 acres
Section 13: Lots 1 through 8;	325.04 acres
Total:	2,825.35 acres

The lands that would be included in the south tract under BLM's Alternative 3 are:

T. 47 N., R. 71 W., 6th PM, Campbell County, Wyoming

Section 20: Lots 1, 8, 9, 16;	154.31 acres
Section 21: Lots 4, 5, 12, 13;	157.69 acres
Section 28: Lots 4, 5, 12, 13;	165.80 acres
Section 29: Lots 1, 8, 9, 16;	164.45 acres
Section 32: Lots 1, 8, 9, 16;	162.94 acres
Section 33: Lots 4, 5, 12, 13;	164.64 acres

T. 46 N., R. 71 W., 6th PM, Campbell County, Wyoming

Section 4: Lots 8, 9, 16, 17;	163.79 acres
Section 5: Lots 5, 12, 13, 20;	165.03 acres

Section 9: Lots 6 through 8;	122.86 acres
Section 10: Lots 7 through 10;	162.62 acres
Section 11: Lots 13 through 16;	161.87 acres
Section 14: Lots 1 through 4;	161.69 acres
Section 15: Lots 1 through 4.	162.59 acres
Total:	2,070.28 acres

Under Alternative 3 reconfiguration of the Maysdorf II LBA Tract, the north tract would include approximately 2,825.4 acres containing approximately 326.4 million tons of in-place coal and the south tract would include approximately 2,070.3 acres containing approximately 206.6 million tons of in-place coal, according to information provided by the applicant. The north tract includes the area that would not be mined within the highway ROW and buffer zone, as discussed above. The south tract includes the areas that would not be mined within the Haight and Hilight County Roads and buffer zones, the BNSF & UP railroad ROW, and the Maysdorf Point Cemetery, as discussed under Alternative 2.

H-3.0 CONSULTATION TO DATE

The location of the existing Cordero Rojo Mine coal leases, the existing approved mine permit area, and the Maysdorf II LBA Tract are shown in Figure H-2.

The Cordero Rojo Mine and Maysdorf II LBA Tract are included in the area determined to be "acceptable for further consideration for leasing" as part of the coal screening process. The coal screening process is a four part process that includes application of the coal unsuitability criteria, which are defined in 43 CFR 3461.5. BLM has applied these coal screens to federal coal lands in Campbell County several times, starting in the early 1980s. Most recently, in 1993, BLM began the process of reapplying these screens to federal coal lands in Campbell, Converse, and Sheridan Counties. The results of this analysis were included as Appendix D of the 2001 *Approved Resource Management Plan for Public Lands Administered by the BLM Buffalo Field Office* (BLM 2001), which can be viewed on the Wyoming BLM website at http://www.wy.blm.gov in the NEPA documents section. Consultation with the U.S. Fish and Wildlife Service (USFWS) occurred in conjunction with the unsuitability findings under criterion 9 (Critical Habitat for Threatened or Endangered Plant and Animal Species), criterion 11 (Bald or Golden Eagle Nests), criterion 12 (Bald and Golden Eagle Roost and Concentration Areas), criterion 13 (Falcon Nesting Site(s) and Buffer Zone(s)), and criterion 14 (Habitat for Migratory Bird Species).

Appendix B of the SGAC EIS document summarizes the unsuitability criteria, describes the general findings for the screening analyses discussed above, and presents a validation of these findings for the Maysdorf II LBA Tract based on the current information.

Consultation with USFWS has previously been completed for the area included within the Cordero Rojo Mine's existing approved mining permit area, shown in Figure H-2, as part of the mining and reclamation plan approval process. This process began when the CMC Mine and CRI Mine were initially permitted in 1975 and 1980, respectively.

A letter dated March 18, 2005, from Brian Kelly, USFWS, Cheyenne, Wyoming, to Jim Orpet of Intermountain Resources (wildlife consultant for the Cordero Rojo Mine) approved CMC's current Raptor and Migratory Birds of High Federal Interest and Raptor Monitoring and Mitigation Plan (USFWS 2005a).

USFWS provided BLM a listing of the T&E species that may be present in the Maysdorf II coal lease project area in a memorandum letter from Brian T. Kelly, USFWS, Wyoming Field Office, Cheyenne, Wyoming, to Chris Hanson, BLM, Buffalo Field Office, Buffalo, Wyoming dated August 8, 2007 (USFWS 2007). The following list of species that was provided by USFWS represents the federally listed T&E species that may be present in Campbell County, Wyoming:

Black-footed ferret (*Mustela nigripes*): Endangered

Ute ladies'-tresses (*Spiranthes diluvialis*): Threatened

The August 8, 2007 memorandum provided recommendations for protective measures for T&E species in accordance with the Endangered Species Act. Protective measures for migratory birds in accordance with the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act and recommendations for the protection of wetlands (under Executive Order 11990 and Section 404 of the Clean Water Act) and for other fish and wildlife resources (under the Fish and Wildlife Coordination Act and the Fish and Wildlife Act of 1956) were also included. The memorandum identified the greater sage-grouse as a species of specific interest and the importance of identifying grouse habitats within the lease area and appropriate mitigation measures to minimize potential impacts to this species. The memorandum also stated that the USFWS would work with the BLM to ensure that the species-specific protective measures and programs for the conservation and recovery of listed species as required by under Section 7 of the Endangered Species Act are satisfied and carried out.

The Wyoming Game and Fish Department (WGFD) provided BLM with scoping comments for the four tracts included in the SGAC EIS in a letter from John Emmerich, Deputy Director, WGFD, Cheyenne, Wyoming, to Teresa Johnson, BLM, Casper Field Office, Casper, Wyoming, dated April 10, 2007 (WGFD 2007). WGFD recommended consideration be given to possible impacts to big

game, sage grouse, raptors, and nongame species and their habitat, and aquatic resources within the South Gillette Area Coal project area.

H-4.0 SPECIES HABITAT AND OCCURRENCE AND EFFECTS OF THE PROPOSED PROJECT

The Cordero Rojo Mine began producing coal in 1976. Wildlife monitoring has been conducted annually for the mine since the early 1980's. This wildlife monitoring was designed to meet the Wyoming Department of Environmental Quality/Land Quality Division (WDEQ/LQD), Wyoming Game and Fish Department (WGFD), and federal requirements for annual monitoring and reporting of wildlife activity on coal mining areas. Detailed procedures and site-specific requirements have been carried out as approved by WGFD and USFWS. The monitoring program was conducted in accordance with Appendix B of WDEQ/LQD Coal Rules and Regulations. Because the areas covered in the wildlife surveys included the mine's permit area and a large perimeter around the permit boundary, the entire Maysdorf II LBA Tract has been included in baseline inventories and annual wildlife surveys conducted for the Cordero Rojo Mine since wildlife studies began.

The approved Cordero Rojo Mine Permit 237 Term T7 (CMC 2005) includes monitoring and mitigation measures for the Cordero Rojo Mine that are required by SMCRA and Wyoming State Law. If the Maysdorf II LBA Tract is acquired by CMC, these monitoring and mitigation measures would be extended to cover operations on the LBA tract when the Cordero Rojo Mine's mining permit is amended to include the tract. This amended permit would have to be approved before mining operations could take place on the tract. These monitoring and mitigation measures are considered to be part of the Proposed Action and Alternatives 2 and 3 during the leasing process because they are regulatory requirements.

Background information on T&E species in the vicinity of the Maysdorf II LBA Tract was drawn from several sources, including: wildlife survey reports submitted by the Cordero Rojo Mine to the WDEQ/LQD from 1974 through 2005, the Final South Powder River Basin Coal EIS (BLM 2003), the Maysdorf Coal FEIS (BLM 2007), a Wyoming Natural Diversity Database search (University of Wyoming 2001), and from WGFD and USFWS records and contacts in 2004 and 2005. In addition, the Maysdorf II LBA Tract wildlife study area falls within the wildlife monitoring areas for the nearby Belle Ayr and Coal Creek Mines (Figure H-1).

Site-specific data for a substantial portion of the tract as applied for and the study area for Alternatives 2 and 3 were obtained from several sources, including WDEQ/LQD permit applications and annual wildlife reports for the Cordero Rojo Mine and other nearby coal mines. Baseline wildlife studies were conducted by Intermountain Resources (IR) expressly for the Maysdorf II LBA Tract in 2006-2007. Figure H-4 depicts IR's T&E animal species survey areas for the Maysdorf II LBA Tract.

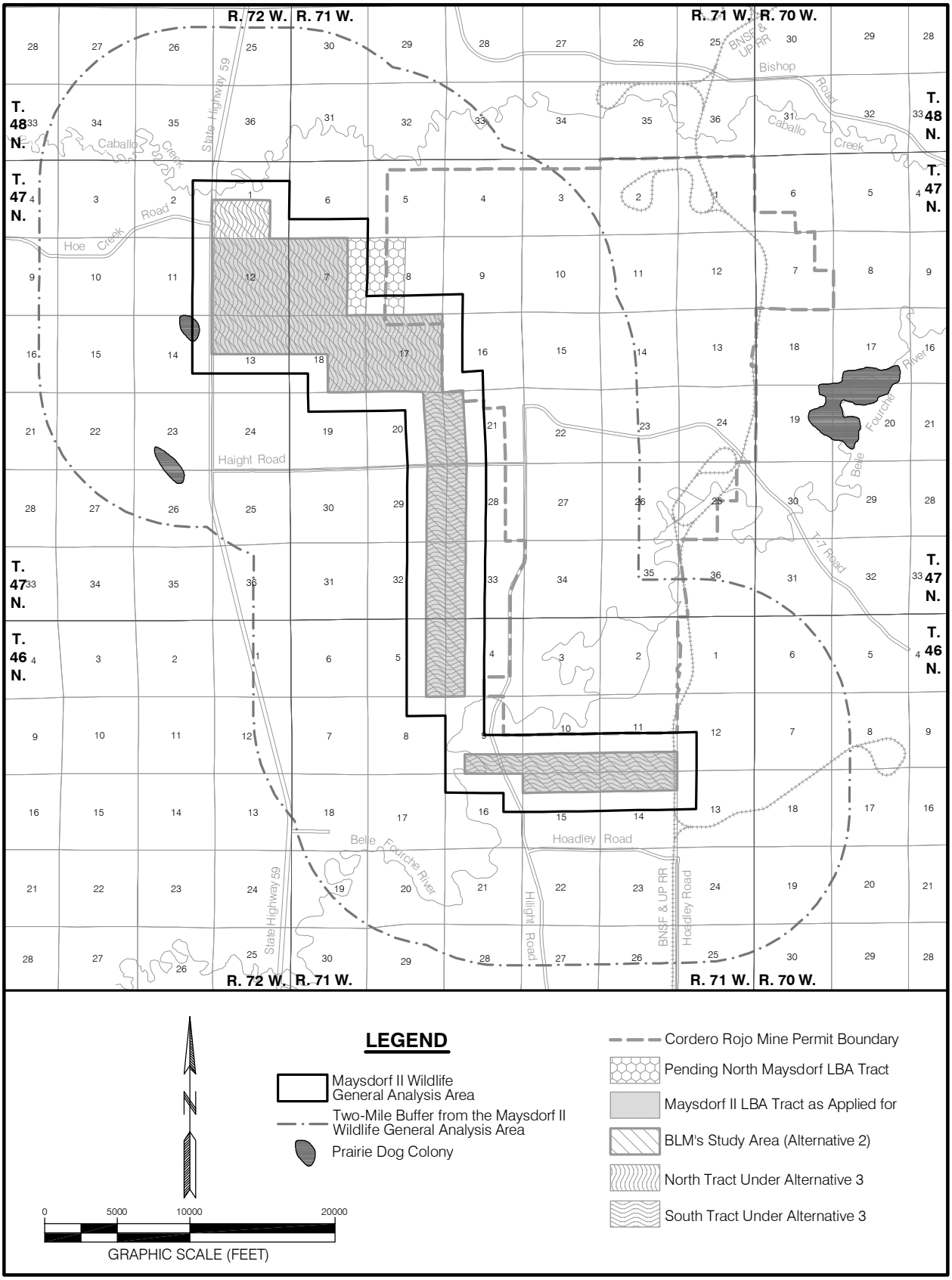

Figure H-4. T&E Species Survey Area for the Cordero Rojo Mine and the Maysdorf II LBA Tract.

The Maysdorf II LBA Tract is in an area of gently rolling terrain of moderate relief influenced by the Belle Fourche River and its tributary, Caballo Creek. Elevation ranges from 4,540 to 4,885 ft within the LBA tract and from 4,520 to 4,885 ft including the area added under Alternatives 2 and 3. Within the LBA tract and the area added under Alternatives 2 and 3, slopes range from flat in the Belle Fourche River floodplain to over 57 percent in the adjacent breaks. The breaks are sharp transitions between the bottomlands and the uplands. The slopes of the gently rolling uplands, which comprise most of the LBA tract, seldom exceed 10 percent. A slope analysis would be done for the LBA tract if a lease sale is held and it is proposed for mining.

Predominant wildlife habitat types classified on the LBA tract and adjacent area correspond with the major plant communities defined during the vegetation baseline study and consist primarily of sagebrush/grassland, grassland, and seeded grassland. Other habitats present in limited extent include disturbance, bottomland, and rough breaks. Networks of road, pipeline, tank battery, and well-pad disturbance areas associated with oil and gas development overlay much of the study area.

The Maysdorf II LBA Tract consists predominantly of gently rolling topography, although the southern portion is dissected by the Belle Fourche River bottomlands and breaks. The Belle Fourche River flows roughly east-northeast through the southern portion of the tract and is currently diverted from its natural channel in this area to facilitate mining within the existing Cordero Rojo Mine permit area. The diversion channel was constructed in 1995. All streams in the region show the characteristic extreme low-flow period from October through January. Flow events frequently result from snowmelt during the late winter and early spring. Although peak discharges from such events are generally small, the duration and therefore the percentage of annual runoff volume can be considerable. During the spring, general storms (both rain and snow) increase soil moisture; hence decreasing infiltration capacity, and subsequent rainstorms can result in both large runoff volumes and high peak discharges. Limited segments of the Belle Fourche River do receive recharge from bank storage (groundwater stored in the alluvium along the stream channel) and flow throughout the year, making the stream locally intermittent.

The wetland analysis area includes the Maysdorf II LBA Tract as applied for, the lands added under Alternatives 2 and 3, and a ¼-mile disturbance buffer around the tract sufficient to mine and reclaim the tract as a part of the existing Cordero Rojo Mine operation. Cordero Rojo Mine conducted a preliminary wetlands inventory in 2005 and 2006 of the lands within the wetlands analysis area, based on USFWS NWI mapping and vegetation mapping in the field ESCO (2007). The area investigated is located almost entirely outside of the existing Cordero Rojo Mine permit area, west and south of the current permit boundary. Some wetland areas previously mapped by the USFWS NWI project have been recently altered somewhat due to CBNG-related water production within and upstream of the Maysdorf II wetlands analysis area. The boundaries of the existing potential wetlands may vary to a greater

or lesser extent from the boundaries shown on the NWI maps, and current field conditions may not be representative of the field conditions in the future. Due to the ephemeral nature of CBNG dewatering activities, the wetland boundaries and areas are likewise ephemeral. A formal wetland delineation survey of the area proposed for mining would be conducted and submitted to the COE for verification as part of the mining and reclamation permit process, if the LBA tract is leased.

Based on the existing USFWS NWI mapping data (which may be somewhat outdated) and the vegetation mapping that was conducted in 2005 and 2006, a total of approximately 140.15 acres of wetlands and other Waters of the U.S. occur within the wetlands analysis area. Of this 140.15 acres identified, approximately 133.54 acres are vegetated wetlands and the remaining 6.61 acres are other Waters of the U.S. The majority of the wetlands are associated with the watercourses of the Belle Fourche River and Caballo Creek, diked or impounded reservoirs, and internally drained depressions/playas, while the majority of the other Waters of the U.S. are associated with ephemeral stream channels and areas of open water. These areas that occur within and adjacent to the Maysdorf II LBA Tract are shown on Figure S4-6 in the SGAC Supplementary Information document.

Within the proposed lease area and adjacent study area there is no "critical" habitat designated by USFWS for T&E species. The following discussion describes species' habitat requirements and their occurrence in the area of the Maysdorf II LBA Tract and evaluates the potential environmental effects of the Proposed Action and Alternatives 2 and 3 on federal T&E species.

H-4.1 Threatened Species

H-4.1.1 Ute ladies'-tresses (*Spiranthes diluvialis*)

Ute ladies'-tresses, a member of the orchid family, was listed as threatened on January 17, 1992 due to a variety of factors, including habitat loss and modification, hydrological modifications of existing and potential habitat areas, and invasion of exotic plant species. At the time of listing, Ute ladies'-tresses was only known from north-central Colorado, northern and south-central Utah, and southeastern Nevada. As of September 2005, it had also been found in western Nebraska, southeastern Wyoming, southwestern Montana, and north-central Washington, while new populations had been documented in northwestern Colorado and northern Utah (Fertig, et al. 2005). USFWS has determined that a petition to remove the Ute ladies'-tresses orchid from federal protection under the Endangered Species Act provides substantial biological information to indicate that removal may be warranted. The petition was received from the Central Utah Water Conservancy District (USFWS 2004).

Biology and Habitat Requirements: Ute ladies'-tresses is a perennial, terrestrial orchid with erect, glandular-pubescent stems 8 to 20 inches tall arising from tuberous-thickened roots. This species typically flowers from late

July through August. The flowers are white or ivory and clustered into a spike at the top of the stem; however, depending on location and climatic conditions, it may bloom in early July or still be in flower as late as early October (USFWS 2005b). Plants probably do not flower every year and may remain dormant below ground during drought years. The total known population of this species is currently estimated to be 60,000 individuals (USFWS 2004). Occurrences range in size from one plant to a few hundred individuals.

Ute ladies'-tresses occurs primarily on moist, subirrigated or seasonally flooded soils bordering wetland meadows, springs, lakes, or perennial streams. The elevation range of known occurrences is 4,200 to 7,000 feet in alluvial substrates along riparian edges, gravel bars, old oxbows, and moist to wet meadows. Soils where the orchid has been found typically range from fine silt/sand to gravels and cobbles, as well as to highly organic and peaty soil types. The Ute ladies'-tresses orchid is not found in heavy or tight clay soils or in extremely saline or alkaline soils. The orchid seems intolerant of shade and small scattered groups are found primarily in areas where vegetation is relatively open (USFWS 2005). Ute ladies'-tresses orchid is commonly associated with horsetail, milkweed, verbena, blue-eyed grass, reedgrass, goldenrod, bentgrass and arrowgrass.

