Proposed Resource Management Plan Amendment, Environmental Assessment, and Finding of No Significant Impact

for

Three Competitive Coal Lease Sales in Haskell, Latimer, and LeFlore Counties, Oklahoma

Reclaimed coal mine, Latimer County

Liberty West Tract (OKNM 104763), Haskell County
McCurtain Tract (OKNM 108097), Haskell County
Bull Hill Tract (OKNM 107920), Latimer and LeFlore Counties

– JUNE 2004 –

BUREAU OF LAND MANAGEMENT

The Bureau of Land Management is responsible for the balanced management of the public lands and resources and their various values so that they are considered in a combination that will best serve the needs of the American people. Management is based upon the principles of multiple use and sustained yield, a combination of uses that takes into account the long-term needs of future generations for renewable and nonrenewable resources. These resources include recreation, range, timber, minerals, watershed, fish and wildlife, wilderness, and natural, scenic, scientific, and cultural values.

BLM/NM/PL-04-007-1610

Cover photograph: Reclaimed coal mine, Latimer County, Farrell-Cooper Mining Company, 1989.

United States Department of the Interior

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Dear Reader:

The Bureau of Land Management (BLM) has analyzed a proposal to a amend its 1994 Resource Management Plan to incorporate three competitive Federal coal lease sales in Haskell, Latimer, and LeFlore Counties in southeastern Oklahoma. The Proposed Resource Management Plan Amendment (PRMPA) and supporting Environmental Assessment (EA) is enclosed along with a Finding of No Significant Impact.

Additional copies of this document are available at the BLM Oklahoma Field Office in Tulsa and Moore, Oklahoma and BLM New Mexico State Office in Santa Fe. The document also is available on the internet at www.nm.blm.gov. A limited number of copies, either hard copy or on compact disk, are available by request from the BLM offices listed above.

A preliminary draft of the document was made available for public review for a 30-day period, which ended on June 10, 2004. Comments received were reviewed and incorporated as appropriate as described in Chapter 5, section 5.5.

Proposed RMP Amendment decisions may be protested by any person who participated in the planning process and who has an interest that is or may be adversely affected by the approval of the decisions. A protest should be submitted according to the procedures provided in 43 CFR 1610.5-2.

Protest letters must be postmarked on or before August 30, 2004, and may be sent to:

Regular mail:
Bureau of Land Management
Director (WO-210), Mail Stop 1076LS
Attention: Brenda Hudgens-Williams,
Protest Coordinator
P.O. Box 66538
Washington, DC 20035

Overnight mail (Federal Express or UPS):
Bureau of Land Management
Director (WO-210), Mail Stop 1076LS
Attention: Brenda Hudgens-Williams,
Protest Coordinator
1620 L Street NW
Washington, DC 20035

A protest may raise only issues that were submitted for the record during the planning process. All protests must be complete, in writing, and contain the following information:

- The name, mailing address, telephone number, and interest of the person filing the protest
- A statement of the issue or issues being protested
- A statement of the parts of the plan or amendment being protested

- A copy of all documents addressing the issue or issues that were submitted during the planning process by the protesting party or an indication of the date the issue or issues were discussed for the record; and
- A concise statement explaining precisely why the New Mexico State Director's proposed decision is believed to be wrong.

Following the protest period and resolution of any protests submitted, a Decision Record will be issued. The Decision Record will be mailed to all participants in this planning process and all other interested people upon their request.

Thank you for your continuing interest and participation in the planning process. If you have any questions, please contact Doug Cook at (918) 621-4124 or Keith Tyler at (405) 790-1015.

Sincerely,

John Mehlhoff
Field Manager

Enclosure

Finding of No Significant Impact

FINDING OF NO SIGNIFICANT IMPACT

Resource Management Plan Amendment and Environmental Assessment
For Three Coal Lease Applications in
Haskell, Latimer, and LeFlore Counties, Oklahoma

INTRODUCTION

The Bureau of Land Management (BLM), Oklahoma Field Office, proposes to amend the Oklahoma Resource Management Plan (RMP), dated 1994, to include three competitive lease sales submitted in February and June 2002. The RMP Amendment (RMPA) would incorporate the Lease Application Areas (LAAs) located in Haskell, Latimer, and LeFlore Counties in southeastern Oklahoma, which total 6,883.17 acres of previously unleased coal, into the RMP.

The Federal Coal Leasing Amendments Act of 1976 requires that coal leases be issued in conformance with a comprehensive land use plan. In 1994, the BLM Oklahoma Field Office completed such a land use plan, the RMP for Oklahoma. The 1994 RMP did not address the areas of the current LAAs primarily because the tracts represented lands that previously had been mined early in the twentieth century. However, improvements in mining technology and economics would now allow mining in these areas again.

Therefore, the BLM Oklahoma Field Office has prepared an amendment to the 1994 RMP to determine the areas acceptable for further consideration for coal leasing with standard or special protective stipulations, and areas unacceptable for further consideration for coal leasing. Also, in accordance with the National Environmental Policy Act of 1969 implementing regulations, the BLM has conducted an assessment of the potential consequences of leasing on the environment.

LOCATION

The sizes and locations of the three LAAs are as follows.

LAA	Acres	County	Cadastral Location
Liberty West	640	Haskell	Sections 1 and 12, T10N, R21E
McCurtain	2,380	Haskell	Sections 8-11, 14-17, T8N, R22E
Bull Hill	3,863.17	Latimer	Sections 9-12, T5N, R20E Section 1-3 and 7-10, T5N, R21E
		LeFlore	Sections 4-6, T5N, R23E Sections 31-34, T6N, R24E Sections 33-36, T6N, R23E Section 1-3, T5N, R22E

The surface area overlying the Federal mineral estate in the Liberty West and McCurtain LAAs is privately owned. The majority of the surface land in the Bull Hill LAA is privately owned; however, portions in the eastern part of the Bull Hill LAA are Federal lands under the jurisdiction of the U.S. Army Corps of Engineers, some of which is managed by the State of Oklahoma as Wister Wildlife Management

Area.[1] Although Wister Lake State Park (also U.S. Army Corps of Engineers [USACE] land) does not intersect with the LAA, a 300-foot buffer area adjacent to Wister Lake State Park would intersect with approximately 1.6 acres at the eastern end of the Bull Hill LAA.

Although BLM does not have the authority to make decisions regarding surface lands that are not administered by BLM, it is responsible for disclosing the potential impacts on split estate that result from a BLM decision to lease Federal minerals and from subsequent development.

ALTERNATIVES

Three alternatives were considered. Under Alternative A (No Action), no leasing and, therefore, no subsequent development would take place in the three LAAs. Under Alternative B (Maximum Resource Production), the three LAAs would be leased allowing the development of all lands within the leased area with the exception of those determined to be unsuitable for development in accordance with the coal screen unsuitability criteria. Under Alternative C (Balanced Production and Resource Protection), the three LAAs would be leased allowing development of all lands within the leased areas with the exception of those lands determined to be unsuitable for development (1) in accordance with the coal screen unsuitability criteria and (2) considering the results of the coal screen multiple use criterion, which in this case includes wetland and riparian areas, cultural resources, and priority streams.

PROPOSED DECISION

The proposed decision is to implement Alternative C, which will result in leasing the three LAAs, allowing development of all lands within the leased areas with the exception of those lands determined to be unsuitable for development, as described above.

RATIONALE FOR PROPOSED DECISION/MANAGEMENT CONSIDERATIONS

My Finding of No Significant Impact determination is based on a number of factors, including consideration of the relevant issues listed in the EA and the following.

Coal Screen

As required by the Surface Mining Control and Reclamation Act of 1977, BLM reviewed the LAAs to determine whether the lands are suitable for further consideration for coal leasing. The four-part land use planning screens include (1) coal development potential, (2) unsuitability criteria, (3) multiple use consideration, and (4) surface-owner consideration.

The results of the first screen indicate that there are an estimated 47.58 million tons of coal that potentially could be removed. The results of the second screen indicate that, of the 20 unsuitability criteria, five criteria are applicable to the three LAAs; however, exceptions or application of stipulations (described under "Application of Measures to Avoid or Minimize Environmental Harm" below) maximize the area considered suitable for leasing. The results of the third screen identified wetland and riparian areas, Wister Wildlife Management Area, and cultural resources that are not listed on the National Register of Historic Places. Specific riparian and wetland areas to be excluded from leasing have been identified by the USFWS. Leasing within the Wister Wildlife Management Area must be coordinated with the USACE and, if the land is available for lease, stipulations described below in the

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[1] Leasing within the Wister Wildlife Management Area must be coordinated with the U.S. Army Corps of Engineers and Oklahoma Department of Wildlife Conservation or authorized officer. If leasing agreements cannot be reached, no surface mining would be allowed in the Wister Wildlife Management Area.

section titled "Application of Measures to Avoid or Minimize Environmental Harm" would apply. For cultural resources, BLM would attach the standard archaeological stipulation to new coal leases (refer to stipulations below). Communication with landowners has taken place since early in the planning process. Although landowners expressed concerns about mining activities during scoping, BLM has received no written rejections to mining by qualified landowners.

Consistency with the 1994 RMP

This proposed decision is in conformance with the planning direction in the 1994 RMP for Oklahoma. The 1994 RMP requires that standard and special protective stipulations and mitigation measures be applied to prevent undue adverse impacts on other resource values. Standard and special protective measures were identified and incorporated into the BLM preferred alternative to reduce impacts. The preferred alternative would not result in long-term unnecessary or undue degradation, and will not jeopardize the continued existence of Federally listed species.

National Policy

Leasing Federal coal is an integral part of the BLM's coal program under the authority of the Mineral Leasing Act of 1920 and the Federal Land Policy and Management Act of 1976. Further, a primary goal of the National Energy Policy is to add energy resource supply from diverse sources, including coal, in an environmentally sound manner and reduce our Nation's dependence on foreign sources. The proposed decision is consistent with national policy.

Agency Statutory Requirements

The proposed decision is consistent with all Federal, State, and local authorizing actions required to implement the proposed action. All pertinent statutory requirements applicable to this proposal were considered.

Application of Measures to Avoid or Minimize Environmental Harm

Areas may be open to Federal coal leasing under standard lease terms and conditions and any specific stipulations as defined in the 1994 RMP or the RMPA. Application of the coal screen unsuitability criteria and multiple use criteria identified areas that may be included for leasing consideration with stipulations. The following coal lease stipulations (CLS) have been developed from the 1994 RMP as well as BLM policy documents and will be attached to the new coal leases. Stipulations are provisions that modify the standard lease rights and are attached and made a part of the lease. Existing stipulations from the 1994 RMP address coal screen Criterion Number 2, Criterion Number 3, Criterion Number 10, and the multiple-use screen conflict identified for riparian and wetland areas.

Existing Stipulations

Coal Lease Stipulation 1 (CLS-1) Rights-of-way: If it is impractical to relocate the right-of-way, mining will be prohibited within the right-of-way and to within a 100-foot buffer zone from the outside of the right-of-way. Relocation approval of both the holder and issuing parties involved in the right-of-way would be required.

Coal Lease Stipulation 2 (CLS-2) Dwellings: The coal lessee will consult with the owners of occupied dwellings and maintain or, with the owner's written consent, adjust the designated 300-foot buffer zone.

Coal Lease Stipulation 3 (CLS-3) Wetland Protection: All or portions of the lands under this lease contain wetland and/or riparian areas. The lessee will not conduct surface-disturbing activities on these areas without the specific approval, in writing, of the authorized officer. Impacts on or disturbance of wetlands and riparian habitats, which occur on this lease, must be avoided, minimized, or compensated. The mitigation goal will be no net loss of in-kind habitats. The mitigation shall be developed in cooperation with appropriate State and Federal agencies. This wetland and riparian stipulation is mandated by Executive Order 11990 "Protection of Wetlands" of May 24, 1977.

Coal Lease Stipulation 4 (CLS-4) American Burying Beetle Protection: The lessee will not conduct surface-disturbing lease activities that will result in unacceptable impacts on the American burying beetle, a Federally listed endangered species. The lessee may be required to arrange for a qualified biologist to conduct field surveys that could result in beetle removal and transplant efforts. Such transplant efforts must be accomplished no more than one year before surface-disturbing activities are to begin. Survey requirements, transplant efforts, and Endangered Species Act coordination and/or consultation will be accomplished cooperatively with the USFWS. This stipulation would be attached to Federal coal leases, which occur in Bryan, Cherokee, Haskell, Latimer, LeFlore, Muskogee, Pittsburg, Sequoyah and Tulsa Counties.

Standard Stipulation for Cultural Resources

In addition, BLM employs a standard overall stipulation for cultural resources that is not specifically stated in the 1994 RMP. The standard stipulation for cultural resources states the following.

Coal Lease Stipulation 5 (CLS-5) Cultural Resources: 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 area, that may be adversely affected by lease-related activities and that were not previously inventoried at such a level of intensity. The inventory shall be conducted by a qualified professional cultural resource specialist (i.e., archaeologist, 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 Manager, Program Support Division, Mid-Continent Coordinating Center (PSD manager) of the Office of Surface Mining, 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 PSD manager, 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 PSD manager, or authorized officer. The lessee shall protect all cultural resource properties within the lease area from lease-related activities until the cultural resource mitigation measures can be implemented as part of approved mining and reclamation or exploration plan.

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

If cultural resources are discovered during operations under this lease, the lessee shall immediately bring them to the attention of the PSD manager or authorized officer, or the authorized officer of the surface-managing agency, if the PSD manager is not available. The lessee shall not disturb such resources except as may be subsequently authorized by the PSD manager or authorized officer. Within two working days of notification, the PSD manager 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 surface-managing agency unless otherwise specified by the authorized officer of the BLM or of the surface managing agency, if different.

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

Stipulations Identified Through the Coal Screen

Additional stipulations identified through the coal screening process address Criterion Number 16 – Floodplains, Criterion Number 17 – Municipal Watershed, and the multiple-use screen conflict identified for the Wister Wildlife Management Area.

Coal Lease Stipulation 6 (CLS-6) Floodplains: Floodplains (100-year recurrence interval) have been mapped by the Federal Emergency Management Agency for the Bull Hill LAA. The leaseholder must receive a floodplain permit from the County floodplain administrator. The leaseholder must correspond with both the floodplain administrator and the Oklahoma Department of Mines to make any necessary modification to achieve the floodplain permit.

The Liberty West and McCurtain LAAs lie within areas that are unmapped by the Federal Emergency Management Agency for floodplains. As such, within the Liberty West LAA a 100-foot buffer zone (200-foot total) would be applied to perennial and intermittent streams. Mining would not be allowed within this buffer zone unless approval is obtained from the County floodplain administrator. Mining within the McCurtain LAA would be conducted in accordance with the Surface Mining Control and Reclamation Act and 30 CFR 817.57 (hydrologic balance: stream buffer zones). As such, no land within 100 feet of a perennial stream or an intermittent stream shall be disturbed by underground mining activities, unless the regulatory authority specifically authorizes underground mining activities closer to, or through, such a stream.

Coal Lease Stipulation 7 (CLS-7) Municipal Watersheds: The Bull Hill LAA lies within the municipal watershed for the City of Poteau. Leasing must be coordinated with the Poteau Valley Improvement Authority, which provides water to the City of Poteau, and agreements must be made with the authorized officer to allow surface mining to occur in this watershed.

Coal Lease Stipulation 8 (CLS-8) Wister Wildlife Management Area: Leasing within the Wister Wildlife Management Area must be coordinated with the USACE and Oklahoma Department of Wildlife Conservation or authorized officer. If leasing agreements cannot be reached, no surface mining would be allowed in the Wister Wildlife Management Area.

Public Comments

The BLM requested comments from the general public; local landowners; and Federal, State, and local agencies during scoping early in the planning and environmental process, and requested comments on the Proposed RMPA/EA. The BLM issued a media release with a brief summary of the proposal, locations, and information about how the public could comment. Also, BLM prepared and offered a draft RMPA/preliminary draft Finding of No Significant Impact/EA for review by the public prior to issuing the Proposed RMPA/draft Finding of No Significant Impact /EA.

IMPLEMENTING THE DECISION AND ENVIRONMENTAL COMMITMENTS

Environmental review of coal mining activities is required during the process of leasing the Federal coal as well as the mine permit application process.

After the Decision Record has been approved, BLM would offer the LAAs for bid, and issue the leases to the successful bidder. Once the leases are issued, lead-agency responsibility shifts and the lessee must submit a mine permit application, including mine operation and reclamation plans, to the Oklahoma Department of Mines. The Oklahoma Department of Mines is the State agency given the authority for review and approval of mining and reclamation in Oklahoma through designation by the U.S. Department of the Interior, Office of Surface Mining Reclamation and Enforcement. The Oklahoma Department of Mines and Office of Surface Mining Reclamation and Enforcement are responsible for completing site-specific environmental evaluation and mitigation planning at the time the mine permit application is submitted. BLM participates in review of the mine plan to ensure that the lease stipulations are upheld and the economic recovery of the Federal coal is maximized.

FINDING OF NO SIGNIFICANT IMPACT

Based on the analysis of potential environmental impacts presented in the attached *RMPA/EA for Three Coal Lease Areas in Haskell, Latimer, and LeFlore Counties, Oklahoma*, with implementation of the protective measures found in the RMPA/EA and in this document, I conclude that approved action is not a major Federal action and will result in no significant impacts on the environment under the criteria in Title 40 Code of Federal Regulations 1508.18 and 1508.27. Preparation of an environmental impact statement to analyze possible impacts further is not required pursuant to Section 102(2)(c) of the National Environmental Policy Act of 1969.