Populations are often dynamic and "move" within a watershed as disturbances create new habitat or succession eliminates old habitat (Fertig and Beauvais 1999). The orchid is well adapted to disturbances from stream movement and is tolerant of other disturbances, such as grazing, that are common to grassland riparian habitats (USFWS 1995). Ute ladies'-tresses colonize early successional riparian habitats such as point bars, sand bars, and low-lying gravelly, sandy, or cobbley edges, persisting in those areas where the hydrology provides continual dampness in the root zone through the growing season. The orchid establishes in heavily disturbed sites, such as revegetated gravel pits, heavily grazed riparian edges, and along well-traveled foot trails on old berms (USFWS 1995).

Prior to 2005, four orchid populations had been documented within Wyoming, all discovered between 1993 and 1997 (Fertig and Beauvais 1999). Four additional sites were located in 2005 and one additional site was found in 2006 (Heidel, 2007). The new locations were in the same drainages or tributaries as the original four populations. Drainages with documented orchid populations include Antelope Creek and tributaries in northern Converse County, Bear Creek in northern Laramie and southern Goshen Counties, Horse Creek in Laramie County, and Niobrara River in Niobrara County. No occurrences have been recorded in Campbell County or in the Belle Ayr North wildlife general analysis area in Converse County.

Existing Environment: The Maysdorf II LBA includes a reach of the Belle Fourche River and along that reach are wetland and "moist-land" plant communities that offer seemingly possible habitat for Ute Ladies'-Tresses Orchid. Likewise, there exist isolated wet depressions along some upland

drainages that support hydrophytes such as common spikerush or field clustered sedge. These latter sites were deemed unlikely though remotely possible habitat so were included in field searches. Pedestrian surveys of the Belle Fourche and isolated upland depression areas were conducted for Ute Ladies'-Tresses Orchid by ESCO Associates in August 2005 and 2006.

Playa Grassland was suggested by USFWS (personal communication) as suitable habitat and the portion of the LBA site occupied by this type was also searched in August 2006 with the same results. Eastern Wyoming playas, except during hypothetically potential extraordinary years of unrelenting spring and summer rain, would probably never naturally sustain the moist conditions required by the orchid. Even following the springs when the playas do occasionally, but only temporarily, include standing water, subsequent summer conditions accompany a thorough drying that excludes any routine manifestation of moisture-loving perennial plant species such as the orchid. The highly saline nature of certain of these interior drainages also makes it unlikely that the orchid would occur.

No individuals of the Ute ladies'-tresses orchid were located during the 2005 and 2006 surveys. Other than limited areas along the Belle Fourche River and at isolated upland depressions, most of the land within the Maysdorf II LBA Tract and adjacent study area is not potential Ute ladies'-tresses habitat. This includes highly disturbed or modified sites, upland habitat types, and sites inundated by standing water.

A total of approximately 140.15 acres of wetlands and other Waters of the U.S. occur within the wetlands analysis area. Of this 140.15 acres identified, approximately 133.54 acres are vegetated wetlands and the remaining 6.61 acres are other Waters of the U.S. The majority of the wetlands are associated with the watercourses of the Belle Fourche River and Caballo Creek, diked or impounded reservoirs, and internally drained depressions/playas, while the majority of the other Waters of the U.S. are associated with ephemeral stream channels and areas of open water.

Effects of the Proposed Project: **Mining the federal coal included in the Maysdorf II LBA Tract, if the tract is leased under the Proposed Action or Alternatives 2 and 3, may affect, but is not likely to adversely affect Ute ladies'-tresses.** Typical suitable habitat for this species on the tract is very limited and found along the CBNG-impacted bottomlands of the Belle Fourche River and its tributaries and at isolated upland depressions. However, the quality of potential habitat is extremely poor. Outside of the narrow riparian strips located along these impacted watercourses, typical suitable habitat is rare or non-existent in the study area. Multiple surveys of the existing suitable habitat at the Cordero Rojo Mine and other mines in this area have not found any Ute ladies'-tresses. Because of the ability of this species to persist below ground or above ground without flowering, single season surveys that meet the current USFWS survey guidelines may not detect populations. If undetected populations are present, they could be lost to surface disturbing activities.

Jurisdictional wetlands located in the Maysdorf II LBA Tract that are destroyed by mining operations would be replaced in accordance with the requirements of Section 404 of the Clean Water Act, as determined by COE. The replaced wetlands may not duplicate the exact function and landscape features of the pre-mine wetlands. COE considers the type and function of each jurisdictional wetland that will be impacted and may require restoration of additional acres if the type and function of the restored wetlands will not completely replace the type and function of the original wetland. Replacement of non-jurisdictional and functional wetlands may be required by the surface land owner and/or WDEQ/LQD. WDEQ/LQD allows and sometimes requires mitigation of non-jurisdictional wetlands affected by mining, depending on the values associated with the wetland features.

Cumulative Effects: Alterations of stream morphology and hydrology are believed to have extirpated Ute ladies'-tresses from most of its historical range (USFWS 2002). Disturbance and reclamation of streams by surface coal mining may alter stream morphology and hydrology. The large quantities of water produced with CBNG development and discharged on the surface may also alter stream morphology and hydrology.

H-4.2 Endangered Species

H-4.2.1 Black-footed ferret (*Mustela nigripes*)

The black-footed ferret is a nocturnal mammal and an obligate associate of prairie dogs (*Cynomys* spp.). Ferrets were listed as endangered in March, 1967. This species is thought to have historically inhabited prairie dog colonies in the short-grass prairies of the eastern and southern Rockies, and across the Great Plains of North America. However, since the early 1900s, numerous factors have led to a decrease in potential habitat to less than 2 percent of its former acreage.

Conversion of grasslands to agricultural landscapes, eradication of prairie dogs, and diseases such as the plague and canine distemper have resulted in severe reductions in prairie dog colonies across the west, colonies which provided food, shelter, and habitat for black-footed ferrets. This species of ferret is currently one of the most endangered mammals in North America and was thought to be extinct until a small population was discovered in Meeteetse, Wyoming in September, 1981. Since then, successful captive breeding and reintroduction programs have released black-footed ferrets back into the wild in several western and Great Plains states including Wyoming, Montana, South Dakota, Colorado, Utah, and Arizona.

Biology and Habitat Requirements: Ferrets rely on prairie dogs to provide both shelter and food (Hillman and Clark 1980). Ferrets produce one litter per year, typically giving birth to four or five kits. The decline in ferret populations has been largely attributed to the reduction in the vast prairie dog colonies that historically existed in the western United States. Despite extensive ferret

surveys over the past 20 plus years throughout Wyoming, the last known wild black-footed ferret population was discovered near Meeteetse in 1981 (Miller et al. 1996). Those surveys included numerous USFWS-approved clearances for coal mining and other development in the Powder River Basin of Wyoming, as well as USDA-FS surveys for ferrets on the TBNG. Reintroduction efforts involving captive bred individuals have successfully established one black-footed ferret population in the Shirley Basin area in south-central Wyoming. Currently, this is the only known black-footed ferret population within the state, though other populations are present elsewhere in the United States and Mexico.

Existing Environment: The Maysdorf II LBA Tract is within the historical range of the black-footed ferret, although no black-footed ferrets are presently known to occur in northeastern Wyoming. During the 1980s, WGFD, in cooperation with other agencies, conducted searches for black-footed ferrets in Wyoming in the places they were most likely to be found, but these searches were not successful (Martin Grenier, personal communication, 10/14/2003). In a February 2, 2004 letter to interested parties, the USFWS declared that black-footed ferret surveys are no longer necessary in black-tailed prairie dog colonies within Wyoming.

Intermountain Resources has mapped the current acreage of prairie dog colonies in the vicinity of the Cordero Rojo Mine by walking the perimeters of colonies and delineating them on topographic maps. No black-tailed prairie dog colonies are currently present on the Maysdorf II LBA Tract as proposed and on the area added by Alternatives 2 and 3. One black-tailed prairie dog colony is located less than 1 mile east of the Cordero Rojo Mine's current permit area while two other small colonies are located within 2 miles of the Maysdorf II LBA Tract. One of these colonies is within the Maysdorf II wildlife general analysis area (Figure H-4). The boundaries shown on Figure H-4 and are historical town boundaries and, although black-tailed prairie dogs still exist in the areas, their numbers and distribution may be much smaller than previously recorded.

Effects of the Proposed Project: **Mining the federal coal included in the Maysdorf II LBA Tract, if a lease is issued under the Proposed Action or Alternatives 2 and 3, would have no effect on black-footed ferrets.** There are no black-tailed prairie dog colonies present on the Maysdorf II LBA Tract or in the BLM study area under Alternatives 2 and 3. The black-footed ferret is almost entirely dependent on the prairie dog for survival. The reductions in black-tailed prairie dog populations due to poisoning prior to 1972 and due to recent plague outbreaks have reduced the potential for black-footed ferret survival in northeastern Wyoming. Searches of the best remaining black-footed ferret habitat in Wyoming conducted in the 1980s were not successful in finding any ferrets. General wildlife surveys and specific ferret surveys have been conducted for many years at the Cordero Rojo Mine, and at other mines in this area. No black-footed ferrets were observed within BLM study area during these surveys. Two black-tailed prairie dog colonies are located within

2 miles of the Maysdorf II LBA Tract (one within the Maysdorf II wildlife general analysis area), but they are west of Highway 59 and not within the anticipated Maysdorf II disturbance area (Figure H-4).

Cumulative Effects: Mineral development within black-tailed prairie dog colonies is a leading cause of ferret habitat loss in the PRB. Surface coal mining tends to have more intense impacts on fairly localized areas, while oil and gas development tends to be less intensive but spread over larger areas. Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. In reclaimed areas, vegetation cover may differ from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the approved plant species are native to the area; however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats, particularly in the short-term, when species composition, shrub cover, and other environmental factors are likely to be different. Shifts in habitat composition or distribution following reclamation could increase or decrease potential habitat for prairie dogs and associated habitat for black-footed ferrets. However, black-tailed prairie dogs have been recorded invading and establishing towns on reclaimed coal mined lands in northeastern Wyoming (IR 2005).

Potential ferret habitat is also affected by other impacts to prairie dog populations. Plague can infect and eliminate entire prairie dog colonies. Poisoning and recreational prairie dog shooting may locally reduce prairie dog populations, but seldom completely eliminate colonies.

H-5.0 SUMMARY OF DETERMINATIONS

Table H-1 summarizes the determinations for federally listed T&E species in the area of the Maysdorf II LBA Tract that may result from implementing the Proposed Action or Alternatives 2 and 3.

Table H-1. Effects Evaluation of Federal T&E Species in the Area of the Maysdorf II LBA Tract.

Status	Species Common Name	Potential Effects
Threatened:	Ute ladies'-tresses	May affect[1]
Endangered:	Black-footed ferret	No effect

[1] Not likely to adversely affect individuals or populations.

H-6.0 REGULATORY REQUIREMENTS AND MITIGATION

The issuance of a Federal coal lease grants the lessee the exclusive rights to mine the coal, subject to the terms and conditions of the lease. Lease ownership is necessary for mining federal coal, but lease ownership does not

authorize mining operations. Surface coal mining operations are regulated in accordance with the requirements of the Surface Mining Control and Reclamation Act of 1977 (SMCRA) and Wyoming State regulations. SMCRA gives the Office of Surface Mining Reclamation and Enforcement (OSM) primary responsibility to administer programs that regulate surface coal mining operations and the surface effects of underground coal mining operations.

Pursuant to Section 503 of SMCRA, the WDEQ developed, and in November 1980 the Secretary of the Interior approved a permanent program authorizing WDEQ to regulate surface coal mining operations and surface effects of underground mining on nonfederal lands within the State of Wyoming. In January 1987, pursuant to Section 523(c) of SMCRA, WDEQ entered into a cooperative agreement with the Secretary of the Interior authorizing WDEQ to regulate surface coal mining operations and surface effects of underground mining on federal lands within the state. In order to get approval of this cooperative agreement, the state had to demonstrate that the state laws and regulations are no less stringent than, meet the minimum requirements of, and include all applicable provisions of SMCRA.

If the Maysdorf II LBA Tract is leased, it would be a maintenance lease for the existing Cordero Rojo Mine, which currently has both an approved Mineral Leasing Act of 1920 (MLA) mining plan and an approved State mining and reclamation permit. In the case of maintenance leases, such as the Maysdorf II LBA Tract, the existing MLA mining plan and State mining and reclamation plan must be amended to include any newly leased area before that area can be mined.

In order to amend the existing MLA mining plan and State mining and reclamation permit, the company would be required to submit a detailed permit application package to WDEQ before starting surface coal mining operations on any newly acquired lease. WDEQ/LQD would review the permit application package to insure the permit application complies with the permitting requirements and the coal mining operation will meet the performance standards of the approved Wyoming program. If the permit application package does comply, WDEQ would issue the applicant an amended permit that would allow the permittee to extend coal mining operations onto the newly acquired lease.

Protection of fish, wildlife, and related environmental values is required under SMCRA regulations at 30 CFR 816.97, which state:

> "No surface mining activity shall be conducted which is likely to jeopardize the continued existence of endangered or threatened species listed by the Secretary of which is likely to result in the destruction or adverse modification of designated critical habitats of such species in violation of the Endangered Species Act of 1973, as amended."

In addition to requiring the operator to minimize disturbances and adverse impacts on fish, wildlife, and related environmental values, the regulations at 30 CFR 816.97 disallow any surface mining activity which is likely to jeopardize the continued existence of endangered or threatened species and require that the operator use the best technology currently available to minimize electrocution hazards to raptors; locate and operate haul and access roads to avoid or minimize impacts on important fish and wildlife species; and design fences, conveyors, and other potential barriers to permit passage of large mammals.

USFWS Section 7 consultation would be required prior to approval of the mining and reclamation plan modification. Additional measures to ensure compliance with the ESA and SMCRA can be developed when the detailed mining plan, which identifies the actual location of the disturbance areas, how and when they would be disturbed, and how they would be reclaimed, is developed and reviewed for approval. At the leasing stage, a detailed mining and reclamation plan is not available for evaluation or development of appropriate mitigation measures specific to an actual proposal to mine.

The following is a partial list of measures related to federally-listed species that are required as part of the mining and reclamation permits:

- avoiding bald and golden eagle disturbance per the Bald and Golden Eagle Protection Act of 1940 and the Migratory Bird Treaty Act;
- restoring bald eagle foraging areas disturbed by mining;
- using raptor safe power lines; and
- surveying for Ute ladies'-tresses if habitat is present.

H-7.0 CUMULATIVE IMPACTS

Existing habitat-disturbing activities in the PRB include surface coal mining; conventional oil and gas and CBNG development; uranium mining; sand and gravel, and scoria mining; ranching; agriculture; road, railroad, and power plant construction and operation; recreational activities; and rural and urban housing development. Mining, construction and agricultural activities, and urban development tend to have more intense impacts on fairly localized areas, while ranching, recreational activities, and oil and gas development tend to be less intensive but spread over larger areas. Oil and gas development and mining activities have requirements for reclamation of disturbed areas as resources are depleted. The net area of energy disturbance in the Wyoming PRB has been increasing. In the short term, this means a reduction in the available habitat for T&E plant and wildlife species. In the long term, habitat is being and will continue to be restored as reclamation proceeds.

BLM is in the process of completing a regional technical study of current and proposed or potential development activity in the PRB to help the agency evaluate the impacts of coal development in the PRB. The *Powder River Basin Coal Review* consists of three tasks: Task 1 updates the BLM's 1996 status

check for coal development in the PRB, Task 2 develops a forecast of reasonably foreseeable development in the PRB through the year 2020, and Task 3 predicts cumulative impacts that would be expected to occur as a result of the projected development. The information about existing development in the following paragraphs is taken from the *Powder River Basin Coal Review* Task 2 report (BLM 2005) and BLM lease records. The completed PRB Coal Review reports can be accessed at the BLM Wyoming website at http://www.wy.blm.gov/minerals/coal/prb/prbdocs.htm. The project area for Tasks 1 and 2 of the PRB Coal Review encompasses over eight million acres and includes all of Campbell, Sheridan, and Johnson Counties and the northern portion of Converse County in northeastern Wyoming.

Oil and gas exploration and production have been ongoing in the PRB for more than 100 years. Conventional (non CBNG) oil and gas fields are, for the most part, concentrated in the central and southern parts of the structural basin. Development of the CBNG resources from the coal beds is a more recent occurrence, with CBNG production in the Wyoming PRB starting in the late 1980s. As of 2003, an estimated 187,761 acres had been disturbed in the coal review project area as a result of oil and gas development activities, but approximately 115,045 acres of that disturbance has been reclaimed. This includes conventional oil and gas and CBNG wells and associated facilities and major transportation pipelines.

BLM estimates that the existing federal coal leases in the Wyoming PRB include approximately 121,185 acres. The currently pending federal coal LBA tracts (including the Maysdorf II LBA Tract) include approximately 25,585 additional acres. The majority of the coal in the areas permitted for surface coal mining is federal, but some state and private leases are included within some of the existing mine permit areas. All of the current and proposed federal coal leases are concentrated near the outcrop of the Wyodak coal bed, which is located in eastern Campbell County and the extreme northeastern edge of Converse County.

As of 2003, the base year for the PRB Coal Review, the surface coal mining operations along the Wyodak outcrop had disturbed approximately 68,794 acres. Approximately 24,097 of those acres of disturbance are occupied by "permanent" mine facilities, such as roads, buildings, coal handling facilities, etc., which are not available for reclamation until after coal mining operations end. Of the remaining 44,697 acres of disturbance available for reclamation, approximately 21,238 acres had been reclaimed.

The *Powder River Basin Coal Review* identified an estimated 4,891 additional acres of coal-related development disturbance (i.e., coal-fired power plants, railroads, and coal technology projects) as of 2003.

The estimated total development-related disturbance in the Wyoming PRB in 2003 was 264,704 acres. In addition to the coal and oil and gas development discussed above, this total includes other types of development disturbance,

such as reservoirs and industrial fabrication firms, as well as public and private infrastructure, such as highways and roads, government buildings, and residential and commercial real estate development. It should be noted that some of these disturbances overlap one another. In such cases, the disturbance acreage is counted separately under each category, but is not counted twice in determining the total area of disturbance.

Cumulative effects would also occur to T&E plant and wildlife resources as a result of indirect impacts. One factor is the potential import and spread of noxious weeds around roads and facilities. Noxious weeds have the ability to displace native vegetation and hinder reclamation efforts. Control of noxious weeds is addressed in surface coal mining and reclamation plans. If weed mitigation and preventative procedures are applied to all construction and reclamation practices, the impact of noxious weeds on T&E plants and wildlife would be minimized.

In reclaimed areas, vegetation cover often differs from undisturbed areas. In the case of surface coal mines, re-established vegetation would be dominated by species mandated in the reclamation seed mixtures (to be approved by WDEQ). The majority of the species in the approved reclamation seed mixtures are native to the area; however, reclaimed areas may not serve ecosystem functions presently served by undisturbed vegetation communities and habitats. In the short-term in particular, species composition, shrub cover, and other environmental factors are likely to differ from pre-disturbance vegetation communities and habitats. Establishment of noxious weeds and alteration of vegetation in reclaimed areas has the potential to alter T&E plant and wildlife habitat composition and distribution.

Potential adverse effects to listed and proposed species that have occurred and would continue to occur as a result of existing and potential future activities in the PRB would include direct loss of habitat, indirect loss of habitat due to human and equipment disturbance, and habitat fragmentation. The existing mines have developed mitigation procedures, as required by SMCRA (at 30 CFR 816.97) and Wyoming State regulations, to protect T&E species. These procedural requirements would be extended to include mining operations on the Maysdorf II LBA Tract, if it is leased as proposed and after required detailed plans to mine the coal and reclaim the mined-out areas are developed and approved.

H-8.0 CREDENTIALS OF SURVEY PERSONNEL

Intermountain Resources of Laramie, Wyoming

Jim Orpet

Mr. Orpet obtained a Bachelors of Science degree in Wildlife Management and a Master of Science degree in Range Management from the University of Wyoming and has accumulated over 28 years of field experience in wildlife surveys. This experience includes surveys for T&E species, surveys for species

of high state or federal interest and preparation of wildlife reports for over 100 projects throughout Wyoming. Mr. Orpet was qualified in 1987 by the WDEQ/LQD to conduct T&E and other plant and animal surveys on Abandoned Mine Lands (AML) projects within the state. Qualification at that time was based on review and approval of Mr. Orpet's credentials by the WGFD and the USFWS. Mr. Orpet has also completed numerous wetland surveys that have been approved by the COE.

Russel Tait

Mr. Tait obtained a Bachelor of Science degree in Wildlife Management from the University of Wyoming and has accumulated 14 years of field experience in wildlife surveys in Wyoming. Mr. Tait has assisted Mr. Orpet in completion of wildlife inventories for over nine years on coal mines and other resource development projects in Wyoming, including black-footed ferret surveys, bald eagle surveys, sage grouse lek surveys and surveys for other species of high federal or state interest.

ESCO Associates Inc. of Boulder, Colorado

David Buckner

Mr. Buckner obtained a Bachelors of Arts degree, Master of Arts degree, and Ph.D. in Plant Ecology from the University of Colorado and has accumulated over 21 years of field experience in vegetation and rare plant surveys.

Mr. Buckner's rare plant survey experience includes:

- *Asclepias ruthiae*, Grand County, Utah, 1982;
- *Stellaria irrigua*, La Plata County, Colorado;
- *Sclerocactur glaucus*, Mesa and Garfield Counties, Colorado, 1987;
- *Penstemon harringtonii*, Eagle, Grand, and Routte Counties, Colorado, 1982, 1990, 1991, 1993, and 1994.

Mr. Buckner's familiarity with *Spiranthes diluvialis* includes:

- observation of flowering populations in Boulder County, Colorado, 1991-2004;
- observation of vegetative sprouts of individuals occurring in Boulder County populations, January to April 1982, June 1993, and May 1995.H-9.0

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APPENDIX I

BLM SENSITIVE SPECIES EVALUATION FOR THE SOUTH GILLETTE AREA COAL EIS

BLM SENSITIVE SPECIES EVALUATION

INTRODUCTION

Bureau of Land Management (BLM) Wyoming has prepared a list of sensitive species to focus species management efforts towards maintaining habitats under a multiple use mandate. The authority for this policy and guidance comes from the Endangered Species Act of 1973 (ESA), as amended; Title II of the Sikes Act, as amended; the Federal Land Policy Management Act of 1976 (FLPMA) (43 U.S.C. 1716); and the Department Manual 235.1.1A (BLM 2001).

The goals of the sensitive species policy are to:

- Maintain vulnerable species and habitat components in functional BLM ecosystems.
- Ensure sensitive species are considered in land management decisions.
- Prevent a need for species listing under the ESA.
- Prioritize needed conservation work with an emphasis on habitat.

PROJECT DESCRIPTION

Under the Proposed Action, BLM will hold separate competitive lease sales for the federal coal lands in the Belle Ayr North Lease by Application (LBA) Tract as applied for by Foundation Coal West (FCW), the West Coal Creek LBA Tract as applied for by Ark Land Company (ALC), the Caballo West LBA Tract as applied for by Caballo Coal Company (CCC), and the Maysdorf II LBA Tract as applied for by Cordero Mining Company (CMC) (see Figures 2-1 through 2-4 and the land descriptions in Section 2.1 of this Environmental Impact Statement [EIS]). There are four Proposed Actions, one for each of the LBA Tracts. For each tract, the Proposed Action assumes that the applicant for a tract would be the successful bidder and that the tract would be mined as a maintenance lease for an existing mine. The surface estate on each LBA tract is privately owned with the exception of the Maysdorf II Tract, which has approximately 284 acres of federally owned surface. This federally owned surface is managed by BLM.

SPECIES OCCURRENCE AND HABITAT DESCRIPTIONS

Sensitive species were listed for the BLM Buffalo Field Office within its range. Some sensitive species could or do occur within the four LBA Tracts. Specialized habitat requirements (i.e., caves, cliffs, calcareous rock outcrops) make occupation for other sensitive species unlikely. Tables J-1 through J-4 list BLM sensitive species, summarizes their habitat requirements, and indicates if they have been observed on or around the Belle Ayr North, West Coal Creek, Caballo West, and the Maysdorf II LBA Tracts, respectively. Additional information on occurrences of these species on the tract can be found in Section 3.10 of this EIS or in the supplemental information document for this EIS, which is available on request.

Table I-1. BLM Sensitive Species for the Buffalo Field Office and Habitat Requirements and Observations on Belle Ayr North LBA Tract.

Common Name ***(scientific name)***	**Habitat**	**Observed on Maysdorf II LBA Tract**
Amphibians		
Northern leopard frog *(Rana pipiens)*	Beaver ponds, permanent water in plains and foothills	No
Spotted frog *(Ranus pretiosa)*	Ponds, sloughs, small streams	No[1]
Birds		
Baird's sparrow *(Ammodramus bairdii)*	Grasslands, weedy fields	No[1]
Brewer's sparrow *(Spizella breweri)*	Basin-prairie shrub	Yes, Presumed Breeder
Burrowing owl *(Athene cunicularia)*	Grasslands, basin-prairie shrub	No, Historic Breeder
Ferruginous hawk *(Buteo regalis)*	Basin-prairie shrub, grasslands, rock outcrops	No, Common Breeder in vicinity
Greater sage-grouse *(Centrocercus urophasianus)*	Basin-prairie shrub, mountain-foothill shrub	No, Common Breeder in vicinity
Loggerhead shrike *(Lanius ludovicianus)*	Basin-prairie shrub, mountain-foothill shrub	No, Uncommon Breeder
Long-billed curlew *(Numenius americanus)*	Grasslands, plains, foothills, wet meadows	No, Infrequent Migrant
Mountain Plover *(Charadrius montanus)*	Shortgrass/midgrass grasslands, basin-prairie shrubs	No[1]
Northern goshawk *(Accipiter gentilis)*	Conifer and deciduous forests	No[1]
Peregrine falcon *(Falco peregrinus)*	Cliffs	No, Occasional Migrant
Sage sparrow *(Amphispiza billneata)*	Basin-prairie shrub, mountain-foothill shrub	No, Rare Visitor
Sage thrasher *(Oreoscoptes montanus)*	Basin-prairie shrub, mountain-foothill shrub	No, Rare Breeder
Trumpeter swan *(Cygnus buccinator)*	Lakes, ponds, rivers	----[1]
White-faced ibis *(Plegadis chihi)*	Marshes, wet meadows	----[1]
Yellow-billed cuckoo *(Coccyzus americanus)*	Open woodlands, streamside willow and alder groves	No[1]

Table I-1. BLM Sensitive Species for the Buffalo Field Office and Habitat Requirements and Observations on Belle Ayr North LBA Tract (Continued).

Common Name ***(scientific name)***	**Habitat**	**Observed on Maysdorf II LBA Tract**
Fish		
Yellowstone cutthroat trout *(Oncoryhynchus clarki)*	Cold water streams and lakes	No[1]
Mammals		
Black-tailed prairie dog *(Cynomys ludovicianus)*	Shortgrass/midgrass grasslands	No[1]
Fringed myotis *(Myotis thysanodes)*	Conifer forests, woodland chaparral, caves and mines	----[1]
Long-eared myotis *(Myotis evotis)*	Conifer and deciduous forest, caves and mines	----[1]
Spotted bat *(Euderma maculatum)*	Cliffs over perennial water, basin-prairie shrub	----[1]
Swift fox *(Vulpes velox)*	Grasslands	No
Townsend's big-eared bat *(Corynorhinus townsendii)*	Forests, basin-prairie shrub, caves and mines	----[1]
White-tailed prairie dog (*Cynomys leucurus*)	Basin-prairie shrub, grasslands	----[1]
Plants		
Northern Arnica *(Arnica lonchophylla)*	Open woods and slopes on sandy-gravel or limestone and shady, moist north-facing birch-hazelnut forests. Elev. 6500-8000 ft.	----[1]
Porter's sagebrush *(Artemisia porteri)*	Sparsely vegetated badlands of ashy or tufaceous mudstone and clay slopes; 5,300 to 6,500 ft	----[1]
Soft Aster *(Aster mollis)*	Sagebrush grasslands and mountain meadows on deep, calcareous soils at the edge of aspen or pine woodlands. Elev. 6400-8500 ft	----[1]
William's wafer parsnip *(Cymopterus williamsii)*	Open ridgetops and upper slopes with exposed limestone outcrops or rockslides; 6,000 to 8,300 ft	----[1]
Mountain Lady's Slipper (*Cypripedium montanum)*	Shady moist forests and riparian shrublands. Elev. 5400-5500 ft.	----[1]
Rabbit Buckwheat *(Eriogonum brevicaule* var. *canum [E. Lagopus])*	Barren sandy or clay soils and rock outcrops in juniper woodlands and sagebrush steppe communities. Elev. 3800-5500 ft.	----[1]
Hall's Fescue *(Festuca hallii)*	Meadows, slopes, and open woods. Elev. 7400-10,500 ft.	----[1]

Table I-1. BLM Sensitive Species for the Buffalo Field Office and Habitat Requirements and Observations on Belle Ayr North LBA Tract (Continued).

Common Name ***(scientific name)***	**Habitat**	**Observed on Maysdorf II LBA Tract**
Contracted Indian Ricegrass *(Oryzopsis contracta [O. hymenoides var. contracta])*	Basin and foothill areas on dry, sandy soils. Elev. 4800-7500 ft.	No
Cary's Beardtongue *(Penstemon caryi)*	Calcareous rock outcrops and rocky soil within sagebrush, juniper, Douglas fir, and limber pine communities. Elev. 5200-8500 ft.	----[1]
Northern Blackberry *(Rubus arcticus* ssp. *acaulis [R. acaulis])*	Boggy woods and marshes. Elev. 7000-9000 ft.	----[1]
Ute Ladies' Tresses *(Spiranthes diluvialis)*	Moist, subirrigated or seasonally flooded soils bordering wetland meadows, springs, lakes, or perennial streams 4,200-7,000'	No
Hapeman's Sullivan *(Sullivantia hapemanii* var. *hapemanii)*	Moist calcareous outcrops and boulders in shady canyons and streams. Elev. 4600-8200 ft.	----[1]

[1] Habitat generally lacking or very limited

Table I-2. BLM Sensitive Species for the Buffalo Field Office and Habitat Requirements and Observations on West Coal Creek LBA Tract.

Common Name ***(scientific name)***	**Habitat**	**Observed on Maysdorf II LBA Tract**
Amphibians		
Northern leopard frog *(Rana pipiens)*	Beaver ponds, permanent water in plains and foothills	----[1]
Spotted frog *(Ranus pretiosa)*	Ponds, sloughs, small streams	No
Birds		
Baird's sparrow *(Ammodramus bairdii)*	Grasslands, weedy fields	No[1]
Brewer's sparrow *(Spizella breweri)*	Basin-prairie shrub	Presumed Breeder
Burrowing owl *(Athene cunicularia)*	Grasslands, basin-prairie shrub	Recent Breeder
Ferruginous hawk *(Buteo regalis)*	Basin-prairie shrub, grasslands, rock outcrops	Common Breeder
Greater sage-grouse *(Centrocercus urophasianus)*	Basin-prairie shrub, mountain-foothill shrub	Common Breeder
Loggerhead shrike *(Lanius ludovicianus)*	Basin-prairie shrub, mountain-foothill shrub	Infrequent Breeder
Long-billed curlew *(Numenius americanus)*	Grasslands, plains, foothills, wet meadows	Infrequent Migrant
Mountain Plover *(Charadrius montanus)*	Shortgrass/midgrass grasslands, basin-prairie shrubs	Never Recorded[1]
Northern goshawk *(Accipiter gentilis)*	Conifer and deciduous forests	No[1]
Peregrine falcon *(Falco peregrinus)*	Cliffs	Rare Migrant
Sage sparrow *(Amphispiza billneata)*	Basin-prairie shrub, mountain-foothill shrub	Rare Visitor
Sage thrasher *(Oreoscoptes montanus)*	Basin-prairie shrub, mountain-foothill shrub	Rare Breeder
Trumpeter swan *(Cygnus buccinator)*	Lakes, ponds, rivers	----[1]
White-faced ibis *(Plegadis chihi)*	Marshes, wet meadows	----[1]
Yellow-billed cuckoo *(Coccyzus americanus)*	Open woodlands, streamside willow and alder groves	No[1]

Table I-2. BLM Sensitive Species for the Buffalo Field Office and Habitat Requirements and Observations on West Coal Creek LBA Tract (Continued).

Common Name ***(scientific name)***	**Habitat**	**Observed on Maysdorf II LBA Tract**
Fish		
Yellowstone cutthroat trout *(Oncoryhynchus clarki)*	Cold water streams and lakes	No[1]
Mammals		
Black-tailed prairie dog *(Cynomys ludovicianus)*	Shortgrass/midgrass grasslands	Recent Breeder
Fringed myotis *(Myotis thysanodes)*	Conifer forests, woodland chaparral, caves and mines	----[1]
Long-eared myotis *(Myotis evotis)*	Conifer and deciduous forest, caves and mines	----[1]
Spotted bat *(Euderma maculatum)*	Cliffs over perennial water, basin-prairie shrub	----[1]
Swift fox *(Vulpes velox)*	Grasslands	No
Townsend's big-eared bat *(Corynorhinus townsendii)*	Forests, basin-prairie shrub, caves and mines	----[1]
White-tailed prairie dog (*Cynomys leucurus*)	Basin-prairie shrub, grasslands	No.
Plants		
Northern Arnica *(Arnica lonchophylla)*	Open woods and slopes on sandy-gravel or limestone and shady, moist north-facing birch-hazelnut forests. Elev. 6500-8000 ft.	----[1]
Porter's sagebrush *(Artemisia porteri)*	Sparsely vegetated badlands of ashy or tufaceous mudstone and clay slopes; 5,300 to 6,500 ft	----[1]
Soft Aster *(Aster mollis)*	Sagebrush grasslands and mountain meadows on deep, calcareous soils at the edge of aspen or pine woodlands. Elev. 6400-8500 ft	----[1]
William's wafer parsnip *(Cymopterus williamsii)*	Open ridgetops and upper slopes with exposed limestone outcrops or rockslides; 6,000 to 8,300 ft	----[1]
Mountain Lady's Slipper (*Cypripedium montanum)*	Shady moist forests and riparian shrublands. Elev. 5400-5500 ft.	----[1]
Rabbit Buckwheat *(Eriogonum brevicaule* var. *canum [E. Lagopus])*	Barren sandy or clay soils and rock outcrops in juniper woodlands and sagebrush steppe communities. Elev. 3800-5500 ft.	----[1]

Table I-2. BLM Sensitive Species for the Buffalo Field Office and Habitat Requirements and Observations on West Coal Creek LBA Tract (Continued).

Common Name ***(scientific name)***	**Habitat**	**Observed on Maysdorf II LBA Tract**
Hall's Fescue *(Festuca hallii)*	Meadows, slopes, and open woods. Elev. 7400-10,500 ft.	----[1]
Contracted Indian Ricegrass *(Oryzopsis contracta [O. hymenoides var. contracta])*	Basin and foothill areas on dry, sandy soils. Elev. 4800-7500 ft.	No
Cary's Beardtongue *(Penstemon caryi)*	Calcareous rock outcrops and rocky soil within sagebrush, juniper, Douglas fir, and limber pine communities. Elev. 5200-8500 ft.	----[1]
Northern Blackberry *(Rubus arcticus* ssp. *acaulis [R. acaulis])*	Boggy woods and marshes. Elev. 7000-9000 ft.	----[1]
Ute Ladies' Tresses *(Spiranthes diluvialis)*	Moist, subirrigated or seasonally flooded soils bordering wetland meadows, springs, lakes, or perennial streams 4,200-7,000'	No
Hapeman's Sullivan *(Sullivantia hapemanii* var. *hapemanii)*	Moist calcareous outcrops and boulders in shady canyons and streams. Elev. 4600-8200 ft.	----[1]

[1] Habitat generally lacking or very limited

Table I-3. BLM Sensitive Species for the Buffalo Field Office and Habitat Requirements and Observations on Caballo West LBA Tract.