Recommended by:

John Mehlhoff
Field Manager
Oklahoma Field Office

7-20-04
Date

Approved by:

Linda Rundell
State Director
New Mexico State Office

7/20/04
Date

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LIST OF ACRONYMS

$\mu g/m^3$	Micrograms per cubic meter
AD	Anno domini
AES	Applied Energy Service
AMD	acid mine drainage
AML	abandoned mine lands
BA	Biological Assessment
BART	Best Available Retrofit Technology
BC	before Christ
bgs	Below ground surface
BLM	Bureau of Land Management
BP	Before present
CBM	Coalbed methane gas
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation and Liability Information System
cfs	Cubic feet per second
CFR	Code of Federal Regulations
CLS	Coal Lease Stipulation
CO	Carbon monoxide
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted sound level
EA	Environmental Assessment
EO	Executive Order
EPA	Environmental Protection Agency
ESA	Endangered Species Act
F	Fahrenheit
ft/ft	Feet/feet
FLPMA	Federal Land Policy and Management Act
GIS	Geographic information system
GLO	Government Land Office
gpm	Gallons per minute
HUC	Hydrologic unit code
HUD	Housing and Urban Development
Hz	Hertz
LAA	Lease Application Area

Ldn	Day-night average noise level
Leq	Equivalent sound level
MBTA	Migratory Bird Treaty Act
MSA	Management Situation Analysis
MSWLF	Municipal Solid Waste Landfill Facilities
MOA	Memorandum of Agreement
MOU	Memorandum of Understanding
mph	miles per hour
NAAQS	National Ambient Air Quality Standards
NAICS	North American Industry Classification System
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NNL	National Natural Landmarks
NO_2	Nitrogen dioxide
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPL	National Priorities List
NRCS	Natural Resources Conservation Services
NSPS	New Source Performance Standards
NWI	National Wetland Inventory
NWR	National Wildlife Refuge
O_3	Ozone
OAC	Oklahoma Administrative Code
OAS	Oklahoma Archaeological Survey
OCC	Oklahoma Corporation Commission
OCS	Oklahoma Climatological Survey
ODA	Oklahoma Department of Agriculture
ODAFF	Oklahoma Department of Agriculture Food and Forestry
ODEQ	Oklahoma Department of Environmental Quality
ODH	Oklahoma Department of Health
ODM	Oklahoma Department of Mines
ODWC	Oklahoma Department of Wildlife Conservation
OES	Oklahoma Ecological Services
OFP	Oklahoma Forestry Code
ONHI	Oklahoma Natural Heritage Inventory
OSM	Office of Surface Mining
OTRD	Oklahoma Tourism and Recreation Department
OWRB	Oklahoma Water Resources Board
PL	Public Law
PM_{10}	Particulate matter of 10 microns or smaller diameter
$PM_{2.5}$	Particulate matter of 2.5 microns or smaller diameter
POWHh	Palustrine, open-water, permanent, diked/impounded
PRMPA	Proposed Resource Management Plan Amendment
PSD	Prevention of Significant Deterioration

RCRA	Resource Conservation and Recovery Act
RFD	Reasonable foreseeable development
RMP	Resource Management Plan
RMPA	Resource Management Plan Amendment
SARA	Superfund Amendments and Reauthorization Act
SCORP	Statewide Comprehensive Outdoor Recreation Plans
SDWA	Safe Drinking Water Act
SHPO	State Historic Preservation Officer
SHS	Standard Habitat Sites
SIC	Standard Industrial Code
SIP	State Implementation Plan
SMCRA	Surface Mining Control and Reclamation Act of 1977
SO_2	Sulfur dioxide
SP	State Parks
SSS	Special status species
SWANCC	Solid Waste Authority of Northern Cook County
SWAPP	Source Water Assessment and Protection Program
SWCD	Soil and Water Conservation Districts
SWPPP	Stormwater Pollution Prevention Plan
TMDL	Total maximum daily load
TPWD	Texas Parks and Wildlife Department
TSD	Treatment, storage, and disposal
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
U.S.C.	U.S. Code
USDA	U.S. Department of Agriculture
USGS	U.S. Geological Survey
UST	Underground storage tank
VRM	Visual Resource Management
WMA	Wildlife Management Areas
WQS	Water Quality Service

Summary

SUMMARY

The Bureau of Land Management (BLM), Oklahoma Field Office, is preparing an amendment to its 1994 Resource Management Plan (RMP) and completing an Environmental Assessment (EA) on the amendment to incorporate three competitive coal lease sales covering lands in Haskell, Latimer, and LeFlore Counties in southeastern Oklahoma. This RMP Amendment (RMPA) has been developed pursuant to the Federal Land Policy and Management Act of 1976. The 1994 RMP is the comprehensive land use plan used to manage mineral resources and public lands in Oklahoma. However, neither the 1994 RMP, nor an amendment prepared in 1996, addressed portions of the areas that are the subject of this RMPA. The EA has been prepared in compliance with the National Environmental Policy Act (NEPA) of 1969, and Council on Environmental Quality regulations to identify the potential impacts that implementation of the RMPA could have on the environment and identify appropriate measures to mitigate any adverse impacts.

In February and June of 2002, BLM received three applications from Farrell-Cooper Mining Company for competitive coal lease sales in Haskell, Latimer, and LeFlore Counties. The sizes and locations of the three lease application areas (LAAs) are as follows:

- Liberty West, 640 acres in parts of Sections 1 and 12, T10N, R21E in Haskell County
- McCurtain, 2,380 acres in parts of Sections 8-11, 14-17, T8N, R22E in Haskell County
- Bull Hill, 3,863.17 acres in parts of Sections 9-12, T5N, R20E, and Sections 1-3 and 7-10, T5N, R21E in Latimer County and Sections 4-6, T5N, R23E, Sections 31-34, T6N, R24E; Sections 33-36, T6N, R23E and Sections 1-3, T5N, R22E in LeFlore County

The total of 6,883.17 acres of Federal mineral estate is administered by the BLM and the surface is privately owned or State-administered. These LAAs were not included in the 1994 RMP, primarily because two of the tracts (McCurtain and Bull Hill) represented lands that had previously been mined early in the twentieth century. However, improvements in mining technology and economics would now allow mining in these areas again.

Chapter 1.0 of this Proposed RMPA/EA provides an introduction to the project including the purpose and need for the proposed leases, a description of the planning process implemented during development of the RMPA/EA, a summary of issues identified during the scoping process, and a description of this RMPA/EAs compliance with existing laws and regulations.

Chapter 2.0 provides a detailed description of three alternative management plan amendments and summarizes the potential impacts on the environment from implementing each of the alternatives. This chapter also summarizes the land use planning coal screens, which addresses potential for coal development, areas where coal development may be unsuitable, compatibility with other land uses, and consultation with qualified landowners.

The three alternatives considered in this RMPA/EA included Alternative A: No Action; Alternative B: Maximum Resource Production; and Alternative C: Balanced Production and Resource Protection.

Alternative A: No Action: Under Alternative A, the three LAAs addressed in this document would not be leased, and only those tracts of land included previously in the 1994 RMP or 1996 RMPA would be considered for leasing.

Alternative B: Maximum Resource Production: Under Alternative B, the three LAAs would be leased allowing development of all lands within the leased areas with the exception of those lands considered to be unsuitable for development (in accordance with the unsuitability criteria of the coal screen described in Section 2.3). The estimated total number of acres within the three LAAs considered at this time as unsuitable for development after stipulations is approximately 1.6 acres, which is less than 1 percent of the total 6,883.17 acres. These lands include rights-of-way and easements; buffer zones of rights-of-way, communities, and buildings; floodplains; and municipal watersheds. The entirety of this unsuitable area, after stipulations, is located in the Bull Hill LAA.

Alternative C: Balanced Production and Resource Protection: Under Alternative C, the three LAAs would be leased allowing development of all lands within the leased areas with the exception of those lands considered to be unsuitable for development (1) in accordance with the unsuitability criteria and (2) considering the results of the multiple use screen, which includes wetland and riparian areas, cultural resources, Wister Wildlife Management Area, and priority streams. With application of stipulations, no additional lands would be removed from consideration for leasing, compared to Alternative B.

The primary difference between Alternatives B and C would be the stipulations included in the lease. After consideration, Alternative C: Balanced Production and Resource Protection was selected as the preferred alternative, addressing the purpose and need of the proposed leases while avoiding, minimizing impacts on the human, natural, and cultural environments.

Chapter 3.0 – Affected Environment provides a summary of the existing condition of the environment in the LAAs. In accordance with NEPA regulations, the affected environment section discusses the existing condition of the human and natural environment that potentially could be affected, either beneficially or adversely, by the alternative plans as described in Chapter 2.0. The affected environment is characterized for the following resources:

- Land Use
- Access and Transportation
- Geology and Minerals
- Soils
- Water Resources
- Air Quality
- Vegetation
- Wildlife
- Special Status Species
- Noxious Weeds
- Hazardous Materials
- Noise
- Cultural Resources
- Paleontological Resources
- Recreation
- Visual Resources
- Social and Economic Conditions

Chapter 4.0 – Environmental Consequences provides a description of the potential impacts on the human, natural, and cultural environments described in Chapter 3.0. Duration (short-term versus long-term impacts), significance level, and quality (adverse versus beneficial impacts) were each considered in the assessment.

Under Alternative A: No Action, BLM would not lease the LAAs for subsequent development and, therefore, no surface disturbing impacts would occur. However, taking no action would represent a lost opportunity for potential land reclamation and socioeconomic benefits such as jobs and earnings, purchase of goods and services, and other revenues.

Potential adverse impacts that would be common to the action alternatives were identified and described. Proposed mining activities could result in short-term disruption of existing land uses and public access.

Potential impacts on soils include the physical loss of soil materials and decreases in soil productivity. Ground water quality and quantity could be affected in the vicinity of each of the LAAs as a result of dewatering during the period of mining and potential acid mine drainage. The visual character in and adjacent to each of the LAAs would be temporarily affected. Potential adverse effects on wildlife would include habitat fragmentation, temporary and/or permanent loss of habitat removed by mining.

Although specific plans for reclamation have not been developed for the three LAAs, such plans would be required as part of the mine Plan of Operations. The basic components of the reclamation plan would include site recontouring and drainage restoration, erosion and sedimentation controls, and topsoil replacement, stabilization, and revegetation efforts. The overall intent of the reclamation program is to restore the land to productive use. To the degree practical and achievable with available technologies and best management practices, control erosion and sedimentation, and restore the area to stable, safe, and productive post-mining conditions.

Beneficial socioeconomic impacts were identified. At the Liberty West LAA, employment would remain at current levels (84 employees) generating total wages of $3,024,000, plus $1,512,000 in benefits annually. An estimated secondary employment of 125 workers and earnings of $3,810,240 also would be generated. At the McCurtain LAA, 50 new jobs would be created with annual wages of $2,025,000, plus $1,215,000 in benefits. At the Bull Hill LAA, approximately 10 to 12 new jobs would be created and 70 jobs maintained resulting in an annual increase of $360,000 to $432,000 in wages, plus $180,000 to $216,000 in benefits over current levels. An estimated secondary employment would increase by 15 to 18 persons and estimated secondary earnings would increase by $453,600 to $544,320 over current levels.

Chapter 5.0 provides a description of the consultation and coordination that has taken place with the public at large as well as Federal, State, county, and local agencies that were employed in development of this RMPA/EA. These processes included both formal and informal consultations as well as public participation. This Proposed RMPA/EA is being prepared for the BLM with the assistance of a third-party contractor, URS Corporation.

1.0 Introduction

1.0 INTRODUCTION

1.1 PURPOSE AND NEED FOR AMENDMENT

The Bureau of Land Management (BLM), Oklahoma Field Office, is preparing an amendment to its 1994 Resource Management Plan (RMP) and completing an Environmental Assessment (EA) on the amendment for three competitive Federal coal lease sales covering lands in Haskell, Latimer, and LeFlore Counties, Oklahoma. BLM received applications for the three areas, which total 6,883 acres of previously unleased coal, in February and June of 2002 from Farrell-Cooper Mining Company. The three Lease Application Areas (LAAs) are part of the Federal mineral estate administered by the BLM. The RMP Amendment (RMPA) will amend the 1994 Oklahoma RMP to incorporate the three LAAs.

The BLM, under the Secretary of the Interior, is the Federal agency responsible for leasing Federally owned coal, and the Federal Coal Leasing Amendments Act of 1976 requires that coal leases be issued in conformance with a comprehensive land use plan. In 1994, the BLM Oklahoma Field Office completed such a land use plan, the RMP for Oklahoma, which included Federal mineral resources in Haskell, Latimer, and LeFlore Counties; however, neither the 1994 RMP nor the amendment prepared in 1996 addressed the areas that are the subject of this current RMPA. Portions of these proposed new coal leases were not included in the 1994 RMP, primarily because two of the tracts (McCurtain and Bull Hill) represented lands that previously had been mined early in the twentieth century; however, improvements in mining technology and economics would now allow mining in these areas again.

This amendment to the 1994 RMP is being prepared to determine the following:

- Areas acceptable for further coal leasing consideration with standard stipulations;
- Areas acceptable for consideration with special stipulations; or
- Areas unacceptable for further coal leasing consideration.

Lands already considered in the 1994 Oklahoma RMP, and as amended in 1996, are not addressed.

Environmental review of coal mining activities is phased and required during (1) the process of leasing the Federal coal and (2) the mine permit application process.

BLM is the Federal agency responsible for administration of the Federal mineral estate. As such, BLM is required to determine the areas acceptable for further consideration for coal leasing with standard or special protective stipulations, and areas unacceptable for further consideration for coal leasing. In addition, BLM is required to disclose the potential impacts resulting from its decision to lease and consider subsequent development.

Once BLM has determined whether standard stipulations are adequate or special protective stipulations will be required, BLM then offers the tract for bid, and issues the lease to the successful bidder. At this stage of the process, site-specific details of the proposed mining activities are not known.

At the time of the lease sale, a qualified surface owner, as defined in 43 CFR 3400.0-5, must provide written consent in order for a coal operator to enter and commence surface mining. If the applicant cannot provide written consent from the qualified surface owner to enter and commence surface mining, the BLM would issue the lease underlying that particular parcel for underground mining only.

Once a lease is issued, lead-agency responsibility shifts and the lessee must submit a mine permit application, including mine operation and reclamation plans, to the Oklahoma Department of Mines (ODM). ODM is the State agency given the authority for review and approval of mining and reclamation in Oklahoma through designation by the U.S. Department of the Interior Office of Surface Mining Reclamation and Enforcement. Site-specific environmental evaluation and mitigation planning is required at the time the mine permit application is submitted.

The Federal lead agency, or its designee, is required to consult with relevant agencies to ensure that its actions would not jeopardize sensitive environmental resources. BLM participates in review of the mine plan to ensure that the lease stipulations are upheld and the economic recovery of the Federal coal is maximized.

Section 2.2.2 is a summary of the BLM's management direction as it applies to leasing.

Preparation of the RMPA is guided by BLM planning regulations Title 43 Code of Federal Regulations (CFR) Part 1600 under the authority of the Federal Land Policy and Management Act (FLPMA) of 1976, which directs BLM to provide for the use of public land managed under the principles of multiple use and sustained yield; and 43 CFR 3400, which provides the framework for BLM to conduct leasing of the rights to extract Federal coal.

In addition, the EA will identify the potential impacts that implementation of the RMPA could have on the environment and identify appropriate measures to mitigate those impacts. The EA is being prepared in compliance with the National Environmental Policy Act (NEPA) of 1976 as well as the Council on Environmental Quality regulations implementing NEPA.

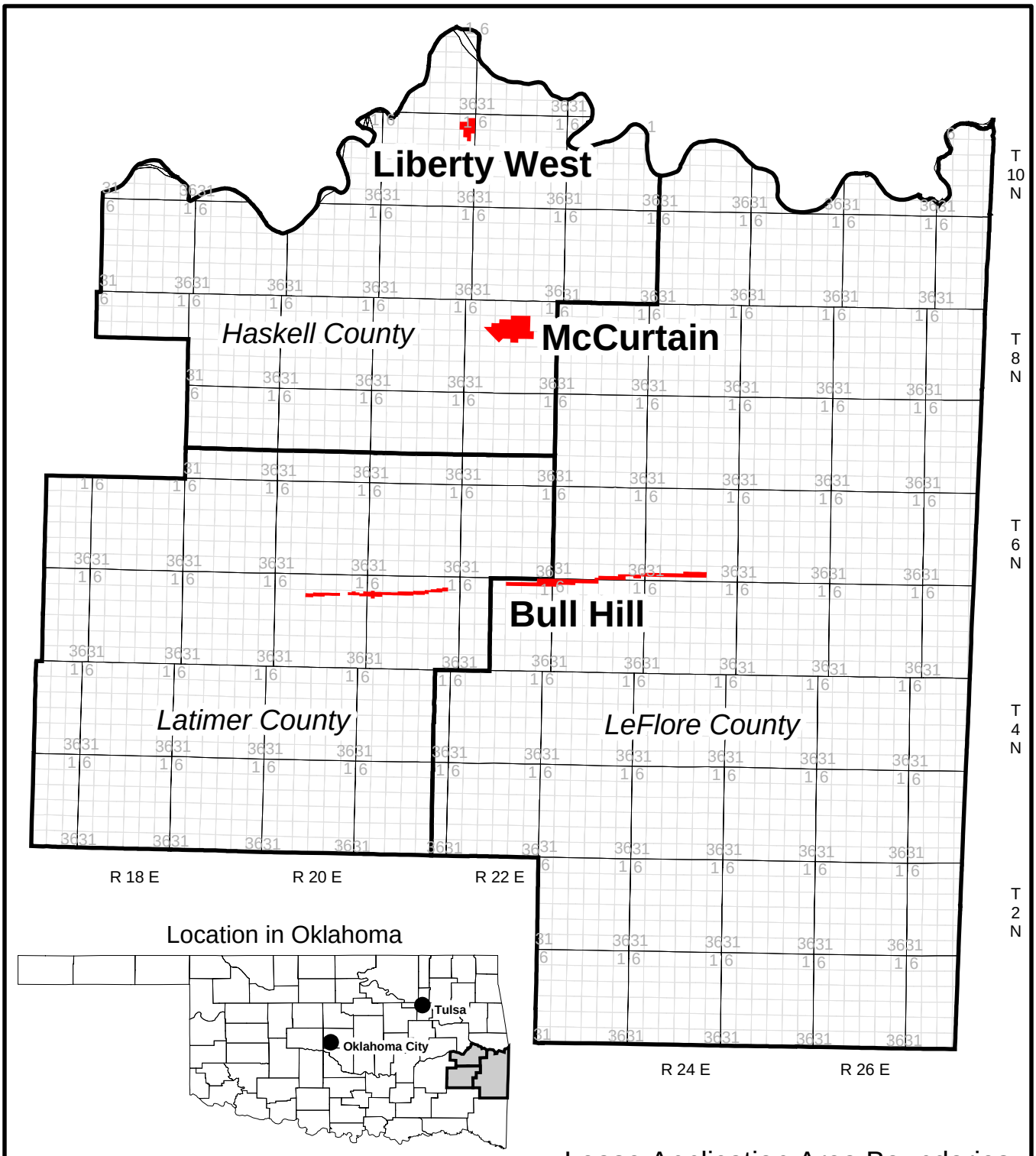
1.2 LOCATION

The sizes and locations of the three LAAs are shown in Table 1-1 and Map 1-1.

TABLE 1-1
LOCATIONS OF THE LAAS

LAA	Acres	County	Cadastral Location
Liberty West	640	Haskell	Sections 1 and 12, T10N, R21E
McCurtain	2,380	Haskell	Sections 8-11, 14-17, T8N, R22E
Bull Hill	3,863.17	Latimer	Sections 9-12, T5N, R20E Sections 1-3 and 7-10, T5N, R21E
		LeFlore	Sections 4-6, T5N, R23E Sections 31-34, T6N, R24E Sections 33-36, T6N, R23E Sections 1-3, T5N, R22E

The surface area overlying the Federal mineral estate in the Liberty West and McCurtain LAAs is privately owned. The majority of the surface land in the Bull Hill LAA is privately owned. However, portions of the eastern part of the Bull Hill LAA are Federal lands under the jurisdiction of the U.S. Army Corps of Engineers, which is managed by the State of Oklahoma as Wister Wildlife Management Area.