Common Name ***(scientific name)***	**Habitat**	**Observed on Maysdorf II LBA Tract**
Amphibians		
Northern leopard frog *(Rana pipiens)*	Beaver ponds, permanent water in plains and foothills	No
Spotted frog *(Ranus pretiosa)*	Ponds, sloughs, small streams	No[1]
Birds		
Baird's sparrow *(Ammodramus bairdii)*	Grasslands, weedy fields	No[1]
Brewer's sparrow *(Spizella breweri)*	Basin-prairie shrub	Yes, Presumed Breeder
Burrowing owl *(Athene cunicularia)*	Grasslands, basin-prairie shrub	No, Historic Breeder
Ferruginous hawk *(Buteo regalis)*	Basin-prairie shrub, grasslands, rock outcrops	No, Common Breeder in vicinity
Greater sage-grouse *(Centrocercus urophasianus)*	Basin-prairie shrub, mountain-foothill shrub	No, Common Breeder in vicinity
Loggerhead shrike *(Lanius ludovicianus)*	Basin-prairie shrub, mountain-foothill shrub	No, Uncommon Breeder
Long-billed curlew *(Numenius americanus)*	Grasslands, plains, foothills, wet meadows	No, Infrequent Migrant
Mountain Plover *(Charadrius montanus)*	Shortgrass/midgrass grasslands, basin-prairie shrubs	No[1]
Northern goshawk *(Accipiter gentilis)*	Conifer and deciduous forests	No[1]
Peregrine falcon *(Falco peregrinus)*	Cliffs	No, Occasional Migrant
Sage sparrow *(Amphispiza billneata)*	Basin-prairie shrub, mountain-foothill shrub	No, Rare Visitor
Sage thrasher *(Oreoscoptes montanus)*	Basin-prairie shrub, mountain-foothill shrub	No, Rare Breeder
Trumpeter swan *(Cygnus buccinator)*	Lakes, ponds, rivers	----[1]
White-faced ibis *(Plegadis chihi)*	Marshes, wet meadows	----[1]
Yellow-billed cuckoo *(Coccyzus americanus)*	Open woodlands, streamside willow and alder groves	No[1]

Table I-3. BLM Sensitive Species for the Buffalo Field Office and Habitat Requirements and Observations on Caballo West LBA Tract (Continued).

Common Name ***(scientific name)***	**Habitat**	**Observed on Maysdorf II LBA Tract**
Fish		
Yellowstone cutthroat trout *(Oncoryhynchus clarki)*	Cold water streams and lakes	No[1]
Mammals		
Black-tailed prairie dog *(Cynomys ludovicianus)*	Shortgrass/midgrass grasslands	No[1]
Fringed myotis *(Myotis thysanodes)*	Conifer forests, woodland chaparral, caves and mines	----[1]
Long-eared myotis *(Myotis evotis)*	Conifer and deciduous forest, caves and mines	----[1]
Spotted bat *(Euderma maculatum)*	Cliffs over perennial water, basin-prairie shrub	----[1]
Swift fox *(Vulpes velox)*	Grasslands	No
Townsend's big-eared bat *(Corynorhinus townsendii)*	Forests, basin-prairie shrub, caves and mines	----[1]
White-tailed prairie dog (*Cynomys leucurus*)	Basin-prairie shrub, grasslands	----[1]
Plants		
Northern Arnica *(Arnica lonchophylla)*	Open woods and slopes on sandy-gravel or limestone and shady, moist north-facing birch-hazelnut forests. Elev. 6500-8000 ft.	No. Habitat is not present due to lack of limestone parent material and birch-hazelnut forests. Known populations in Wyoming are in Sheridan and Johnson Counties.
Porter's sagebrush *(Artemisia porteri)*	Sparsely vegetated badlands of ashy or tufaceous mudstone and clay slopes; 5,300 to 6,500 ft	No. Habitat was not present; soil type was a major limiting factor. Known populations in Wyoming are in Fremont county.
Soft Aster *(Aster mollis)*	Sagebrush grasslands and mountain meadows on deep, calcareous soils at the edge of aspen or pine woodlands. Elev. 6400-8500 ft	No. Habitat is not present. Known populations in Wyoming are in Niobrara, Natrona, Sublette, Washakie, Big Horn and Sheridan counties.
William's wafer parsnip *(Cymopterus williamsii)*	Open ridgetops and upper slopes with exposed limestone outcrops or rockslides; 6,000 to 8,300 ft	No. Habitat limitations on the tract include lower elevations and lack of limestone parent material. Known populations in Wyoming are in Johnson, Washakie, and Natrona counties.
Mountain Lady's Slipper (*Cypripedium montanum)*	Shady moist forests and riparian shrublands. Elev. 5400-5500 ft.	No. Habitat is not present due to lack of shady forests and lower elevations. Known populations in Wyoming are in Sheridan and Johnson counties.

Table I-3. BLM Sensitive Species for the Buffalo Field Office and Habitat Requirements and Observations on Caballo West LBA Tract (Continued).

Common Name ***(scientific name)***	**Habitat**	**Observed on Maysdorf II LBA Tract**
Rabbit Buckwheat *(Eriogonum brevicaule* var. *canum [E. Lagopus])*	Barren sandy or clay soils and rock outcrops in juniper woodlands and sagebrush steppe communities. Elev. 3800-5500 ft.	No. This species was not identified during the vegetation survey of the tract and limited areas of habitat are present due to lack of juniper woodlands and rock outcrops. Known populations in Wyoming are in Sheridan and Big Horn counties.
Hall's Fescue *(Festuca hallii)*	Meadows, slopes, and open woods. Elev. 7400-10,500 ft.	No. Habitat is not present due to lower elevations and lack of montane meadows and open woods. Known population in Wyoming are in Park and Johnson counties.
Contracted Indian Ricegrass *(Oryzopsis contracta [O. hymenoides var. contracta])*	Basin and foothill areas on dry, sandy soils. Elev. 4800-7500 ft.	No. Contracted Indian Ricegrass was not identified during the vegetation survey of the tract and limited areas of habitat are present. Known populations in Wyoming are in Campbell, Washakie, Hot Springs, Natrona, Sweetwater, Carbon, and Albany counties.
Cary's Beardtongue *(Penstemon caryi)*	Calcareous rock outcrops and rocky soil within sagebrush, juniper, Douglas fir, and limber pine communities. Elev. 5200-8500 ft.	No. Habitat is not present due to lower elevations and lack of soils and vegetation communities where this species is found. Known populations in Wyoming are found in Big Horn, Washakie, and Sheridan counties.
Northern Blackberry *(Rubus arcticus* ssp. *acaulis [R. acaulis])*	Boggy woods and marshes. Elev. 7000-9000 ft.	No. Habitat is not present due to lower elevation and vegetation communities where this species is found. Known populations in Wyoming are found in Johnson county.
Ute Ladies' Tresses *(Spiranthes diluvialis)*	Moist, subirrigated or seasonally flooded soils bordering wetland meadows, springs, lakes, or perennial streams 4,200-7,000'	No
Hapeman's Sullivan *(Sullivantia hapemanii* var. *hapemanii)*	Moist calcareous outcrops and boulders in shady canyons and streams. Elev. 4600-8200 ft.	No. Habitat is limited due to lack of topography and moisture conditions where this species is found. Known populations in Wyoming are found in Sheridan, Johnson, Natrona, Big Horn, and Washakie counties.

[1] Habitat generally lacking or very limited

Table I-4. BLM Sensitive Species for the Buffalo Field Office and Habitat Requirements and Observations on Maysdorf II LBA Tract.

Common Name ***(scientific name)***	**Habitat**	**Observed on Maysdorf II LBA Tract**
Amphibians		
Northern leopard frog *(Rana pipiens)*	Beaver ponds, permanent water in plains and foothills	Yes, incidental siting during wildlife surveys, Breeder
Spotted frog *(Ranus pretiosa)*	Ponds, sloughs, small streams	----[1]
Birds		
Baird's sparrow *(Ammodramus bairdii)*	Grasslands, weedy fields	No, Rare Breeder
Brewer's sparrow *(Spizella breweri)*	Basin-prairie shrub	Yes, Common Breeder
Burrowing owl *(Athene cunicularia)*	Grasslands, basin-prairie shrub	No, Uncommon Breeder
Ferruginous hawk *(Buteo regalis)*	Basin-prairie shrub, grasslands, rock outcrops	Yes, Common Breeder
Greater sage-grouse *(Centrocercus urophasianus)*	Basin-prairie shrub, mountain-foothill shrub	Yes, Common Breeder
Loggerhead shrike *(Lanius ludovicianus)*	Basin-prairie shrub, mountain-foothill shrub	Yes, Uncommon Breeder
Long-billed curlew *(Numenius americanus)*	Grasslands, plains, foothills, wet meadows	No, Uncommon Spring Migrant or Breeder
Mountain Plover *(Charadrius montanus)*	Shortgrass/midgrass grasslands, basin-prairie shrubs	No, limited habitat, Rare Breeder
Northern goshawk *(Accipiter gentilis)*	Conifer and deciduous forests	----[1]
Peregrine falcon *(Falco peregrinus)*	Cliffs	No, incidental migrant sightings during previous wildlife surveys
Sage sparrow *(Amphispiza billneata)*	Basin-prairie shrub, mountain-foothill shrub	No, Rare Breeder
Sage thrasher *(Oreoscoptes montanus)*	Basin-prairie shrub, mountain-foothill shrub	Yes, Uncommon Breeder
Trumpeter swan *(Cygnus buccinator)*	Lakes, ponds, rivers	----[1]
White-faced ibis *(Plegadis chihi)*	Marshes, wet meadows	----[1]
Yellow-billed cuckoo *(Coccyzus americanus)*	Open woodlands, streamside willow and alder groves	----[1]

Table I-4. BLM Sensitive Species for the Buffalo Field Office and Habitat Requirements and Observations on Maysdorf II LBA Tract (Continued).

Common Name ***(scientific name)***	**Habitat**	**Observed on Maysdorf II LBA Tract**
Fish		
Yellowstone cutthroat trout *(Oncoryhynchus clarki)*	Cold water streams and lakes	----[1]
Mammals		
Black-tailed prairie dog *(Cynomys ludovicianus)*	Shortgrass/midgrass grasslands	No prairie dog towns on tract, found adjacent to tract
Fringed myotis *(Myotis thysanodes)*	Conifer forests, woodland chaparral, caves and mines	----[1]
Long-eared myotis *(Myotis evotis)*	Conifer and deciduous forest, caves and mines	----[1]
Spotted bat *(Euderma maculatum)*	Cliffs over perennial water, basin-prairie shrub	----[1]
Swift fox *(Vulpes velox)*	Grasslands	No, Uncommon Breeder
Townsend's big-eared bat *(Corynorhinus townsendii)*	Forests, basin-prairie shrub, caves and mines	----[1]
White-tailed prairie dog (*Cynomys leucurus*)	Basin-prairie shrub, grasslands	No.
Plants		
Northern Arnica *(Arnica lonchophylla)*	Open woods and slopes on sandy-gravel or limestone and shady, moist north-facing birch-hazelnut forests. Elev. 6500-8000 ft.	----[1]
Porter's sagebrush *(Artemisia porteri)*	Sparsely vegetated badlands of ashy or tufaceous mudstone and clay slopes; 5,300 to 6,500 ft	----[1]
Soft Aster *(Aster mollis)*	Sagebrush grasslands and mountain meadows on deep, calcareous soils at the edge of aspen or pine woodlands. Elev. 6400-8500 ft	----[1]
William's wafer parsnip *(Cymopterus williamsii)*	Open ridgetops and upper slopes with exposed limestone outcrops or rockslides; 6,000 to 8,300 ft	----[1]
Mountain Lady's Slipper (*Cypripedium montanum)*	Shady moist forests and riparian shrublands. Elev. 5400-5500 ft.	----[1]
Rabbit Buckwheat *(Eriogonum brevicaule* var. *canum [E. Lagopus])*	Barren sandy or clay soils and rock outcrops in juniper woodlands and sagebrush steppe communities. Elev. 3800-5500 ft.	----[1]

Table I-4. BLM Sensitive Species for the Buffalo Field Office and Habitat Requirements and Observations on Maysdorf II LBA Tract (Continued).

Common Name ***(scientific name)***	**Habitat**	**Observed on Maysdorf II LBA Tract**
Hall's Fescue *(Festuca hallii)*	Meadows, slopes, and open woods. Elev. 7400-10,500 ft.	----[1]
Contracted Indian Ricegrass *(Oryzopsis contracta [O. hymenoides var. contracta])*	Basin and foothill areas on dry, sandy soils. Elev. 4800-7500 ft.	No
Cary's Beardtongue *(Penstemon caryi)*	Calcareous rock outcrops and rocky soil within sagebrush, juniper, Douglas fir, and limber pine communities. Elev. 5200-8500 ft.	----[1]
Northern Blackberry *(Rubus arcticus* ssp. *acaulis [R. acaulis])*	Boggy woods and marshes. Elev. 7000-9000 ft.	----[1]
Ute Ladies' Tresses *(Spiranthes diluvialis)*	Moist, subirrigated or seasonally flooded soils bordering wetland meadows, springs, lakes, or perennial streams 4,200-7,000'	No
Hapeman's Sullivan *(Sullivantia hapemanii* var. *hapemanii)*	Moist calcareous outcrops and boulders in shady canyons and streams. Elev. 4600-8200 ft.	----[1]

[1] Habitat generally lacking or very limited

REFERENCES AND LITERATURE CITED

Bureau of Land Management (BLM), 2001, BLM Wyoming Sensitive Species Policy and List April 9, 2001, available on the Internet as of March 2007: <http://www.blm.gov/nph/efoia/wy/2001im/Wy2001-040atch1.pdf>.

APPENDIX J

CBNG AND CONVENTIONAL OIL AND GAS
WELLS CAPABLE OF PRODUCTION
ON SECTIONS IN OR ADJACENT TO THE
BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST,
AND MAYSDORF II LBA TRACTS

CBNG WELLS CAPABLE OF PRODUCTION ON SECTIONS WITHIN AND ADJACENT TO THE BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST, AND MAYSDORF II LBA TRACTS

Api Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC STATUS	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
532114	LANCE OIL & GAS COMPANY INC	No. 14-9	46N	71W	SW1/4 SW1/4 Sec. 9	SP	0	0
530420	DCD INC	No. 11-11	46N	71W	NE1/4 SW1/4 Sec. 11	SI	0	0
534331	RIM OPERATING INC	No. 14-14	46N	71W	SW1/4 SW1/4 Sec. 14	PS	39,515	92,183
534389	RIM OPERATING INC	No. 24-14	46N	71W	SE1/4 SW1/4 Sec. 14	PS	38,480	114,558
534615	RIM OPERATING INC	No. 13-14	46N	71W	NW1/4 SW1/4 Sec. 14	PS	46,697	186,410
534616	RIM OPERATING INC	No. 23-14	46N	71W	NE1/4 SW1/4 Sec. 14	PS	10,354	110,197
542179	RIM OPERATING INC	No. 33-14	46N	71W	NW1/4 SE1/4 Sec. 14	PS	5,402	41,816
542180	RIM OPERATING INC	No. 43-14	46N	71W	NE1/4 SE1/4 Sec. 14	PS	5,938	433,622
542181	RIM OPERATING INC	No. 34-14	46N	71W	SW1/4 SE1/4 Sec. 14	PS	16,224	53,111
542182	RIM OPERATING INC	No. 44-14	46N	71W	SE1/4 SE1/4 Sec. 14	PS	13,623	101,278
543286	RIM OPERATING INC	No. 32-14	46N	71W	SW1/4 NE1/4 Sec. 14	SI	14,758	4,882
532393	PRIMARY NATURAL RESOURCES INC	No. 24-15	46N	71W	SE1/4 SW1/4 Sec. 15	PS	259,396	36,960
532745	PRIMARY NATURAL RESOURCES INC	No. 23-15R	46N	71W	NE1/4 SW1/4 Sec. 15	FL	125,341	75,270
534278	PRIMARY NATURAL RESOURCES INC	No. 42-15	46N	71W	SE1/4 NE1/4 Sec. 15	PS	34,556	67,924
534279	PRIMARY NATURAL RESOURCES INC	No. 21-15	46N	71W	NE1/4 NW1/4 Sec. 15	PS	92,916	1,104
534280	PRIMARY NATURAL RESOURCES INC	No. 44-15	46N	71W	SE1/4 SE1/4 Sec. 15	FL	41,862	9,896
532389	PRIMARY NATURAL RESOURCES INC	No. 42-16	46N	71W	SE1/4 NE1/4 Sec. 16	FL	317,601	0
532392	PRIMARY NATURAL RESOURCES INC	No. 13-16	46N	71W	NW1/4 SW1/4 Sec. 16	PR	113,509	1,726,935
532534	PRIMARY NATURAL RESOURCES INC	No. 12-16	46N	71W	SW1/4 NW1/4 Sec. 16	FL	136,355	1,203,790
532585	PRIMARY NATURAL RESOURCES INC	No. 43-16R	46N	71W	NE1/4 SE1/4 Sec. 16	FL	240,727	4,483
532589	PRIMARY NATURAL RESOURCES INC	No. 41-16R	46N	71W	NE1/4 NE1/4 Sec. 16	FL	318,413	0
532736	PRIMARY NATURAL RESOURCES INC	No. 22-16R	46N	71W	SE1/4 NW1/4 Sec. 16	FL	220,184	50
551220	PRIMARY NATURAL RESOURCES INC	No. 43-16	46N	71W	NE1/4 SE1/4 Sec. 16	SI	1,479	0
541898	ROCKY MOUNTAIN GAS INC	No. 6-24-47-71-A	47N	71W	SE1/4 SW1/4 Sec. 6	SI	25,056	0
541907	ROCKY MOUNTAIN GAS INC	No. 6-23-47-71A	47N	71W	NE1/4 SW1/4 Sec. 6	SI	46,071	1,114,524
541913	ROCKY MOUNTAIN GAS INC	No. 6-33-47-71-A	47N	71W	NW1/4 SE1/4 Sec. 6	SI	111,389	741,662