Lease Application Area Boundaries
RMPA/EA for Federal Coal Leases in Haskell, Latimer, and LeFlore Counties, Oklahoma
BLM Oklahoma Field Office

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

URS

Map 1-1

P:\BLM\Farrell-Cooper\GIS\MXDS\LocationMap.mxd

Although BLM does not have the authority to make decisions regarding surface lands that are not administered by BLM, it is responsible for disclosing the potential impacts on split estate that result from a BLM decision to lease Federal minerals and from development.

1.3 PLANNING PROCESS

The RMPA process employs the nine basic steps of the BLM planning process, which are as follows:

- Identification of issues
- Development of planning criteria
- Collection of data and information
- Management situation analysis
- Formulation of alternatives
- Estimation of the effects of the alternatives
- Selection of the preferred alternative
- Selection of the plan amendment
- Monitoring and evaluation

The process requires an interdisciplinary team of resource specialists to complete each step. A brief description of each step and the work that has been accomplished to date is provided in Sections 1.3.1 through 1.3.9.

1.3.1 Step 1 – Identification of Issues

Issues were identified through the scoping process at the beginning of the project. Scoping is a process required in the early stages of preparing an RMPA and EA to encourage public participation and solicit public input on the scope and significance of the proposed action (40 CFR 1501.7). Scoping and the RMPA/EA process for the three LAAs began with the publication in the *Federal Register* of the Notice of Intent to amend the 1994 RMP, prepare an EA, conduct public scoping meetings, and request any information that would be useful in meeting the requirements of the Federal Coal Management Program defined in 43 CFR 3420, including the application of coal planning screens. The Notice of Intent was published on April 17, 2003. In addition to the Notice of Intent, BLM prepared a scoping notice to send to approximately 1,800 entities on BLM's mailing list in April 2003. Also, BLM prepared and issued media releases and posted notices in the local communities to announce the public scoping meetings.

BLM conducted two public scoping meetings in early May 2003, at which 36 people attended (see Chapter 5.0). The 30-day scoping period ended on May 23, 2003. All of the comments and questions received were compiled, reviewed, and analyzed to identify the issues to be addressed in the RMPA/EA. The issues identified during scoping, and where they are addressed in this document, are summarized in Section 1.4.

The scoping process, including scoping activities and summary of comments and issues, was documented in a Scoping Report in June 2003 and sent to the interested parties on the mailing list. The Scoping Report is on file at the BLM Oklahoma Field Office and also available on the Oklahoma Field Office website: http://www.nm.blm.gov/okfo/okfo_home.html.

1.3.2 Step 2 – Development of the Planning Criteria

Planning criteria are the standards, rules, and measures used for data collection and alternative formulation, which will guide final plan selection. Planning criteria are developed from appropriate laws and regulations, BLM manuals and directives, and concerns expressed in the meetings and consultations, both with the public and other agencies. The planning criteria to guide the development of the RMPA/EA include the following:

- Recognize valid existing rights
- Follow existing laws, executive orders, regulations, and BLM policy and program guidance
- Collaborate with agencies and the public
- Consider adjoining land to minimize land use conflicts
- Develop reasonable alternatives
- Avoid unbalanced analysis
- Use science-based analysis with relevant and current data
- Address social and economic conditions
- Address effects on natural, human, and cultural resources

1.3.3 Step 3 – Collection of Data and Information

The majority of data and information used was existing data from the BLM Oklahoma Field Office and other relevant sources. Data included published and unpublished reports, maps, and digital information (geographic information system). Resources and resource uses addressed include the following:

- Land Uses
- Access and Transportation
- Geology and Minerals
- Soils
- Water Resources
- Air Quality
- Noise
- Vegetation
- Wildlife
- Special Status Species
- Noxious Weeds
- Hazardous Materials
- Cultural Resources
- Paleontological Resources

- Recreation
- Visual Resources
- Social and Economic Conditions

1.3.4 Step 4 – Management Situation Analysis

The purpose of the Management Situation Analysis was to characterize the existing condition of the environment potentially affected by the proposed action (i.e., the baseline environmental data), examine the existing management direction, and consider whether existing management remains adequate or determine if existing management should be modified. The resulting documentation, prepared to be appropriate and commensurate with the planning issues, is on file at the BLM Oklahoma Field Office.

Once the existing environment had been inventoried and characterized, in accordance with 43 CFR 3400, BLM reviewed (or screened) the Federal coal land within the LAAs. The purpose was to (1) determine the potential for coal, and the suitability (or unsuitability) and appropriateness of multiple uses; and (2) consult with the affected, qualified surface landowners to determine whether they are for or against surface mining of the land they own. Through this screening, lands that were determined unsuitable for leasing and subsequent development were eliminated from further consideration. The results of the four-step coal screen is presented in Chapter 3.0 of this RMPA/EA.

1.3.5 Step 5 – Formulation of Alternatives

Three alternatives were developed to respond to issues identified through scoping and BLM management concerns, explore alternatives to existing management, comply with BLM planning guidelines, and comply with the FLPMA requirement of managing for multiple use and sustained yield. The alternatives, described in more detail in Chapter 2.0, include: (1) Alternative A: No Action, (2) Alternative B: Maximum Resource Production, and (3) Alternative C: Balanced Production and Resource Protection, which is the Proposed Action.

1.3.6 Step 6 – Estimation of Effects of the Alternatives

Considering the baseline environmental data of the areas open to leasing and subsequent development along with the description of the activities that would take place under each alternative, the potential adverse and beneficial environmental consequences, or effects, that could result from each of the alternatives were identified and evaluated. Mitigation measures and reclamation also were considered in evaluating the potential effects. The environmental consequences that could result from each of the alternatives are described in Chapter 4.0.

1.3.7 Step 7 – Selection of the Preferred Alternative

Following an in-depth analysis of the environmental effects associated with the three alternatives, the BLM Oklahoma Field Manager identified and recommended Alternative C: Balanced Production and Resource Protection, as the agency's preferred alternative to the BLM New Mexico State Director. The Proposed RMPA (PRMPA)/EA then was completed to document the process and results, and has been distributed for a 60-day Governor's Consistency Review and a 30-day protest period. The right-to-protest applies to any person who has participated in the amendment process and has an interest that may be affected by the amendment decision. However, only those issues of record submitted to the Oklahoma Field Manager during the amendment process may be subject to protest.

1.3.8 Step 8 – Selection of the Plan Amendment

Based on the results of Step 7 and thorough consideration of the public comments on the PRMPA/EA, BLM will prepare and issue the RMPA and Decision Record. The amendment decision may be implemented only after any protests are resolved.

1.3.9 Step 9 – Monitoring and Evaluation

Once the RMPA has been approved, it will serve as management guidance for the coal lease areas. Over time, BLM will monitor and evaluate the actions, resource conditions, and trends to determine the effectiveness of the RMPA and to ensure that implementation of the RMPA is achieving the desired results. The RMPA will be kept current through primarily minor maintenance as demands on resources change or as new information is acquired.

1.4 PLANNING ISSUES

The comments received as part of scoping were analyzed and the issues subsequently derived are summarized in this section. The issues primarily addressed components of the planning and NEPA process, landowner rights and compensation; access; water quality and quantity; air quality; noise; public health and safety; reclamation; and social and economic effects. The comments and issues, and where they are addressed in this document, are summarized in Table 1-2.

1.5 CONFORMANCE WITH BLM POLICIES, PLANS, AND PROGRAMS

This document has been prepared to reflect and be consistent with current laws, regulations, and BLM policy guidance for the Federal coal program, and to provide the public the opportunity to review coal leasing decision making.

In 1994, the BLM Oklahoma Field Office completed a RMP, which provides a comprehensive framework for managing the Federally owned minerals and BLM-administered public land in the State of Oklahoma. Among other resources, the RMP identified Federal coal tracts considered, at that time, acceptable for leasing and development. The RMP and associated Decision Record are incorporated appropriately into this RMPA.

As stated earlier in this chapter, part of the three LAAs addressed by this RMPA, which are located within the planning area covered by the 1994 Oklahoma RMP, were not included in the RMP, primarily because the tracts represented lands that previously had been mined early in twentieth century. However, improvements in mining technology and economics would now allow mining in these areas again. Completion of this RMPA/EA places the lease process in conformance with BLM laws, regulations and policy.

TABLE 1-2
ISSUES IDENTIFIED DURING THE SCOPING PROCESS

Issue	Section(s) in RMPA/EA Where Issue is Addressed
Planning and NEPA Process	
Be thorough and use "good science" in conducting the studies and analyses for the RMPA/EA.	Chapters 2, 3, 4
Project Description	
How will the mining operations be conducted?	Section 2.4.1
Land and Access	
Will all of the acreage proposed be leased or will any acreage be closed to leasing?	Section 2.3
What would be the effects of mining operations on the public's access in the lease areas?	Sections 2.3.2, 4.2.2.2
Landowner Rights and Compensation	
What are the rights of the landowners within the LAAs?	Section 1.1
If the private surface landowners do not want the surface disturbed by mining operations, would they have to succumb to such disturbance?	Section 1.1
How is BLM involved in surface-disturbing activities associated with mining Federally owned subsurface coal? Does BLM have any say in mining activities on private land?	Section 1.1
What compensation is allowed or provided to landowners for disturbance resulting from mining activities?	Section 1.1
Water Resources	
What would be the effects of mine development and operations on the quality and quantity of surface and ground water?	Sections 3.8, 4.2.2.5
Reclamation designs that include the creation of water resources by developing ponds or impoundments to provide critical water sources for livestock, wildlife, and fish habitat was encouraged.	Sections 1.1, 3.8, 4.2.2.5
Air Quality	
What would be the effects of dust and equipment emissions from development and operation activities?	Sections 3.9, 4.2.2.6
What can be done to reduce the dust leaving the permit area?	Sections 1.1, 4.2.2.6
What can be done to reduce the amount of dust build-up on grasses and dust entering ponds and streams?	Sections 1.1, 4.2.2.6
Continuously monitoring air quality both inside and outside the permit area was requested.	Sections 1.1, 4.2.2.6
Measurement of air and earth deflection was requested.	Sections 1.1, 4.2.2.6, 4.2.2.11, 4.4.4

TABLE 1-2 (continued)
ISSUES IDENTIFIED DURING THE SCOPING PROCESS

Noise	
What would be the effects of noise levels from blasting (frequency and intensity) and operations?	
Monitoring noise levels during blasting and reducing the decibel level allowed by law was requested.	
Public Health and Safety	
What would be the short- and long-term health effects from fugitive soil and coal dust, and effects of operations and blasting on human and animal safety and property?	
What is the likelihood of contamination of water supplies from coal mining operations?	
Wildlife and Habitat	
What would be the effects of mining activities on wildlife, primarily regarding habitat fragmentation and displacement of wildlife due to disturbance and removal of habitat?	
Reclamation	
A high standard of reclamation effort was encouraged.	
Social and Economic Conditions	
Many favored the beneficial effects, environmentally and economically, that would result from mining. There were others who were concerned with the possibility that land value would decline or future growth would be impaired and that mining might cause economic losses in the surrounding communities.	

2.0 Alternatives

2.0 ALTERNATIVES

2.1 INTRODUCTION

Chapter 2.0 contains a description of three alternative management plan amendments for the Federal mineral estate in the three coal lease application areas (LAAs) in Haskell, Latimer, and LeFlore Counties, and summarizes the potential impacts on the environment from implementing each of the alternatives.

Section 2.2 is a summary of the management guidance common to all alternatives. Regardless of the alternative selected as the approved plan amendment, the Bureau of Land Management (BLM) would follow this management guidance, which consists of laws, regulations, and policies.

Section 2.3 is the results of conducting the four-part land use planning coal screen required by Title 43, Code of Federal Regulations, Part 4361 (43 CFR 4361). The coal screen considers and addresses potential for coal development, areas where coal development may be unsuitable, compatibility with other land uses, and consultation with qualified landowners.

Section 2.4 is a description of the alternative management plan amendments considered, a comparison of the alternatives, and description of the preferred alternative.

2.2 MANAGEMENT GUIDANCE COMMON TO ALL ALTERNATIVES

2.2.1 Laws, Regulations, and Policies

Regardless of the alternative selected, BLM's management of the Federal mineral estate and surface resources is governed by several laws, regulations, Executive Orders, and policies, some of which are summarized below and in Table 2-1. Applicable decisions from the 1994 Resource Management Plan (RMP), cooperative agreements or memoranda of understanding with State and other Federal agencies would continue.

2.2.2 Management Direction

As stated in Section 1.1, BLM is responsible for leasing Federal coal, ensuring that lease stipulations are upheld, and economic recovery of the Federal coal is maximized. Therefore. The management direction described in Section 2.2.2.1 through 2.2.2.14 pertains specifically to BLM's leasing responsibilities. During the mine permit application process, the Oklahoma Department of Mines (ODM) and the Federal Office of Surface Mining Reclamation and Enforcement (OSM) would be responsible for site-specific compliance with laws, regulations, and policies.

2.2.2.1 Lands

Although BLM does not have management authority on private land, BLM is responsible for ensuring that mineral development on split estate (private surface overlying Federally owned minerals) occurs in accordance with existing statutes and regulatory requirements, and that National Environmental Policy Act (NEPA) documentation considers impacts on the surface area in the event of mineral development. Each of the LAAs involves Federal coal under a majority of private land and as such falls within split estate guidelines.

TABLE 2-1
APPLICABLE MAJOR LAWS, REGULATIONS, AND POLICIES

Law/ Regulation	Applies to
American Indian Religious Freedom Act of 1978; 42 U.S.C. 1996	American Indian religious places and access
Archeological Resources Protection Act of 1979; 16 U.S.C. 470	Archaeological resources
Clean Air Act of 1970, as amended 1990; 42 U.S.C. 7401 *et seq*.	Air quality
Clean Water Act , as amended; 33 U.S.C. 1252 *et seq.*	Surface water quality
Comprehensive Environmental Response, Compensation and Liability Act of 1986	Hazardous substances reporting and cleanup
Endangered Species Act; 16 U.S.C. 1531 *et seq*., as amended	Threatened and endangered species
Federal Coal Leasing Amendments Act of 1976; 30 U.S.C. 201	Federal coal leasing
Federal Land Policy and Management Act of 1976; 43 U.S.C. 1700, *et seq.*	Federal lands, special management areas
Federal Noxious Weed Act of 1974, as amended	Noxious weeds
Federal Water Pollution Control Act, as amended 1972	Watersheds
General Mining Law of 1972; 30 U.S.C. 22-54	Mining
Migratory Bird Treaty Act of 1989	Migratory birds
Mineral Leasing Act of 1920	Mineral leasing
Mineral Leasing Act of 1947; 30 U.S.C. 351, 352, 354, 359	Mineral leasing
Mining and Mineral Policy Act of 1970; 30 U.S.C. 219	Mining
Mining Law of 1872, as amended	Mining claims
National Environmental Policy Act of 1969 and implementing regulations 40 CFR 1500-1508	Federal undertakings
National Historic Preservation Act of 1966; 16 U.S.C. 470	Archaeological and historic properties
National Materials and Minerals Policy Research Development Act of 1980	Mineral resources
Native American Grave Protection and Repatriation Act of 1990	
Resource Conservation and Recovery Act of 1986, as amended	Hazardous and solid waste
Soil and Water Conservation Act of 1977	
Surface Mining Control and Reclamation Act of 1977; 30 U.S.C. 1201 *et seq.*	Surface mining
Water Quality Act of 1987	Riparian area, wetlands
Watershed Protection and Flood Control Act of 1954	Watersheds
Executive Order 11593	Preservation of the cultural environment
Executive Order 11988	Floodplain management
Executive Order 11990	Wetlands, riparian zones
Executive Order 12898	Environmental justice
Executive Order 13007	Sacred sites
Executive Order 13112	Invasive species

2.2.2.2 Access

There are no Federal laws or regulations applicable to access in this case. However, BLM's policy, described in BLM Manual H-1601-1, *Land Use Planning Handbook*, states that specific management

direction associated with access is intended to protect unique resources or values where BLM determines it necessary.

2.2.2.3 Geology and Minerals

The BLM's responsibility for the management of the Federal government's coal mineral resources and the effect that management has upon the surface requires that all minerals management decisions and mineral resource allocations comply with both NEPA and Council on Environmental Quality guidelines that implement NEPA. BLM's decision whether to permit leasing and development will be based in part on the following four land use planning screens as described in 43 CFR 3420 and summarized in Section 2.3:

- Screen 1 – Development Potential
- Screen 2 – Unsuitability Criteria
- Screen 3 – Multiple Use
- Screen 4 – Surface Owner Consultation

According to the 1994 RMP, coal program activities in Oklahoma involve on-site inspections, production inspections, reclamation inspections, and lease operation review.

2.2.2.4 Soils

According to the 1994 RMP, the BLM relies extensively upon the U.S. Department of Agriculture Natural Resources Conservation Services soil survey program and its county publications when evaluating potential surface-disturbing actions. Emphasis is placed on prevention of surface degradation as well as mitigation and rehabilitation of surface damages.

Highly erodible soils should be managed to maintain or reduce erosion and to improve vegetative ground cover. Where necessary, roads should be upgraded, maintained, and properly surfaced in accordance with the appropriate standards. Areas where the soils are highly erodible or difficult to reclaim should receive increased attention and are avoidance areas for surface disturbing activities.

2.2.2.5 Water Resources

Groundwater. Other than the laws and regulations listed in Section 2.2.1, there is no specific BLM management direction regarding groundwater.

Surface Water. BLM has established a management and planning structure that conserves resources and protects surface water quality. BLM direction in surface-water resources is located in two places within department manuals. One is Manual 7200 – Water Resources including subsections on watershed condition analysis, watershed activity planning, floodplain management, groundwater, water quality, water rights, and floodplain management. Elsewhere, the subject of water resources is dispersed within the manuals for rangeland health, minerals management, mining, special status plant and wildlife management, fishery management, recreation engineering, habitat management, and general program management and administration.

In addition, BLM in 1998 adopted as policy a portion of the larger Federal Clean Water Action Plan. The plan called out existing BLM activity in three management areas: riparian restoration and management,

abandoned mine lands, and rangeland health. The plan also committed to a watershed approach in monitoring, assessing, reclaiming, and maintaining water resources.

2.2.2.6 Air Quality

Other than the laws and regulations listed in Section 2.2.1, there is no specific BLM management direction regarding air quality.

2.2.2.7 Vegetation

According to the 1994 RMP, the BLM maintains a "Riparian Area Management Policy" to maintain, restore, or improve riparian areas to achieve a healthy and productive ecological condition for maximum long-term benefits. This BLM policy, in accordance with Executive Order 11988 (Floodplain Management) and Executive Order 11990 (Protection and Management of Wetlands), result in wetland and riparian area management being of particular concern. Wetland and riparian resource protection stipulations have been developed, and are presented as an integral part of the coal resource programs.