CBNG WELLS CAPABLE OF PRODUCTION ON SECTIONS WITHIN AND ADJACENT TO THE BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST, AND MAYSDORF II LBA TRACTS (CONTINUED)

Api Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC STATUS	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
541914	ROCKY MOUNTAIN GAS INC	No. 6-34-47-71-A	47N	71W	SW1/4 SE1/4 Sec. 6	SI	45,457	0
541915	ROCKY MOUNTAIN GAS INC	No. 6-43-47-71-A	47N	71W	NE1/4 SE1/4 Sec. 6	SI	61,239	1,248,824
541916	ROCKY MOUNTAIN GAS INC	No. 6-44-47-71-A	47N	71W	SE1/4 SE1/4 Sec. 6	SI	1,565	143,313
542112	ROCKY MOUNTAIN GAS INC	No. 6-12-47-71-A	47N	71W	SW1/4 NW1/4 Sec. 6	SI	38,613	1,329,875
542113	ROCKY MOUNTAIN GAS INC	No. 6-22-47-71-A	47N	71W	SE1/4 NW1/4 Sec. 6	SI	69,372	203,656
542186	ROCKY MOUNTAIN GAS INC	No. 6-13-47-71-A	47N	71W	NW1/4 SW1/4 Sec. 6	SI	13,074	526,801
542301	ROCKY MOUNTAIN GAS INC	No. 6-21-47-71A	47N	71W	NE1/4 NW1/4 Sec. 6	SI	29,790	1,499,691
542363	ROCKY MOUNTAIN GAS INC	No. 6-42-47-71-A	47N	71W	SE1/4 NE1/4 Sec. 6	SI	4,152	891,628
542364	ROCKY MOUNTAIN GAS INC	No. 6-32-47-71-A	47N	71W	SW1/4 NE1/4 Sec. 6	SI	0	975,429
542458	ROCKY MOUNTAIN GAS INC	No. 6-31-47-71-A	47N	71W	NW1/4 NE1/4 Sec. 6	SI	10,769	599,042
530273	ROCKY MOUNTAIN GAS INC	No. 7-13	47N	71W	NW1/4 SW1/4 Sec. 7	SI	96,384	80,695
541908	ROCKY MOUNTAIN GAS INC	No. 7-22-47-71-A	47N	71W	SE1/4 NW1/4 Sec. 7	SI	11,296	0
541909	ROCKY MOUNTAIN GAS INC	No. 7-21-47-71-A	47N	71W	NE1/4 NW1/4 Sec. 7	SI	13,759	0
541910	ROCKY MOUNTAIN GAS INC	No. 7-31-47-71-A	47N	71W	NW1/4 NE1/4 Sec. 7	SI	33,113	0
541911	ROCKY MOUNTAIN GAS INC	No. 7-41-47-71-A	47N	71W	NE1/4 NE1/4 Sec. 7	SI	51,648	0
541912	ROCKY MOUNTAIN GAS INC	No. 7-32-47-71-A	47N	71W	SW1/4 NE1/4 Sec. 7	SI	37,333	0
541920	ROCKY MOUNTAIN GAS INC	No. 7-12-47-71-A	47N	71W	SW1/4 NW1/4 Sec. 7	SI	51,458	762,782
542746	ROCKY MOUNTAIN GAS INC	No. 7-14-47-71-A	47N	71W	SW1/4 SW1/4 Sec. 7	SI	74,511	566,120
542747	ROCKY MOUNTAIN GAS INC	No. 7-24-47-71-A	47N	71W	SE1/4 SW1/4 Sec. 7	SI	66,879	134,743
542748	ROCKY MOUNTAIN GAS INC	No. 7-23-47-71-A	47N	71W	NE1/4 SW1/4 Sec. 7	SI	25,070	320,094
544412	ROCKY MOUNTAIN GAS INC	No. 7-13-47-71-A	47N	71W	NW1/4 SW1/4 Sec. 7	SI	33,458	436,494
545410	ROCKY MOUNTAIN GAS INC	No. 7-24-B	47N	71W	SE1/4 SW1/4 Sec. 7	SI	0	46,355
545411	ROCKY MOUNTAIN GAS INC	No. 7-23-B	47N	71W	NE1/4 SW1/4 Sec. 7	SI	0	714,647
545412	ROCKY MOUNTAIN GAS INC	No. 7-14-B	47N	71W	SW1/4 SW1/4 Sec. 7	SI	0	430,560
529869	PURE PETROLEUM LLC	No. 13-16	47N	71W	SW1/4 SW1/4 Sec. 16	SI	626,449	0
530790	LANCE OIL & GAS COMPANY INC	No. 1-16	47N	71W	NE1/4 NE1/4 Sec. 16	TA	5,584	0
530793	LANCE OIL & GAS COMPANY INC	No. 8-16	47N	71W	SE1/4 NE1/4 Sec. 16	TA	9,494	0

CBNG WELLS CAPABLE OF PRODUCTION ON SECTIONS WITHIN AND ADJACENT TO THE BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST, AND MAYSDORF II LBA TRACTS (CONTINUED)

Api Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC STATUS	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
533763	BOWDEN ENERGY COMPANY INC	No. 44-17	47N	71W	SE1/4 SE1/4 Sec. 17	FL	74,741	55,377
533764	BOWDEN ENERGY COMPANY INC	No. 34-17	47N	71W	SW1/4 SE1/4 Sec. 17	FL	136,924	0
533766	BOWDEN ENERGY COMPANY INC	No. 12-17	47N	71W	SW1/4 NW1/4 Sec. 17	FL	82,739	183,257
533767	BOWDEN ENERGY COMPANY INC	No. 11-17	47N	71W	NW1/4 NW1/4 Sec. 17	FL	65,878	196,983
533768	BOWDEN ENERGY COMPANY INC	No. 22-17	47N	71W	SE1/4 NW1/4 Sec. 17	FL	70,364	1,066
533769	BOWDEN ENERGY COMPANY INC	No. 23-17	47N	71W	NE1/4 SW1/4 Sec. 17	FL	98,180	113,337
533770	BOWDEN ENERGY COMPANY INC	No. 13-17	47N	71W	NW1/4 SW1/4 Sec. 17	FL	83,131	146,819
531369	LANCE OIL & GAS COMPANY INC	No. 18-34	47N	71W	SW1/4 SE1/4 Sec. 18	SP	0	0
533761	BOWDEN ENERGY COMPANY INC	No. 41-18	47N	71W	NE1/4 NE1/4 Sec. 18	FL	116,473	129,228
533765	BOWDEN ENERGY COMPANY INC	No. 42-18	47N	71W	SE1/4 NE1/4 Sec. 18	FL	97,216	97,128
535669	CNX GAS COMPANY LLC	No. 18N	47N	71W	SE1/4 SW1/4 Sec. 18	SI	40,845	84,675
542357	ROCKY MOUNTAIN GAS INC	No. 18-22-47-71-A	47N	71W	SE1/4 NW1/4 Sec. 18	SI	17,324	0
542358	ROCKY MOUNTAIN GAS INC	No. 18-11-47-71-A	47N	71W	NW1/4 NW1/4 Sec. 18	SI	17,950	0
542359	ROCKY MOUNTAIN GAS INC	No. 18-12-47-71-A	47N	71W	SW1/4 NW1/4 Sec. 18	SI	25,849	0
542360	ROCKY MOUNTAIN GAS INC	No. 18-21-47-71-A	47N	71W	NE1/4 NW1/4 Sec. 18	SI	27,679	177,943
545406	ROCKY MOUNTAIN GAS INC	No. 18-22-B	47N	71W	SE1/4 NW1/4 Sec. 18	SI	0	232,389
545408	ROCKY MOUNTAIN GAS INC	No. 18-12-B	47N	71W	SW1/4 NW1/4 Sec. 18	SI	0	264,139
545409	ROCKY MOUNTAIN GAS INC	No. 18-11-B	47N	71W	NW1/4 NW1/4 Sec. 18	SI	0	614,942
530889	LANCE OIL & GAS COMPANY INC	No. 23-19	47N	71W	NE1/4 SW1/4 Sec. 19	PR	0	0
535670	CNX GAS COMPANY LLC	No. 19C	47N	71W	NE1/4 NW1/4 Sec. 19	SI	40,586	14,100
535673	CNX GAS COMPANY LLC	No. 19F	47N	71W	SE1/4 NW1/4 Sec. 19	SI	43,907	0
533762	BOWDEN ENERGY COMPANY INC	No. 31-20	47N	71W	NW1/4 NE1/4 Sec. 20	FL	120,213	4,697
530982	PURE PETROLEUM LLC	No. 7-21	47N	71W	SW1/4 NE1/4 Sec. 21	SI	32,655	0
530983	PURE PETROLEUM LLC	No. 4-21	47N	71W	NW1/4 NW1/4 Sec. 21	SI	20,400	0
544549	CORDERO MINING CO	No. 21-44 C	47N	71W	SE1/4 SE1/4 Sec. 21	PS	0	708,134
544551	CORDERO MINING CO	No. 21-44	47N	71W	SE1/4 SE1/4 Sec. 21	FL	69,799	0
544553	CORDERO MINING CO	No. 21-43 C	47N	71W	NE1/4 SE1/4 Sec. 21	SI	0	365,282

CBNG WELLS CAPABLE OF PRODUCTION ON SECTIONS WITHIN AND ADJACENT TO THE BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST, AND MAYSDORF II LBA TRACTS (CONTINUED)

Api Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC STATUS	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
544555	CORDERO MINING CO	No. 21-43	47N	71W	NE1/4 SE1/4 Sec. 21	FL	62,659	0
544557	CORDERO MINING CO	No. 21-42 C	47N	71W	SE1/4 NE1/4 Sec. 21	PS	0	643,548
544559	CORDERO MINING CO	No. 21-42	47N	71W	SE1/4 NE1/4 Sec. 21	SI	31,975	0
531776	CITATION OIL & GAS CORPORATION	No. 33-32	47N	71W	NW1/4 SE1/4 Sec. 32	FL	316,299	11
531777	CITATION OIL & GAS CORPORATION	No. 44-32	47N	71W	SE1/4 SE1/4 Sec. 32	FL	253,885	14
530433	ROCKY MOUNTAIN GAS INC	No. 1-13	47N	72W	NW1/4 SW1/4 Sec. 1	SI	226,897	1,107,261
530434	ROCKY MOUNTAIN GAS INC	No. 1-22	47N	72W	SE1/4 NW1/4 Sec. 1	SI	82,201	2,214,119
530435	ROCKY MOUNTAIN GAS INC	No. 1-24	47N	72W	SE1/4 SW1/4 Sec. 1	SI	252,745	2,046,275
530610	ROCKY MOUNTAIN GAS INC	No. 1-12	47N	72W	SW1/4 NW1/4 Sec. 1	SI	114,131	2,909,869
542361	ROCKY MOUNTAIN GAS INC	No. 1-43-47-72-A	47N	72W	NE1/4 SE1/4 Sec. 1	SI	0	554,881
542362	ROCKY MOUNTAIN GAS INC	No. 1-44-47-72-A	47N	72W	SE1/4 SE1/4 Sec. 1	SI	430	510,924
542384	ROCKY MOUNTAIN GAS INC	No. 1-14-47-72-A	47N	72W	SW1/4 SW1/4 Sec. 1	SI	39,993	442,023
542386	ROCKY MOUNTAIN GAS INC	No. 1-21-47-72-A	47N	72W	NE1/4 NW1/4 Sec. 1	SI	1,433	596,433
542387	ROCKY MOUNTAIN GAS INC	No. 1-23-47-72-A	47N	72W	NE1/4 SW1/4 Sec. 1	SI	31,760	942,309
542388	ROCKY MOUNTAIN GAS INC	No. 1-33-47-72-A	47N	72W	NW1/4 SE1/4 Sec. 1	SI	13,119	996,789
542389	ROCKY MOUNTAIN GAS INC	No. 1-34-47-72-A	47N	72W	SW1/4 SE1/4 Sec. 1	SI	16,999	1,012,464
530359	LORAL OPERATING LLC	No. 2-31 47-72	47N	72W	NW1/4 NE1/4 Sec. 2	SI	358,581	1,414,024
540857	LORAL OPERATING LLC	No. 2-42 47-72	47N	72W	SE1/4 NE1/4 Sec. 2	SI	110,390	273,880
540860	LORAL OPERATING LLC	No. 2-32 47-72	47N	72W	SW1/4 NE1/4 Sec. 2	SI	73,273	207,103
540861	LORAL OPERATING LLC	No. 2-41 47-72	47N	72W	NE1/4 NE1/4 Sec. 2	SI	3,624	217,105
540877	SUNSHINE VALLEY PETROLEUM	No. 22-2	47N	72W	SE1/4 NW1/4 Sec. 2	SI	31,681	2
540878	SUNSHINE VALLEY PETROLEUM	No. 21-2	47N	72W	NE1/4 NW1/4 Sec. 2	SI	0	0
530305	LORAL OPERATING LLC	No. 11-22 47-72	47N	72W	SE1/4 NW1/4 Sec. 11	SI	549,302	861,329
530381	LORAL OPERATING LLC	No. 11-33 47-72	47N	72W	NW1/4 SE1/4 Sec. 11	SI	363,256	1,147,471
530611	LORAL OPERATING LLC	No. 11-23	47N	72W	NE1/4 SW1/4 Sec. 11	SI	385,029	981,652
533777	LORAL OPERATING LLC	No. 11-13	47N	72W	NW1/4 SW1/4 Sec. 11	FL	780	111,456
533778	LORAL OPERATING LLC	No. 11-12	47N	72W	SW1/4 NW1/4 Sec. 11	SI	87,163	7,558

CBNG WELLS CAPABLE OF PRODUCTION ON SECTIONS WITHIN AND ADJACENT TO THE BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST, AND MAYSDORF II LBA TRACTS (CONTINUED)

Api Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC STATUS	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
533779	LORAL OPERATING LLC	No. 11-11	47N	72W	NW1/4 NW1/4 Sec. 11	SI	66,681	7,976
540859	LORAL OPERATING LLC	No. 11-34 47-72	47N	72W	SW1/4 SE1/4 Sec. 11	SI	147,686	141,481
541894	LORAL OPERATING LLC	No. 11-21	47N	72W	NE1/4 NW1/4 Sec. 11	SI	99,096	329,701
543621	LORAL OPERATING LLC	No. 11-44-47-72	47N	72W	SE1/4 SE1/4 Sec. 11	SI	108,976	79,006
530285	ROCKY MOUNTAIN GAS INC	No. 12-11	47N	72W	NW1/4 NW1/4 Sec. 12	SI	355,633	806,107
530307	ROCKY MOUNTAIN GAS INC	No. 12-33	47N	72W	NW1/4 SE1/4 Sec. 12	SI	188,434	1,528,777
534985	CNX GAS COMPANY LLC	No. 12M	47N	72W	SW1/4 SW1/4 Sec. 12	SI	42,074	234,632
534986	CNX GAS COMPANY LLC	No. 12L	47N	72W	NW1/4 SW1/4 Sec. 12	SI	8,852	446,212
535468	CNX GAS COMPANY LLC	No. 12G	47N	72W	SW1/4 NE1/4 Sec. 12	SI	86	464,329
535469	CNX GAS COMPANY LLC	No. 12B	47N	72W	NW1/4 NE1/4 Sec. 12	SI	24,667	769,894
541917	ROCKY MOUNTAIN GAS INC	No. 12-43-47-72-A	47N	72W	NE1/4 SE1/4 Sec. 12	SI	32,101	860,371
542414	ROCKY MOUNTAIN GAS INC	No. 12-12-47-72-A	47N	72W	SW1/4 NW1/4 Sec. 12	SI	70,255	252,481
542415	ROCKY MOUNTAIN GAS INC	No. 12-22-47-72-A	47N	72W	SE1/4 NW1/4 Sec. 12	SI	76,273	413,629
542417	ROCKY MOUNTAIN GAS INC	No. 12-21-47-72-A	47N	72W	NE1/4 NW1/4 Sec. 12	SI	20,941	227,796
542419	ROCKY MOUNTAIN GAS INC	No. 12-34-47-72-A	47N	72W	SW1/4 SE1/4 Sec. 12	SI	48,890	1,022,697
542420	ROCKY MOUNTAIN GAS INC	No. 12-44-47-72-A	47N	72W	SE1/4 SE1/4 Sec. 12	SI	64,874	762,169
534974	CNX GAS COMPANY LLC	No. 130	47N	72W	SW1/4 SE1/4 Sec. 13	SI	76,681	106,724
534975	CNX GAS COMPANY LLC	No. 13L	47N	72W	NW1/4 SW1/4 Sec. 13	SI	44,277	93,786
534977	CNX GAS COMPANY LLC	No. 13J	47N	72W	NW1/4 SE1/4 Sec. 13	SI	32,588	16,735
534981	CNX GAS COMPANY LLC	No. 13G	47N	72W	SW1/4 NE1/4 Sec. 13	SI	13,790	199,047
534983	PEABODY NATURAL GAS LLC	No. 13B	47N	72W	NW1/4 NE1/4 Sec. 13	SI	20,177	188,907
534990	CNX GAS COMPANY LLC	No. 13E	47N	72W	SW1/4 NW1/4 Sec. 13	SI	39,530	17,179
534991	CNX GAS COMPANY LLC	No. 13D	47N	72W	NW1/4 NW1/4 Sec. 13	SI	46,331	111,875
544593	CNX GAS COMPANY LLC	No. 13K-D	47N	72W	NE1/4 SW1/4 Sec. 13	PS	0	2,386,459
544594	CNX GAS COMPANY LLC	No. 13J-D	47N	72W	NW1/4 SE1/4 Sec. 13	PS	0	977,312
544597	CNX GAS COMPANY LLC	No. 13G-D	47N	72W	SW1/4 NE1/4 Sec. 13	PS	0	112,387
544598	CNX GAS COMPANY LLC	No. 13F-D	47N	72W	SE1/4 NW1/4 Sec. 13	PS	0	306,571

CBNG WELLS CAPABLE OF PRODUCTION ON SECTIONS WITHIN AND ADJACENT TO THE BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST, AND MAYSDORF II LBA TRACTS (CONTINUED)