2.2.2.8 Wildlife

Policies are outlined in a series of BLM manuals for various wildlife program activities. BLM also has entered into a draft cooperative agreement with the Forest Service and U.S. Fish and Wildlife Service (USFWS) to promote conservation of migratory birds and minimize potential adverse effects of take under the Migratory Bird Treaty Act. The goal among the agencies is to strengthen migratory bird conservation by identifying and implementing strategies that promote conservation and minimize adverse impacts on migratory birds through collaboration among the cooperating agencies.

According to the 1994 RMP, the BLM's wildlife management program activities in Oklahoma are limited to preparation of environmental analyses, special status species (SSS) evaluations or clearances, wetland determinations, and development of stipulations for impact avoidance or mitigation in the mineral development and lands initiatives.

Federal minerals under private surface or Federal surface managed by another Federal agency or licensed by another Federal agency to a state or local agency for surface management purposes are the most common situations encountered in BLM's wildlife management program in Oklahoma. In these situations, BLM's wildlife responsibilities in Oklahoma do not begin until a BLM mineral action is proposed. As such, fish and wildlife resource concerns are addressed through site-specific agency coordination in Oklahoma. Coordination is initiated with the Oklahoma Natural Heritage Inventory, USFWS, and Oklahoma Department of Wildlife Conservation (ODWC) regarding each site-specific BLM project in Oklahoma. These agencies are being consulted for this current proposal.

2.2.2.9 Special Status Species

BLM has a legal mandate to conserve and manage threatened or endangered species, and also has a policy to conserve all SSS. Decision making should be consistent with BLM's mandate to recover listed species and should be consistent with objectives and recommended actions in approved species recovery plans, conservation agreements and strategies, memorandum of understanding, and applicable biological opinions for threatened and endangered species (BLM Land Use Planning Handbook H1601-1, Appendix C).

BLM has entered into a memorandum of agreement with the Forest Service, National Marine Fisheries, and USFWS to improve Section 7 consultations under the Endangered Species Act. The goal of the memorandum of agreement is to improve the efficiency and effectiveness of project and programmatic level Section 7 consultation processes and enhance conservation of listed species while delivering appropriate goods and services provided by lands and resources managed by the signatory agencies.

According to the 1994 RMP, the BLM's special status species management activities in Oklahoma are limited to preparation of environmental analyses and SSS evaluations or clearances and development of stipulations for impact avoidance or mitigation in the mineral development and lands initiatives.

The 1994 RMP includes one Coal Lease Stipulation (CLS-4) for protection of the American burying beetle (*Nicrophorus americanus*), a Federally listed endangered species. The stipulation prohibits surface-disturbing activities that would result in unacceptable impacts on the American burying beetle. The stipulation is specifically attached to leases in Bryan, Cherokee, Haskell, Latimer, LeFlore, Muskogee, Pittsburg, Sequoyah, and Tulsa Counties. As such, this stipulation would apply to the three current LAAs.

Federal minerals under private surface or Federal surface managed by another Federal agency or licensed by another Federal agency to a state or local agency for surface management purposes are the most common situations encountered in BLM's management program in Oklahoma. In these situations, BLM's responsibilities in Oklahoma do not begin until a BLM mineral action is proposed. As such, SSS concerns are addressed through site-specific agency coordination. Coordination is initiated with the Oklahoma Natural Heritage Inventory, USFWS, and the ODWC regarding each site-specific BLM project in Oklahoma. These agencies are being consulted for this current proposal.

2.2.2.10 Hazardous Materials

BLM's hazardous materials management program direction and guidance consist of application of Federal and State air quality laws, surface protection regulation, water quality regulations, and BLM manuals and policy memoranda. The program activities are limited to preparation of environmental analyses, evaluations of potential surface-disturbing activities, and development of stipulations for impact avoidance or mitigation in the mineral development and lands initiatives. Hazardous materials management is accomplished by incorporation of site-specific mitigation measures for each BLM authorized action or approval.

2.2.2.11 Cultural Resources

As a Federal agency, the BLM is obliged under the conditions of Section 106 of the National Historic Preservation Act of 1966, as amended, to take into account the effect of an undertaking on any district, site, building, structure, or object that is included in or eligible for inclusion in the National Register and to afford the Advisory Council on Historic Preservation an opportunity to comment on this undertaking. The BLM shall also cooperate with the Oklahoma State Historic Preservation Officer to ensure that historic properties are taken into consideration at all levels of planning and development.

The LAAs are located on Indian Trust lands. Consequently, Federal regulations such as the Archaeological Resources Protection Act of 1979, the Native Graves Protection and Repatriation Act of 1990, and the American Indian Religious Freedom Act of 1978 protect archaeological resources, Indian graves, and sacred objects on Indian lands, and the freedom to worship through ceremonials and traditional rites.

Cultural resources program involvement in split-estate minerals activities in Oklahoma consists of development of environmental analyses reports, site-specific evaluations or inventories in support of mineral leasing, development of stipulations for impact mitigation or impact avoidance, and consultations with State agencies and Oklahoma Indian Tribes. Program involvement associated with mineral leasing under lands managed by other Federal agencies is limited to coordination and consultation.

BLM also has issued policy in the form of manuals, including Manual 8100 – Cultural Resource Management, Manual 8110 – Identifying Cultural Resources, Manual 8120 – Protecting Cultural Resources, Manual 8130 – Utilizing Cultural Resources for Public Benefit, and Manual 8160 – Native American Coordination and Consultation. In addition, specific policy for addressing cultural resources in RMPs has been issued as Information Bulletin 2002-101. The bulletin defines policy for identifying cultural resources, defining management goals, allocating uses of cultural resources, and defining management actions to support the plan goals.

A key tool used by the BLM to manage the cultural resources is a varied intensity of inventory divided into three classes: Class I, a review of previously conducted inventory results; Class II, a sampling field inventory (all sample units inventoried to a Class III level); and Class III, an intensive field inventory (covers 100 percent of the area on foot). With only specifically defined exceptions in the BLM Cultural Resource Manual, the Class III inventory is required before any surface disturbance is allowed.

2.2.2.12 Paleontological Resources

BLM has developed objectives for paleontological resources (BLM Manual H-8270-1, *General Procedural Guidance for Paleontological Resource Management*) to provide protection of the resources. It is the policy of BLM to manage paleontological resources for these values and to mitigate adverse impacts on them.

According to the 1994 RMP, the BLM paleontological resource management program within Oklahoma includes the requirement that the BLM be notified should paleontological resources be encountered during the conduct of BLM approved operations.

2.2.2.13 Social and Economic Conditions

BLM is required by statute and executive order to consider social science information when preparing a land use plan. The BLM also is required to consider multiple use and sustained yield to meet the needs of present and future generations. These needs include environmental protection in relation to human occupancy and other uses that may conflict or create conflicting demands. Social and economic information is important for understanding the social context within which decisions will be made and ascertaining how these decisions would affect communities and individuals in and near the LAAs, as well as concerned groups and individuals at the regional and national level. Social science information and analysis may be useful at various stages throughout the planning process including scoping and issue identification; assessment of past, current, and future conditions; and identification of impacts and mitigation. Impact analysis should assess the social and economic consequences of implementing the various alternatives identified in the planning process.

BLM decisions associated with the LAAs have the potential to affect social and economic conditions of communities and individuals, negatively or positively. The intent of BLM's management of Federal mineral estate is to affect positively the social and economic condition in the LAAs. For example, mineral leases granted by BLM allow development of Federal mineral estate, which serves a need of the American public (in the case of energy minerals) and benefits the economy. However, management

restrictions are placed on the operator (e.g., to protect sensitive environmental resources) that may affect the extent to which the operator can achieve its fiscal goals and the revenue, royalties, jobs, etc. produced.

As required by the Federal Land Policy and Management Act, NEPA, and Executive Order 12898, social science information is required to make informed, legal planning decisions. Additional statutory requirements further define the planning environment and prescribe the extent of BLM's authority and policies that define resource management planning and use. As the human population continues to increase and social values continue to evolve, resource conflicts are expected to increase. More importantly, the American public is increasingly aware of the importance of land to its well-being and is demanding a larger voice in resource management decisions. Given these realities, the planning process can represent a constant balancing act among competing interests.

2.2.2.14 Recreation

According to the 1994 RMP, the BLM's recreational program in Oklahoma consists of limited coal planning responsibilities in eastern Oklahoma. Recreational values or components that should be evaluated and discussed for the current proposal include effects on visual resources and areas with significant recreational resource values or potential conflicts with other resource uses.

2.3 COAL SCREEN

The three LAAs were reviewed in accordance with 43 CFR 3420; that is, the four-part land use planning coal screening process. The four screens are (1) coal development potential; (2) unsuitability criteria; (3) multiple use consideration; and (4) surface owner consultation. Each screen and the results of the review are summarized below.

2.3.1 Coal Development Potential

As stated previously, in February and June of 2002, BLM received three applications from Farrell-Cooper for three competitive coal lease sales for land in Haskell, Latimer, and LeFlore Counties. The total 6,883.17 acres of Federal mineral estate is administered by the BLM and the surface is privately owned. Table 2-2 is a summary of the coal development potential for the three LAAs.

TABLE 2-2
SUMMARY OF COAL DEVELOPMENT POTENTIAL

Lease Application Area	Total Tons of Coal (million)	Average Coal Thickness (inches)	Acres
Liberty West	2.62	26	640.00
McCurtain	17.14	47	2,380.00
Bull Hill	27.82	47	3,863.17
Total	47.58	–	6,883.17

2.3.1.1 Liberty West LAA

Coal from the Stigler seam would be recovered by surface mining methods. The Stigler seam averages 26 inches in thickness, and dips toward the northwest and southwest at a rate of approximately 2 to 4 percent, with 135 tons per acre-inch of recoverable coal. The Stigler seam in this area lies from approximately 60 feet below the surface to as deep as 150 feet below the surface within the mining area.