Api Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC STATUS	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
556116	CNX GAS COMPANY LLC	No. 13F2-D	47N	72W	SE1/4 NW1/4 Sec. 13	PS	0	337,727
530430	LORAL OPERATING LLC	No. 14-21 47-72	47N	72W	NE1/4 NW1/4 Sec. 14	SI	408,292	1,903,535
530431	LORAL OPERATING LLC	No. 14-22 47-72	47N	72W	SE1/4 NW1/4 Sec. 14	SI	564,958	1,729,291
531518	LORAL OPERATING LLC	No. 14-42	47N	72W	SE1/4 NE1/4 Sec. 14	SI	21,351	0
531521	LORAL OPERATING LLC	No. 14-41	47N	72W	NE1/4 NE1/4 Sec. 14	SI	1,640	0
533773	LORAL OPERATING LLC	No. 14-32	47N	72W	SW1/4 NE1/4 Sec. 14	SI	9,450	0
533774	LORAL OPERATING LLC	No. 14-31	47N	72W	NW1/4 NE1/4 Sec. 14	SP	9,311	0
533775	LORAL OPERATING LLC	No. 14-12	47N	72W	SW1/4 NW1/4 Sec. 14	SP	4,283	0
533776	LORAL OPERATING LLC	No. 14-11	47N	72W	NW1/4 NW1/4 Sec. 14	SP	245	0
535662	CNX GAS COMPANY LLC	No. 14 I	47N	72W	NE1/4 SE1/4 Sec. 14	SI	41,936	525,101
535663	CNX GAS COMPANY LLC	No. 14 J	47N	72W	NW1/4 SE1/4 Sec. 14	SI	37,087	701,571
535664	CNX GAS COMPANY LLC	No. 14 O	47N	72W	SW1/4 SE1/4 Sec. 14	SI	31,480	257,069
535665	CNX GAS COMPANY LLC	No. 14P	47N	72W	SE1/4 SE1/4 Sec. 14	SI	52,255	409,888
542844	MTG OPERATING COMPANY	No. 14-12C	47N	72W	SW1/4 NW1/4 Sec. 14	SP	0	0
533607	PRB OIL & GAS INC	No. 11-7-48-71A	48N	71W	NE1/4 SW1/4 Sec. 7	SI	123,158	497,585
533608	PRB OIL & GAS INC	No. 4-7-48-71A	48N	71W	NW1/4 NW1/4 Sec. 7	SI	6,104	73,136
533609	PRB OIL & GAS INC	No. 5-7-48-71A	48N	71W	SW1/4 NW1/4 Sec. 7	SI	50,432	212,954
533612	PRB OIL & GAS INC	No. 6-7-48-71A	48N	71W	SE1/4 NW1/4 Sec. 7	SI	42,142	295,934
533613	PRB OIL & GAS INC	No. 7-7-48-71A	48N	71W	SW1/4 NE1/4 Sec. 7	SI	59,456	232,712
533614	PRB OIL & GAS INC	No. 10-7-48-71A	48N	71W	NW1/4 SE1/4 Sec. 7	SI	69,741	448,230
534727	PRB OIL & GAS INC	No. 9-7-48-71A	48N	71W	NE1/4 SE1/4 Sec. 7	SI	57,080	331,527
534728	PRB OIL & GAS INC	No. 14-7-48-71A	48N	71W	SE1/4 SW1/4 Sec. 7	SI	100,093	353,322
534729	PRB OIL & GAS INC	No. 15-7-48-71A	48N	71W	SW1/4 SE1/4 Sec. 7	SI	120,210	255,943
534730	PRB OIL & GAS INC	No. 16-7-48-71A	48N	71W	SE1/4 SE1/4 Sec. 7	SI	256,365	179,871
535013	PRB OIL & GAS INC	No. 13-7-48-71A	48N	71W	SW1/4 SW1/4 Sec. 7	SI	40,125	428,690
535014	PRB OIL & GAS INC	No. 12-7-48-71A	48N	71W	NW1/4 SW1/4 Sec. 7	SI	84,260	276,510
536768	PRB OIL & GAS INC	No. 3-7-48-71A	48N	71W	NE1/4 NW1/4 Sec. 7	SI	14,936	138,639

CBNG WELLS CAPABLE OF PRODUCTION ON SECTIONS WITHIN AND ADJACENT TO THE BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST, AND MAYSDORF II LBA TRACTS (CONTINUED)

Api Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC STATUS	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
538277	PRB OIL & GAS INC	No. 1-7-48-71A	48N	71W	NE1/4 NE1/4 Sec. 7	SI	275,886	195,481
538715	PRB OIL & GAS INC	No. 8-7-48-71A	48N	71W	SE1/4 NE1/4 Sec. 7	SI	29,461	252,093
538716	PRB OIL & GAS INC	No. 2-7-48-71A	48N	71W	NW1/4 NE1/4 Sec. 7	SI	35,368	140,052
538280	PRB OIL & GAS INC	No. 3-8-48-71A	48N	71W	NE1/4 NW1/4 Sec. 8	SI	273,077	218,656
538281	PRB OIL & GAS INC	No. 5-8-48-71A	48N	71W	SW1/4 NW1/4 Sec. 8	SI	201,773	237,222
543705	BLACKSTONE OPERATING INC	No. 8-32	48N	71W	SW1/4 NE1/4 Sec. 8	SI	38,376	0
551841	BLACKSTONE OPERATING INC	No. 8-43	48N	71W	NE1/4 SE1/4 Sec. 8	SI	64,174	0
551843	BLACKSTONE OPERATING INC	No. 8-34	48N	71W	SW1/4 SE1/4 Sec. 8	SI	72,295	0
554361	BLACKSTONE OPERATING INC	No. 8-41	48N	71W	NE1/4 NE1/4 Sec. 8	SI	12,307	0
557544	PRB OIL & GAS INC	No. 34-8-48-71M	48N	71W	SW1/4 SE1/4 Sec. 8	PS	0	181,750
554360	BLACKSTONE OPERATING INC	No. 9-12	48N	71W	SW1/4 NW1/4 Sec. 9	SI	14,368	0
554362	BLACKSTONE OPERATING INC	No. 9-23	48N	71W	NE1/4 SW1/4 Sec. 9	SI	56,542	0
542941	BLACKSTONE OPERATING INC	No. 16-21	48N	71W	NE1/4 NW1/4 Sec. 16	SI	113,693	411,372
542942	BLACKSTONE OPERATING INC	No. 16-23	48N	71W	NE1/4 SW1/4 Sec. 16	SI	92,478	641,676
542944	BLACKSTONE OPERATING INC	No. 16-14	48N	71W	SW1/4 SW1/4 Sec. 16	SI	100,275	161,750
542948	BLACKSTONE OPERATING INC	No. 16-12	48N	71W	SW1/4 NW1/4 Sec. 16	SI	60,791	300,406
542187	ROCKY MOUNTAIN GAS INC	No. 17-14-48-71-A	48N	71W	SW1/4 SW1/4 Sec. 17	SI	108,017	396,783
547183	BLACKSTONE OPERATING INC	No. 43-17	48N	71W	NE1/4 SE1/4 Sec. 17	SI	52,715	660
547184	BLACKSTONE OPERATING INC	No. 23-17	48N	71W	NE1/4 SW1/4 Sec. 17	SI	80,297	0
547185	BLACKSTONE OPERATING INC	No. 21-17	48N	71W	NE1/4 NW1/4 Sec. 17	SI	52,397	26
547186	BLACKSTONE OPERATING INC	No. 34-17	48N	71W	SW1/4 SE1/4 Sec. 17	SI	86,117	24
547190	BLACKSTONE OPERATING INC	No. 12-17	48N	71W	SW1/4 NW1/4 Sec. 17	SI	55,292	15
557530	PRB OIL & GAS INC	No. 23-17-48-71 M	48N	71W	NE1/4 SW1/4 Sec. 17	PS	0	95,659
557531	PRB OIL & GAS INC	No. 32-17-48-71 M	48N	71W	SW1/4 NE1/4 Sec. 17	PS	0	103,344
557532	PRB OIL & GAS INC	No. 21-17-48-71 M	48N	71W	NE1/4 NW1/4 Sec. 17	PS	0	295,158
557533	PRB OIL & GAS INC	No. 12-17-48-71 M	48N	71W	SW1/4 NW1/4 Sec. 17	PS	0	135,797
557534	PRB OIL & GAS INC	No. 43-17-48-71 M	48N	71W	NE1/4 SE1/4 Sec. 17	PS	0	151,084

CBNG WELLS CAPABLE OF PRODUCTION ON SECTIONS WITHIN AND ADJACENT TO THE BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST, AND MAYSDORF II LBA TRACTS (CONTINUED)

Api Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC STATUS	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
534731	PRB OIL & GAS INC	No. 1-18-48-71	48N	71W	NE1/4 NE1/4 Sec. 18	SI	250,201	169,106
534732	PRB OIL & GAS INC	No. 5-18-48-71A	48N	71W	SW1/4 NW1/4 Sec. 18	SI	99,556	274,655
534733	PRB OIL & GAS INC	No. 6-18-48-71A	48N	71W	SE1/4 NW1/4 Sec. 18	SI	105,148	380,813
534734	PRB OIL & GAS INC	No. 7-18-48-71A	48N	71W	SW1/4 NE1/4 Sec. 18	SI	100,807	340,395
534735	PRB OIL & GAS INC	No. 8-18-48-71A	48N	71W	SE1/4 NE1/4 Sec. 18	SI	67,223	308,452
534736	PRB OIL & GAS INC	No. 10-18-48-71A	48N	71W	NW1/4 SE1/4 Sec. 18	SI	44,148	387,337
534737	PRB OIL & GAS INC	No. 9-18-48-71A	48N	71W	NE1/4 SE1/4 Sec. 18	SI	36,586	507,930
534738	PRB OIL & GAS INC	No. 11-18-48-71A	48N	71W	NE1/4 SW1/4 Sec. 18	SI	81,723	493,530
534739	PRB OIL & GAS INC	No. 12-18-48-71	48N	71W	NW1/4 SW1/4 Sec. 18	SI	159,917	191,231
540318	BLACKSTONE OPERATING INC	No. 31-18	48N	71W	NW1/4 NE1/4 Sec. 18	SI	30,742	48,049
540319	BLACKSTONE OPERATING INC	No. 21-18	48N	71W	NE1/4 NW1/4 Sec. 18	SI	22,231	5,740
540320	BLACKSTONE OPERATING INC	No. 11-18	48N	71W	NW1/4 NW1/4 Sec. 18	SI	19,700	84,970
542007	ROCKY MOUNTAIN GAS INC	No. 18-34-48-71-A	48N	71W	SW1/4 SE1/4 Sec. 18	SI	72,913	705,701
542008	ROCKY MOUNTAIN GAS INC	No. 18-44-48-71-A	48N	71W	SE1/4 SE1/4 Sec. 18	SI	30,676	190,821
542009	ROCKY MOUNTAIN GAS INC	No. 18-24-48-71-A	48N	71W	SE1/4 SW1/4 Sec. 18	SI	25,913	494,532
536481	ROCKY MOUNTAIN GAS INC	No. 19-12	48N	71W	SW1/4 NW1/4 Sec. 19	SI	90,500	1,204,090
536482	ROCKY MOUNTAIN GAS INC	No. 19-13	48N	71W	NW1/4 SW1/4 Sec. 19	SI	90,500	432,758
536483	ROCKY MOUNTAIN GAS INC	No. 19-14	48N	71W	SW1/4 SW1/4 Sec. 19	SI	90,500	1,379,147
536484	ROCKY MOUNTAIN GAS INC	No. 19-22	48N	71W	SE1/4 NW1/4 Sec. 19	SI	90,500	1,491,195
536485	ROCKY MOUNTAIN GAS INC	No. 19-23	48N	71W	NE1/4 SW1/4 Sec. 19	SI	74,208	1,707,180
536486	ROCKY MOUNTAIN GAS INC	No. 19-24	48N	71W	SE1/4 SW1/4 Sec. 19	SI	90,500	1,374,459
536487	ROCKY MOUNTAIN GAS INC	No. 19-32	48N	71W	SW1/4 NE1/4 Sec. 19	SI	90,500	733,003
536488	ROCKY MOUNTAIN GAS INC	No. 19-33	48N	71W	NW1/4 SE1/4 Sec. 19	SI	90,500	2,433,892
536489	ROCKY MOUNTAIN GAS INC	No. 19-34	48N	71W	SW1/4 SE1/4 Sec. 19	SI	33,280	725,739
542003	ROCKY MOUNTAIN GAS INC	No. 19-41-48-71-A	48N	71W	NE1/4 NE1/4 Sec. 19	SI	14,584	180,761
542004	ROCKY MOUNTAIN GAS INC	No. 19-42-48-71-A	48N	71W	SE1/4 NE1/4 Sec. 19	SI	20,976	194,478
542005	ROCKY MOUNTAIN GAS INC	No. 19-31-48-71-A	48N	71W	NW1/4 NE1/4 Sec. 19	SI	14,189	250,918

CBNG WELLS CAPABLE OF PRODUCTION ON SECTIONS WITHIN AND ADJACENT TO THE BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST, AND MAYSDORF II LBA TRACTS (CONTINUED)

Api Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC STATUS	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
542006	ROCKY MOUNTAIN GAS INC	No. 19-21-48-71-A	48N	71W	NE1/4 NW1/4 Sec. 19	TA	15,222	243,899
542069	ROCKY MOUNTAIN GAS INC	No. 19-11-48-71-A	48N	71W	NW1/4 NW1/4 Sec. 19	SI	20,190	163,662
556640	PRB OIL & GAS INC	No. 19-23N-48-71	48N	71W	NE1/4 SW1/4 Sec. 19	PS	0	207,762
556643	PRB OIL & GAS INC	No. 19-33NW-48-71	48N	71W	NW1/4 SE1/4 Sec. 19	PS	0	242,291
556644	PRB OIL & GAS INC	No. 19-32SW-48-71	48N	71W	SW1/4 NE1/4 Sec. 19	PS	0	188,490
556645	PRB OIL & GAS INC	No. 19-32NW-48-71	48N	71W	SW1/4 NE1/4 Sec. 19	PS	0	198,836
556646	PRB OIL & GAS INC	No. 19-13SW-48-71	48N	71W	NW1/4 SW1/4 Sec. 19	PS	0	273,813
556647	PRB OIL & GAS INC	No. 19-31SW-48-71	48N	71W	NW1/4 NE1/4 Sec. 19	PS	0	194,531
556650	PRB OIL & GAS INC	No. 19-22S-48-71	48N	71W	SE1/4 NW1/4 Sec. 19	PS	0	142,511
556651	PRB OIL & GAS INC	No. 19-22N-48-71	48N	71W	SE1/4 NW1/4 Sec. 19	PS	0	258,186
556652	PRB OIL & GAS INC	No. 19-13NE-48-71	48N	71W	NW1/4 SW1/4 Sec. 19	PS	0	266,643
556653	PRB OIL & GAS INC	No. 19-12SE-48-71	48N	71W	SW1/4 NW1/4 Sec. 19	PS	0	310,715
556654	PRB OIL & GAS INC	No. 19-12NE-48-71	48N	71W	SW1/4 NW1/4 Sec. 19	PS	0	107,662
556655	PRB OIL & GAS INC	No. 19-11SE-48-71	48N	71W	NW1/4 NW1/4 Sec. 19	PS	0	136,494
556656	PRB OIL & GAS INC	No. 19-21S-48-71	48N	71W	NE1/4 NW1/4 Sec. 19	PS	0	212,944
556744	PRB OIL & GAS INC	No. 19-12-48-71	48N	71W	SW1/4 NW1/4 Sec. 19	PS	0	303,092
556745	PRB OIL & GAS INC	No. 19-13-48-71	48N	71W	NW1/4 SW1/4 Sec. 19	PS	0	259,680
556746	PRB OIL & GAS INC	No. 19-22-48-71	48N	71W	SE1/4 NW1/4 Sec. 19	PS	0	225,175
556747	PRB OIL & GAS INC	No. 19-23-48-71	48N	71W	NE1/4 SW1/4 Sec. 19	PS	0	279,660
556748	PRB OIL & GAS INC	No. 19-32-48-71	48N	71W	SW1/4 NE1/4 Sec. 19	PS	0	209,294
556749	PRB OIL & GAS INC	No. 19-33-48-71	48N	71W	NW1/4 SE1/4 Sec. 19	PS	0	284,286
542115	ROCKY MOUNTAIN GAS INC	No. 20-12-48-71-A	48N	71W	SW1/4 NW1/4 Sec. 20	SI	14,694	442,013
542190	ROCKY MOUNTAIN GAS INC	No. 20-11-48-71-A	48N	71W	NW1/4 NW1/4 Sec. 20	SI	20,965	671,157
542191	ROCKY MOUNTAIN GAS INC	No. 20-22-48-71-A	48N	71W	SE1/4 NW1/4 Sec. 20	SI	11,799	770,728
547187	BLACKSTONE OPERATING INC	No. 21-20	48N	71W	NE1/4 NW1/4 Sec. 20	SI	86,025	29,249
547188	BLACKSTONE OPERATING INC	No. 32-20	48N	71W	SW1/4 NE1/4 Sec. 20	SI	38,030	128,265
547189	BLACKSTONE OPERATING INC	No. 41-20	48N	71W	NE1/4 NE1/4 Sec. 20	SI	39,085	7

CBNG WELLS CAPABLE OF PRODUCTION ON SECTIONS WITHIN AND ADJACENT TO THE BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST, AND MAYSDORF II LBA TRACTS (CONTINUED)

Api Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC STATUS	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
543831	BLACKSTONE OPERATING INC	No. 21-21	48N	71W	NE1/4 NW1/4 Sec. 21	SI	61,270	516,265
543833	BLACKSTONE OPERATING INC	No. 21-12	48N	71W	SW1/4 NW1/4 Sec. 21	SI	91,327	244,652
544857	BLACKSTONE OPERATING INC	No. 21-32	48N	71W	SW1/4 NE1/4 Sec. 21	SI	40,587	167,176
536507	ROCKY MOUNTAIN GAS INC	No. 30-11	48N	71W	NW1/4 NW1/4 Sec. 30	SI	69,692	1,524,960
536508	ROCKY MOUNTAIN GAS INC	No. 30-12	48N	71W	SW1/4 NW1/4 Sec. 30	SI	69,692	1,305,297
536509	ROCKY MOUNTAIN GAS INC	No. 30-13	48N	71W	NW1/4 SW1/4 Sec. 30	SI	69,692	1,240,657
536510	ROCKY MOUNTAIN GAS INC	No. 30-14	48N	71W	SW1/4 SW1/4 Sec. 30	SI	69,692	1,920,434
530419	LORAL OPERATING LLC	No. 13-12 48-72	48N	72W	SW1/4 NW1/4 Sec. 13	SI	833,848	1,011,352
530470	LORAL OPERATING LLC	No. 13-13	48N	72W	NW1/4 SW1/4 Sec. 13	SI	93,209	1,372,088
530523	LORAL OPERATING LLC	No. 13-11	48N	72W	NW1/4 NW1/4 Sec. 13	SI	631,588	698,233
533053	LORAL OPERATING LLC	No. 13-14 48-72	48N	72W	SW1/4 SW1/4 Sec. 13	SI	120,654	324,980
539382	PRB OIL & GAS INC	No. 9-13-48-72A	48N	72W	NE1/4 SE1/4 Sec. 13	SI	77,878	204,043
539393	PRB OIL & GAS INC	No. 8-13-48-72A	48N	72W	SE1/4 NE1/4 Sec. 13	SI	40,669	63,640
539394	PRB OIL & GAS INC	No. 15-13-48-72A	48N	72W	SW1/4 SE1/4 Sec. 13	SI	87,250	106,431
539395	PRB OIL & GAS INC	No. 10-13-48-72A	48N	72W	NW1/4 SE1/4 Sec. 13	SI	75,764	94,848
539405	PRB OIL & GAS INC	No. 7-13-48-72A	48N	72W	SW1/4 NE1/4 Sec. 13	SI	62,410	166,607
539406	PRB OIL & GAS INC	No. 3-13-48-72A	48N	72W	NE1/4 NW1/4 Sec. 13	SI	55,542	194,914
539407	PRB OIL & GAS INC	No. 2-13-48-72A	48N	72W	NW1/4 NE1/4 Sec. 13	SI	35,352	92,684
539408	PRB OIL & GAS INC	No. 1-13-48-72A	48N	72W	NE1/4 NE1/4 Sec. 13	SI	63,781	90,753
541880	LORAL OPERATING LLC	No. 13-22	48N	72W	SE1/4 NW1/4 Sec. 13	SI	54,379	10,392
542409	ROCKY MOUNTAIN GAS INC	No. 13-44-48-72-A	48N	72W	SE1/4 SE1/4 Sec. 13	SI	83,713	29,526
544704	ROCKY MOUNTAIN GAS INC	No. 13-23	48N	72W	NE1/4 SW1/4 Sec. 13	SI	23,722	0
544705	ROCKY MOUNTAIN GAS INC	No. 13-24	48N	72W	SE1/4 SW1/4 Sec. 13	SI	22,543	0
542067	ROCKY MOUNTAIN GAS INC	No. 24-41-48-72-A	48N	72W	NE1/4 NE1/4 Sec. 24	SI	104,180	127,286
542068	ROCKY MOUNTAIN GAS INC	No. 24-31-48-72-A	48N	72W	NW1/4 NE1/4 Sec. 24	SI	79,438	100,217
542336	ROCKY MOUNTAIN GAS INC	No. 24-44-48-72-A	48N	72W	SE1/4 SE1/4 Sec. 24	SI	44,586	2,430
542337	ROCKY MOUNTAIN GAS INC	No. 24-34-48-72-A	48N	72W	SW1/4 SE1/4 Sec. 24	SI	20,588	458,480

CBNG WELLS CAPABLE OF PRODUCTION ON SECTIONS WITHIN AND ADJACENT TO THE BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST, AND MAYSDORF II LBA TRACTS (CONTINUED)

Api Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC STATUS	Cumulative Production Gas (MCF)	Cumulative Production Water (BBL)
542400	ROCKY MOUNTAIN GAS INC	No. 24-23-48-72-A	48N	72W	NE1/4 SW1/4 Sec. 24	SI	58,338	0
542401	ROCKY MOUNTAIN GAS INC	No. 24-11-48-72-A	48N	72W	NW1/4 NW1/4 Sec. 24	SI	9,368	0
542402	ROCKY MOUNTAIN GAS INC	No. 24-13-48-72-A	48N	72W	NW1/4 SW1/4 Sec. 24	SI	24,575	0
542403	ROCKY MOUNTAIN GAS INC	No. 24-43-48-72-A	48N	72W	NE1/4 SE1/4 Sec. 24	SI	21,622	33,181
542404	ROCKY MOUNTAIN GAS INC	No. 24-22-48-72-A	48N	72W	SE1/4 NW1/4 Sec. 24	SI	21,045	107,450
542405	ROCKY MOUNTAIN GAS INC	No. 24-21-48-72-A	48N	72W	NE1/4 NW1/4 Sec. 24	SI	18,614	0
542406	ROCKY MOUNTAIN GAS INC	No. 24-33-48-72-A	48N	72W	NW1/4 SE1/4 Sec. 24	SI	43,460	492,961
542407	ROCKY MOUNTAIN GAS INC	No. 24-32-48-72-A	48N	72W	SW1/4 NE1/4 Sec. 24	SI	49,287	605,495
542408	ROCKY MOUNTAIN GAS INC	No. 24-42-48-72-A	48N	72W	SE1/4 NE1/4 Sec. 24	SI	48,386	504,855
544707	ROCKY MOUNTAIN GAS INC	No. 24-14	48N	72W	SW1/4 SW1/4 Sec. 24	SI	21,327	0
536496	ROCKY MOUNTAIN GAS INC	No. 25-31	48N	72W	NW1/4 NE1/4 Sec. 25	SI	67,993	1,211,944
536497	ROCKY MOUNTAIN GAS INC	No. 25-32	48N	72W	SW1/4 NE1/4 Sec. 25	SI	69,692	510,814
536498	ROCKY MOUNTAIN GAS INC	No. 25-33	48N	72W	NW1/4 SE1/4 Sec. 25	SI	69,692	310,747
536499	ROCKY MOUNTAIN GAS INC	No. 25-34	48N	72W	SW1/4 SE1/4 Sec. 25	SI	67,993	803,946
536500	ROCKY MOUNTAIN GAS INC	No. 25-41	48N	72W	NE1/4 NE1/4 Sec. 25	SI	57,016	1,168,673
536501	ROCKY MOUNTAIN GAS INC	No. 25-43	48N	72W	NE1/4 SE1/4 Sec. 25	SI	69,692	148,407
536502	ROCKY MOUNTAIN GAS INC	No. 25-44	48N	72W	SE1/4 SE1/4 Sec. 25	SI	69,692	1,093,890
544708	ROCKY MOUNTAIN GAS INC	No. 25-11	48N	72W	NW1/4 NW1/4 Sec. 25	SI	34,024	0
544709	ROCKY MOUNTAIN GAS INC	No. 25-21	48N	72W	NE1/4 NW1/4 Sec. 25	SI	0	38,262

Status Code: FL = Flowing, PR = Pumping Rods, PS = Pumping Submersible, SI = Shut-In , SP = Well Spudded, TA = Temporarily Abandon

Well data from WOGCC 12/13/07

CONVENTIONAL OIL AND GAS WELLS CAPABLE OF PRODUCTION WITHIN THE BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST, AND MAYSDORF II LBA TRACTS' GENERAL ANALYSIS AREAS

Api Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC STATUS	Cumulative Production Gas (MCF)	Cumulative Production Oil (BBL)
522675	PRIMARY NATURAL RESOURCES INC	No. 4-3	46N	70W	SW1/4 NE1/4 Sec. 30	PR	12,412	11,493
556853	PRIMARY NATURAL RESOURCES INC	No. 30-4	46N	70W	NE1/4 NE1/4 Sec. 30	PR	69,069	9,224
526188	CHACO ENERGY COMPANY	No. 14-11	46N	71W	SW1/4 SW1/4 Sec. 11	PR	416,573	63,076
526189	CHACO ENERGY COMPANY	No. 32-14	46N	71W	SW1/4 NE1/4 Sec. 14	PR	1,038,540	316,579
524327*	BOWDEN ENERGY COMPANY INC	No. 34-17	47N	71W	SW1/4 SE1/4 Sec. 17	AI	4,228	496,360
524394*	BOWDEN ENERGY COMPANY INC	No. 2-17	47N	71W	NE1/4 SW1/4 Sec. 17	AI	0	30,026
524991	BOWDEN ENERGY COMPANY INC	No. 3-17	47N	71W	NE1/4 SE1/4 Sec. 17	PR	4,606	146,288
525072	BOWDEN ENERGY COMPANY INC	No. 1-17	47N	71W	NW1/4 NW1/4 Sec. 17	PH	10,994	500,964
527775*	BOWDEN ENERGY COMPANY INC	No. 5-17	47N	71W	SW1/4 NW1/4 Sec. 17	AI	0	18,026
530089	BOWDEN ENERGY COMPANY INC	No. 6-17	47N	71W	NW1/4 SW1/4 Sec. 17	PR	3,288	48,294
530110	BOWDEN ENERGY COMPANY INC	No. 44-17	47N	71W	SE1/4 SE1/4 Sec. 17	PH	18,449	307,777
530225*	BOWDEN ENERGY COMPANY INC	No. 7-17	47N	71W	NW1/4 SE1/4 Sec. 17	AI	598	6,519
529208	BOWDEN ENERGY COMPANY INC	No. 1-18	47N	71W	NE1/4 SE1/4 Sec. 18	SI	4,177	67,057
529372	BOWDEN ENERGY COMPANY INC	No. 2-18	47N	71W	SE1/4 SE1/4 Sec. 18	PR	16,174	254,674
530469	BOWDEN ENERGY COMPANY INC	No. 3-18	47N	71W	NE1/4 NE1/4 Sec. 18	PH	4,623	119,305
532016*	BOWDEN ENERGY COMPANY INC	No. 1	47N	71W	NW1/4 SE1/4 Sec. 18	AI	20,730	33,954
532437	BOWDEN ENERGY COMPANY INC	No. VIII	47N	71W	NE1/4 NE1/4 Sec. 19	SI	0	24,301
524219	BOWDEN ENERGY COMPANY INC	No. 41-20	47N	71W	NE1/4 NE1/4 Sec. 20	PH	28,237	294,216
524311	BOWDEN ENERGY COMPANY INC	No. 43-20	47N	71W	NE1/4 SE1/4 Sec. 20	PR	6,312	276,426
524418	BOWDEN ENERGY COMPANY INC	No. 1-20 WSW	47N	71W	NE1/4 NW1/4 Sec. 20	PS	0	0
524498*	BOWDEN ENERGY COMPANY INC	No. 2-20	47N	71W	SW1/4 NE1/4 Sec. 20	AI	0	19,567
527871*	BOWDEN ENERGY COMPANY INC	No. 4-20	47N	71W	NW1/4 SE1/4 Sec. 20	AI	6,198	132,120
527872	BOWDEN ENERGY COMPANY INC	No. 5-20	47N	71W	SW1/4 SE1/4 Sec. 20	PH	29,586	647,210
528223	BOWDEN ENERGY COMPANY INC	No. 44-20	47N	71W	SE1/4 SE1/4 Sec. 20	TA	5,046	106,299
528376	BOWDEN ENERGY COMPANY INC	No. 1	47N	71W	NW1/4 NE1/4 Sec. 20	TA	136	6,572

CONVENTIONAL OIL AND GAS WELLS CAPABLE OF PRODUCTION WITHIN THE BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST, AND MAYSDORF II LBA TRACTS' GENERAL ANALYSIS AREAS (CONTINUED)

Api Number (Short)	Company	Well Name/No.	TWP	RNG	Location	WOGCC STATUS	Cumulative Production Gas (MCF)	Cumulative Production Oil (BBL)
524721	BOWDEN ENERGY COMPANY INC	No. 1-21	47N	71W	SW1/4 SW1/4 Sec. 21	PR	35,926	31,315
524738	BOWDEN ENERGY COMPANY INC	No. 1-28	47N	71W	SW1/4 NW1/4 Sec. 28	PR	7,180	277,021
527396*	BOWDEN ENERGY COMPANY INC	No. 2-28	47N	71W	NW1/4 SW1/4 Sec. 28	AI	0	46,713
524593	BOWDEN ENERGY COMPANY INC	No. 1-29	47N	71W	NE1/4 NE1/4 Sec. 29	PR	0	389
528261	BOWDEN ENERGY COMPANY INC	No. 2-29	47N	71W	NW1/4 NE1/4 Sec. 29	AI	0	13,629
506395	WELLSTAR CORPORATION	No. 14-12A	47N	72W	SW1/4 SW1/4 Sec. 12	PR	0	275,773
522352	WELLSTAR CORPORATION	No. 22-13	47N	72W	SE1/4 NW1/4 Sec. 13	PR	0	260,846
530578*	WELLSTAR CORPORATION	No. 33X-13	47N	72W	NW1/4 SE1/4 Sec. 13	AI	0	0
530912*	WELLSTAR CORPORATION	No. 11X-13	47N	72W	NW1/4 NW1/4 Sec. 13	AI	0	251,091
523424	WILDFIRE PARTNERS INC	No. 3	48N	71W	SW1/4 NW1/4 Sec. 8	SI	0	467,642

* Injector well - Not capable if production but important to area production

Status Code: AI = Active Injector, DH = Dry Hole, PH = Pumping Hydraulic, PR = Pumping Rods, PS = Pumping Submersible, SI = Shut-In , TA = Temporarily Abandon

Well data from WOGCC 12/13/07

APPENDIX K

SUPPLEMENTAL AIR QUALITY INFORMATION FOR THE BELLE AYR NORTH, WEST COAL CREEK, CABALLO WEST, AND MAYSDORF II LBA TRACTS

K-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 Environmental Impact Statement (EIS) focuses on potential air quality impacts specific to the Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines and the Belle Ayr North, West Coal Creek, Caballo West, and Maysdorf II Lease by Application (LBA) Tracts (Figure K-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) and Task 3-A (Cumulative Air Quality Effects) Reports of the Powder River Basin Coal Review, prepared by the ENSR Corporation for the Bureau of Land Management (BLM) Wyoming State Office, BLM Wyoming Casper Field Office, and BLM Montana Miles City Field Office, September 2005.

K-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 SIP. WDEQ/AQD has also been delegated authority by the Environmental Protection Agency (EPA) to implement federal programs of the Clean Air Act Amendment (CAAA) of 1990.

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.

K-2.1 National Ambient Air Quality Standards

The Clean Air Act (CAA) requires the 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 Act established NAAQS for six pollutants, known as “criteria” pollutants, which “...cause or contribute to air pollution which may be reasonably anticipated to endanger public health or welfare and the presence of which in the ambient air results from numerous or diverse mobile or stationary

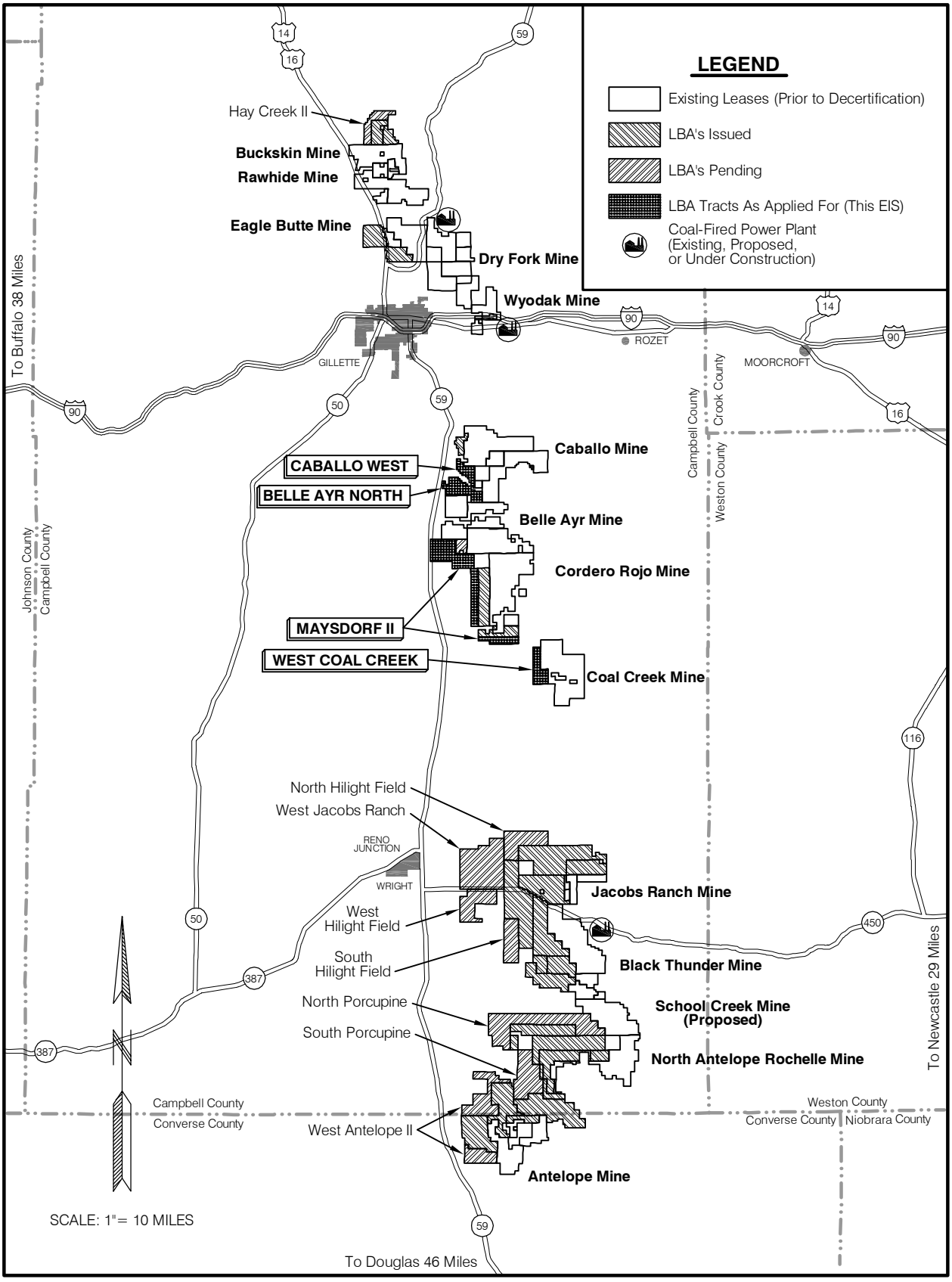

Figure K-1. General Location Map with Federal Coal Leases and LBA Tracts.

sources." The six, present-day criteria pollutants are lead, nitrogen dioxide (NO_2), sulfur dioxide (SO_2), carbon monoxide (CO), ozone (O_3) and particulate matter (PM_{10} and $PM_{2.5}$), where PM_{10} is coarse particulate with mean aerodynamic diameters less than 10 microns 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 K-1. The Wyoming Ambient Air Quality Standards (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.

K-2.2 Attainment/Non-Attainment Area Designations

Pursuant to the CAA, the 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 South Gillette Area Coal 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 project area, is a moderate non-attainment area for PM_{10} due to localized sources and activity within the town. There are no other non-attainment areas within 150 miles of the project area.

K-2.3 Prevention of Significant Deterioration (PSD)

Under requirements of the CAA, the EPA has established PSD rules, intended to prevent deterioration of air quality in attainment (and unclassifiable) areas. Increases in ambient concentrations of NO_2, SO_2, and PM_{10} are limited to modest increments above the existing or "baseline" air quality in most

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

Criteria Pollutant	Averaging Time[1]	Background Concentration	Primary NAAQS[2]	Secondary NAAQS[2]	WAAQS	PSD Class I Increments	PSD Class II Increments
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	Annual	5[5]	100	100	100	2.5	25
Ozone	8-hour	70[6]	157	157	157	---	---
Sulfur dioxide	3-hour	181[7]	---	1,300	1,300	25	512
	24-hour	62[7]	365	---	260	5	91
	Annual	13[7]	80	---	60	2	20
PM_{10}[8]	24-hour	54[9]	150	150	150	8	30
	Annual	13[9]	--	--	50	4	17
$PM_{2.5}$[8]	24-hour	13[10]	35	35	65	---	---
	Annual	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 Data collected at Thunder Basin National Grassland, Campbell County, Wyoming in 2002.
6 Data collected at Thunder Basin National Grassland, Campbell County, Wyoming in 2002-2004 (8-hour 4th high).
7 Data collected by Black Hills Power & Light at Wygen 2, Campbell County, Wyoming in 2002.
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 $\mu g/m^3$ and revokes the annual PM_{10} standard of 50 $\mu g/m^3$. The State of Wyoming will enter into rulemaking to revise the WAAQS.
9 Data collected at the Eagle Butte Mine, Campbell County, Wyoming in 2002.
10 Data collected at the Buckskin Mine in 2002.

Source: (BLM 2005b and WDEQ/AQD)

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, the 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 K-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 South Gillette Area Coal analysis area. The closest Class I area to the South Gillette Area Coal analysis area is Wind Cave National Park in South Dakota, located about 98 miles east-southeast of the site. The next closest Class I area is the Northern Cheyenne Indian Reservation (tribal federal Class I area), located about 108 miles to the north-northwest. The closest sensitive Class II areas are the Devils Tower National Monument, the Jewel Cave National Monument, and the Cloud Peak Wilderness Area, which are approximately 50 miles northeast, 80 miles east-southeast, and 81 miles west of the South Gillette Area Coal analysis area, respectively.

PSD regulations limit the maximum allowable increase (increment) in ambient PM_{10} in a Class I airshed resulting from major stationary sources or major modifications to 4 micrograms per cubic meter ($\mu g/m^3$) (annual geometric mean) and 8 $\mu g/m^3$ (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 PM_{10} or other criteria air pollutants, or any other facility which emits, or has the potential to emit, 250 tons per year or more of PM_{10} 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 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.

Table K-2. Approximate Distances and Directions from the General South Gillette Analysis Area to PSD Class I and Class II Sensitive Receptor Areas.

Receptor Area	Distance (miles)	Direction to Receptor
Mandatory Federal PSD Class I Area		
Badlands Wilderness Area[1]	147	E
Bridger Wilderness Area	206	WSW
Fitzpatrick Wilderness Area	208	WSW
Gates of the Mountain Wilderness Area	364	NW
Grand Teton National Park	256	W
North Absaroka Wilderness Area	202	WNW
Red Rocks Lake Wilderness Area	312	W
Scapegoat Wilderness Area	408	WNW
Teton Wilderness Area	215	W
Theodore Roosevelt National Park (North Unit)	266	NNE
Theodore Roosevelt National Park (South Unit)	218	NNE
U.L. Bend Wilderness Area	264	NNW
Washakie Wilderness Area	183	W
Wind Cave National Park	98	ESE
Yellowstone National Park	224	WNW
Tribal Federal PSD Class I		
Fort Peck Indian Reservation	275	N
Northern Cheyenne Indian Reservation	108	NNW
Federal PSD Class II		
Absaroka-Beartooth Wilderness Area	210	WNW
Agate Fossil Beds National Monument	137	SE
Badlands National Park	127	ESE
Bighorn Canyon National Recreation Area	150	WNW
Black Elk Wilderness Area	91	E
Cloud Peak Wilderness Area	81	W
Crow Indian Reservation	103	NW
Devils Towner National Monument	50	NE
Fort Belknap Indian Reservation	302	NNW
Fort Laramie National Historic Site	134	SSE
Jewel Cave National Monument	80	ESE
Mount Rushmore National Memorial	96	E
Popo Agie Wilderness Area	201	WSW
Soldier Creek Wilderness Area	126	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.

K-2.4 Best Available Control Technology (BACT)

All sources being permitted within Wyoming must meet state-specific 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.

K-2.5 New Source Performance Standards (NSPS)

The 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.

K-2.6 Federal Operating Permit Program

The CAAA of 1990 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 tpy of any regulated pollutant, 10 tpy of any single HAP, or 25 tpy or more of any combination of HAPs, from applicable sources. An 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 for PM_{10} under the existing air quality permits for the Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines were well below the 100 tpy applicability threshold.

K-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 PM_{10} from their mining operation, neighboring mines and other surrounding sources. For PM_{10} 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 NO_x emissions from their operations. Dispersion modeling is required to demonstrate compliance with the ambient NO_2 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 PM_{10} analysis, neighboring mining operations and other surrounding sources are also included in the NO_x /NO_2 analysis.

Long-term PM_{10} modeling is conducted for the permit application to demonstrate compliance with the annual PM_{10} standard. For both point and area sources, the Industrial Source Complex Long Term model, version 3 (ISCLT3) is typically used.

The AQD has recently required all mines in the PRB to "submit and justify a background PM_{10} concentration with each permit application" (WDEQ-AQD, 2006b). A site specific PM_{10} background concentration of 15 $\mu g/m^3$ was developed in the modeling analysis for the Belle Ayr, Coal Creek, and Cordero Rojo Mines, while a background concentration of 14.4 $\mu g/m^3$ was developed for the Caballo Mine. The modeling results are added to the background and compared to the annual standard. Likewise, compliance with the annual NO_2 standard is verified using ISCLT3 and an NO_2 background concentration of 20 $\mu g/m^3$.

Short-term PM_{10} 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 mandates 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, details 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 requires WDEQ/AQD to implement "Best Available Work Practice" mitigation measures at any mine where an exceedance of the PM_{10} 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 Belle Ayr, Coal Creek, Caballo, and Cordero Rojo 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 $\mu g/m^3$ for NO_x for the entire PRB. The air permit actions for the Belle Ayr, Coal Creek, and Cordero Rojo Mines used a background concentration of 15 $\mu g/m^3$ for PM_{10} and the Caballo Mine used a background concentration of 14.4 $\mu g/m^3$. These concentrations are based on recently monitored values in Gillette, Wyoming and at the Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines, and include all sources operating at the time the value was measured, including existing coal mine operations located around Gillette.

K-2.8 Natural Events Action Plan (NEAP)

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 to develop a Natural Events Action Plan 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 on the Internet (<http://deq.state.wy.us/AQD/NEAP%20Files/1-23-07NEAP.pdf>).

The Natural Events Action Plan recognizes that certain NAAQS exceedances due to natural events are uncontrollable. While all practical mitigation measures need 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 Natural Events Action Plan 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, BACM, 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 Natural Events Action Plan 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 (NWS) 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 Natural Events Action Plan is designed and implemented to minimize PM_{10} concentrations, EPA will exercise its discretion, under Section 107(d)(3) of the CAA, not to redesignate areas as nonattainment, provided that the exeedances are demonstrated to be the result of natural events. Based on EPA's Natural Events Policy, PM_{10} 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 BACM.

The WDEQ/AQD Natural Events Action Plan includes a public education plan, a public notification and health advisory program, and a plan to abate or minimize appropriate contributing controllable sources of PM_{10}, which includes three categories of control measures. The Natural Events Action Plan 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 PM_{10} 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 Natural Events Action Plan or as a future update of the plan.

K-3.0 EXISTING AIR QUALITY

K-3.1 Regional Particulates

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

As a result of WDEQ/AQD requirements for the PRB mines to collect air quality data, which is discussed in Section 3.4.2.3 of the EIS, the eastern PRB is one of the most intensely monitored areas in the world. There are numerous monitors located at and adjacent to mining operations in the PRB, as shown in Figure K-2. According to EPA AirData, in 2007 there were six total suspended particulates (TSP) monitors, five $PM_{2.5}$ monitors and 36 PM_{10} monitors in the Wyoming portion of the PRB. Data for TSP date back to 1980 and data for PM_{10} date back to 1989. Through 2004, approximately 57,000 TSP samples had been collected and approximately 47,550 PM_{10} samples had been collected through 2007. Table K-3 summarizes the annual arithmetic average of these data from 1980 through 2007 of all sites located at Campbell and Converse County mining operations.

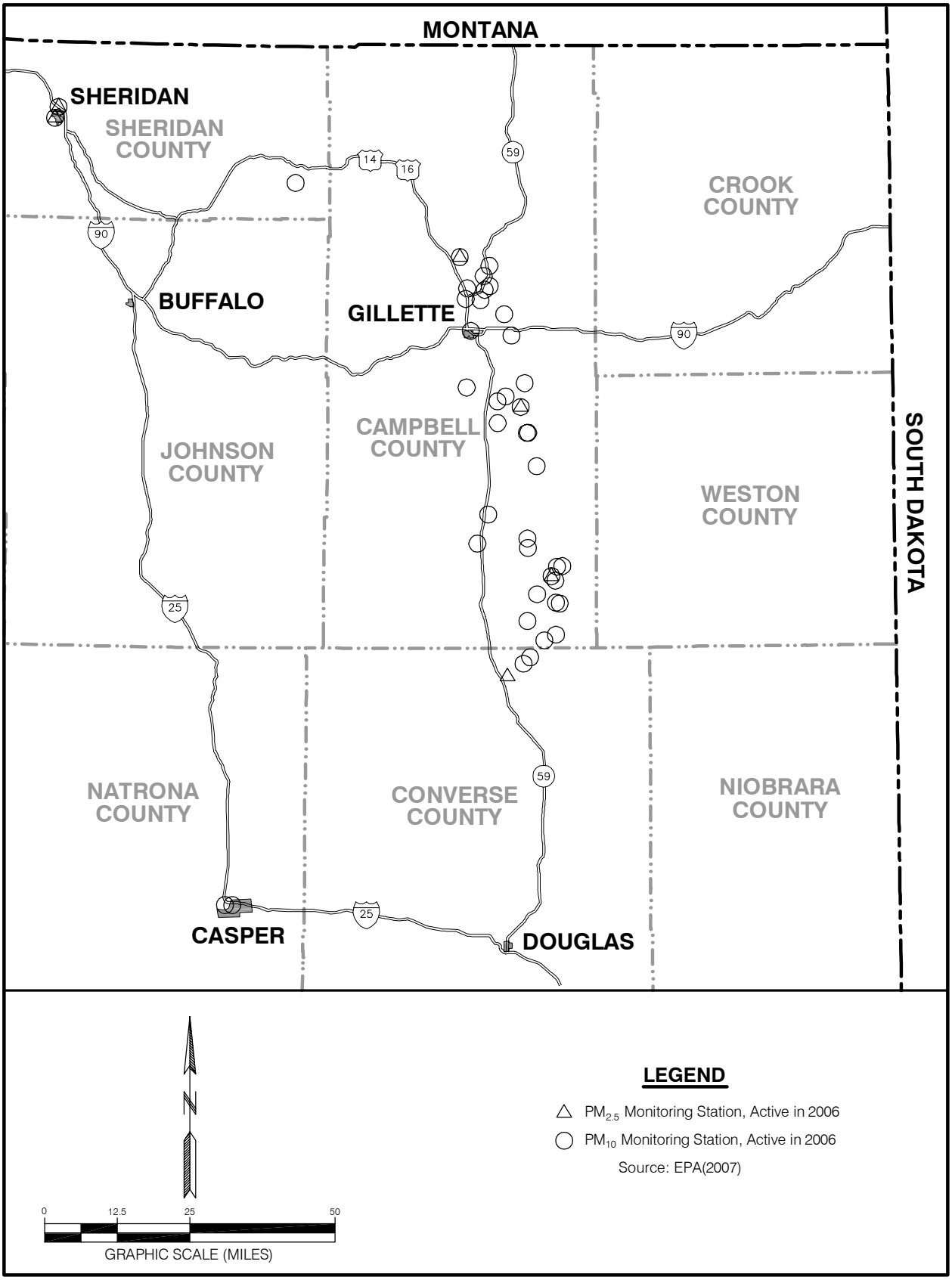

Figure K-2. Active Particulate Monitoring Stations in Northeastern Wyoming.

Table K-3. Summary of WDEQ/AQD Reports on Air Quality Monitoring for Surface Coal Mines[1] in Wyoming's PRB, 1980-2006.

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 ($\mu g/m^3$)	PM_{10} Average ($\mu g/m^3$)
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

[1] Mines include Buckskin, Rawhide, Eagle Butte, Dry Fork, Fort Union (acquired by Dry Fork), Clovis Point (acquired by Wyodak), Wyodak, Caballo, Belle Ayr, Caballo Rojo, Cordero (Caballo Rojo now combined with Cordero), Coal Creek, Jacobs Ranch, Black Thunder, North Rochelle, North Antelope, Rochelle (North Rochelle, North Antelope & Rochelle now combined), Antelope, and Dave Johnston (no longer producing coal).

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

[3] Not applicable because no monitoring for PM_{10} 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 WMA for WDEQ/AQD. 1997 through 2007 emissions data from EPA AirData and WDEQ/AQD databases (EPA 2005a, WDEQ/AQD 2005b). 1997 through 2007 production data from WDEQ/AQD and Wyoming State Inspector of Mines (WDEQ/AQD 2005c and 2008 and Wyoming Department of Employment 1997-2004).

As indicated in Table K-3, the long-term trend in particulate emissions remained relatively flat through 1998. The overall average annual TSP concentration was 33.1 µg/m^3 from 1980 through 1998, with annual averages ranging between 27.8 µg/m^3 and 39.4 µg/m^3. There were increases in 1988 and 1996, which may have been the result of fires in the region during those years. Annual average PM_{10} concentrations from 1989 through 1998 were similarly relatively flat, ranging between 12.9 µg/m^3 and 16.5 µg/m^3, with an overall average of 15.4 µg/m^3.

The 1980-1998 time period was associated with significant growth in the surface coal mining industry. 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 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 larger annual increase in overburden production is probably due to the fact that the mines are gradually moving into deeper coals 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 the EIS.

The average annual TSP concentration increased from 33.9 µg/m^3 in 1998 to 55.3 µg/m^3 in 1999, and remained greater than 50.0 µg/m^3 through 2003, when tracking of TSP concentrations was discontinued. The average annual PM_{10} concentration was 15.9 µg/m^3 in 1998 and peaked in 2001 (27.2 µg/m^3) and have been less than 27.2 µg/m^3 since that time as shown in Table K-3. The increases in coal production over the last 5 years (an average of 4.0 percent per year and 15.4 mmtpy per year over the 5-year period) and associated overburden production (an average of 6.6 percent per year and 68.8 mmbcy per year over the 5-year period) were less than a majority of the previous 20 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 PRB through year 2000. From 2001 through 2006, there were 29

monitored exceedances of the 24-hour PM_{10} standard at seven operating mines in the Wyoming PRB, five of which are located within the southern portion of the basin. Nineteen of these exceedances occurred in 2001 and 2002, while two, three, and five exceedances occurred in 2003, 2004, and 2005, respectively. There were no exceedances in 2006 (Shamley 2007). Most of the exceedances (26) took place in the group of mines located south and east of the town of Wright; the remaining three exceedances occurred in the group of mines located north and east of Gillette (Figure K-1). In 2007, there were 11 exceedances at six mines. The group of mines located between Gillette and Wright, which includes the Belle Ayr, Coal Creek, Caballo, and Cordero Rojo Mines, has not recorded any exceedances of the 24-hour PM_{10} standard. PRB monitoring data show no exceedances of the annual PM_{10} standard to date.

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 mph, which could have qualified as a high wind event under the NEAP. Of the 11 exceedances reported in 2007 within the PRB, five have been designated 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). Five of the remaining six exceedances are currently under review by EPA and may be designated as an exceptional event under the NEAP (Shamley 2008). Within the PRB, 27 of 30 of the valid exceedances (not considered exceptional events under NEAP) took place in the group of mines located south and east of the town of Wright; the remaining three valid exceedances occurred in the group of mines located north of Gillette (Figure K-1).

K-3. 2 Regional NO2 Concentrations

Nitrogen oxides 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 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 2007b). The primary direct source of emissions of nitrogen oxides 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 NO_2, 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.

NO_2 is a product of incomplete combustion at 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. The Belle Ayr Mine has never conducted cast blasting but may use that blasting procedure in the future.

In the mid-to late-1990s, OSM received complaints from several citizens about blasting clouds from several mines in the PRB. EPA expressed concerns that NO_2 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 NO_2 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 NO_2 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 NO_2 emissions related to blasting by the PRB mines are discussed in Chapter 3, Section 3.4.3.3 of the EIS.