Mining would be a continuation of the adjacent permit, Oklahoma Department of Mines Permit #4268. Mining would progress in a series of long, narrow pits away from the cropline of the Stigler horizon. The pits would be up to 150 feet wide at the bottom and may range from 60 to 120 feet in depth. The length would vary but would range from 2,000 to 4,000 feet.

2.3.1.2 McCurtain LAA

Coal from the Hartshorne seam would be recovered by underground mining methods. The Hartshorne seam averages 47 inches in thickness and a maximum recovery depth of 1,000 feet. The existing highwall remaining from previous mining operations would be stripped back to a solid wall and then the underground mining operation would begin.

2.3.1.3 Bull Hill LAA

Coal from the Lower and Upper Hartshorne coal seams would be recovered to a depth of 100 feet of overburden. The coal seam would be recovered with a combination of conventional surface mining and auger mining. Surface mining operations would remove coal from two steeply dipping coal seams. One pit of coal would be stripped using conventional surface mining methods. The stripping would advance the existing highwall down-dip to a depth of approximately 100 feet to provide additional pit area for the auger mining operations and would recover coal 300 to 500 feet into the seam from the highwall.

2.3.2 Unsuitability Criteria

As required by the Surface Mining Control and Reclamation Act of 1977 (SMCRA), BLM must review the LAAs to determine whether public lands are suitable for further consideration for coal leasing. Criteria for assessing the LAAs for areas that are not suitable were established by SMCRA and expanded by the U.S. Department of the Interior in 43 CFR 3461.5. The criteria were applied to baseline environmental data compiled for the three LAAs with the intent to determine the areas within the LAAs that cannot be protected properly or maintained if the areas were leased for coal mining. There are 20 unsuitability criteria used to evaluate cultural and environmental aspects that may be affected by mining. After the criteria are applied, the lands may be classified three ways, as follows:

- Suitable for further consideration for coal mining
- A deferred decision may be made if the data are inconclusive or subject to change
- The area may be classified unsuitable for further consideration for mining

A deferred decision allows lands to be considered for leasing until such time as a lease application is received or a coal tract is established and a more detailed and up-to-date study can be completed. This includes situations where making the decision today would be premature because changes can be expected to occur between the time the unsuitability criteria are first applied and a lease sale takes place. Mining effects also may be minimized by attaching stipulations to leases or by determining certain lands unsuitable to mining by surface methods. In addition, there may be exceptions to the findings of the unsuitability criteria screen. Exceptions, defined in 43 CFR 3461.5 for each of the criteria, may be made if the responsible agency (i.e., ODM and OSM) determines that a significant effect would not result.

It should be noted that lands with Federal coal deposits that would be mined by underground mining methods are not assessed as unsuitable where there would be no surface coal-mining operations on the lease (43 CFR 3461.1).

The resources and resource uses described in Chapter 3.0 – Affected Environment were reviewed considering the unsuitability criteria. Using a geographic information system, the environmental database was reviewed and the 20 criteria were applied to determine the locations and estimated extent (in acres) of the areas considered unsuitable for development. In summary, of the 20 criteria, five criteria are applicable to the three LAAs. The five criteria are as follows:

- Criterion Number 2 – Rights-of-Way and Easements
- Criterion Number 3 – Buffer Zones for Rights-of-Way, Communities, and Buildings
- Criterion Number 10 – State-Listed Threatened or Endangered Species
- Criterion Number 16 – Floodplains
- Criterion Number 17 – Municipal Watersheds

It should be emphasized that the estimates are based on available data for the purpose of determining lands available for leasing. Once site-specific mine plans of operation have been completed and approved, further environmental investigation to comply with NEPA may alter the area allowed for development.

The 20 unsuitability criteria and results of applying the criteria to the three LAAs are presented below. Maps 2-1, 2-2, and 2-3 illustrate the LAAs, and the highlighted areas on each map illustrate the areas identified as unsuitable for mining as a result of applying the criteria with or without stipulations.

Criterion Number 1 – Federal Land Systems

All Federal lands included in the following land systems or categories shall be considered unsuitable: National Park System, National Wildlife Refuge System, National System of Trails, National Wilderness Preservation System, National Wild and Scenic Rivers System, National Recreation Areas, lands acquired with money derived from the Land and Water Conservation Fund, National Forests, and Federal lands in incorporated cities, towns, and villages.

Findings. There are no Federal land systems or categories within the LAAs; therefore, this criterion does not apply.

Recommendation. Under this criterion, lands in the LAAs are suitable for further consideration for coal mining.

Criterion Number 2 – Rights-of-Way and Easements

Federal lands that are within rights-of-way or easements or within surface leases for residential, commercial, industrial, or other public purposes on Federally owned surface shall be considered unsuitable.

Findings

Liberty West LAA. A number of paved county roads and unpaved roads are located along section lines throughout the LAA. The extent of these roads is estimated to be approximately 10 miles with easements of approximately 100 feet wide. At the far northern end of the LAA are a publicly owned water tower, phone lines, and overhead power lines. These easements must be considered.

McCurtain LAA. A portion of State Highway 26 (approximately 2 miles) and its easement cross the LAA on the southeastern corner. This two-lane, asphalt-paved highway that links the LAA to the town of McCurtain is located on State land. The easement for this highway is estimated to be 200 feet wide. Several county roads also cross throughout the LAA. However, the primary mining technique proposed in this LAA is underground mining, thereby minimizing surface disturbance and interaction with surface easements.

Bull Hill LAA. Two north-south highways cross the LAA. These include Highway 82 at Red Oak and Highway 271 at Fanshawe. The extent of the highway crossings is estimated to be approximately 0.5 mile at each location. The easement for these highways is estimated to be 200 feet wide. Because the primary mining technique to be used is surface mining, these easements must be considered.

Recommendation. Exceptions (iv) and (v), as defined in 43 CFR 3461.5, apply to the minor rights-of-way and either relocate the rights-of-way, obtain permission to use the rights-of-way, or attach appropriate stipulations to the lease or mining permit to allow for mining in or around the rights-of-way.

Criterion Number 3 – Buffer Zones for Rights-of-way, Communities, and Buildings

The terms used in this criterion have the meaning set out in the Office of Surface Mining Reclamation and Enforcement regulations at Chapter VII of 30 CFR. Federal lands affected by section 522(e)(4) and (5) of SMCRA shall be considered unsuitable. This includes lands within 100 feet of the outside line of the right-of-way of a public road or within 100 feet of a cemetery, or within 300 feet of any public building, school, church, community or institutional building or public park or within 300 feet of an occupied dwelling.

Findings. There are no cemeteries, public buildings, schools, churches, community or institutional buildings within any of the three LAAs. However, roads are located within all of the LAAs, and the buffer area for Wister Lake State Park would affect a portion of the Bull Hill LAA.

Liberty West LAA. A number of paved county roads and unpaved roads are located along section lines throughout the LAA. The extent of these roads is estimated to be approximately 10 miles. In addition, approximately 10 homes and ranch buildings are located within the LAA.

McCurtain LAA. A portion of State Highway 26 (approximately 2 miles) crosses the LAA on the southeastern corner. This two-lane, asphalt-paved highway that links the LAA to the town of McCurtain is located on State land. Several county roads also cross throughout the LAA. In addition, approximately 5 homes and ranch buildings are located within the LAA. However, the primary mining technique proposed in this LAA would be underground mining, thereby minimizing surface disturbance and interaction with surface structures.

Bull Hill LAA. Two north-south highways cross the LAA. These include Highway 82 at Red Oak and Highway 271 at Fanshawe. The extent of the highway crossings is estimated to be approximately 0.5 mile at each location. In addition, approximately nine homes and ranch buildings are located within the LAA. Because the primary mining technique to be used is surface mining, these structures must be considered.

The 300-foot buffer area for Wister Lake State Park would intersect with approximately 1.6 acres at the eastern end of the Bull Hill LAA.

Recommendation. Exception (ii) or (iii) apply to State highways and county roads and a decision can be deferred at this time making an assumption that the roads could be moved in the future. Exception (iv)

applies to occupied dwellings and a decision can be deferred at this time. The eastern end of the Bull Hill LAA as it intersects with Wister Lake State Park buffer area is considered unsuitable and no exceptions exist. No surface mining may be conducted within this unsuitability area.

Criterion Number 4 – Wilderness Study Areas

Federal lands designated as wilderness study areas shall be considered unsuitable while under review by the Administration and Congress for possible wilderness designation. For any Federal land, which is to be leased or mined prior to completion of the wilderness inventory by the surface management agency, the environmental assessment or an environmental impact statement on the lease sale or mine plan shall consider whether the land possesses the characteristics of a wilderness study area. If the finding is affirmative, the land shall be considered unsuitable, unless issuance of noncompetitive coal leases and mining on leases is authorized under the Wilderness Act and Federal Land Policy and Management Act.

Findings. There are no wilderness study areas nor are there lands possessing wilderness character in any of the three LAAs; therefore, this criterion does not apply.

Recommendation. Under this criterion, lands in the LAAs are suitable for further consideration for coal leasing.

Criterion Number 5 – Scenic Areas

Scenic Federal lands designated by visual resource management analysis as Class I (an area of outstanding scenic quality or high visual sensitivity), but not currently on the National Register of Natural Landmarks, shall be considered unsuitable.

Findings. There are no Federal surface lands and no areas equivalent to BLM's visual resource management Class I in any of the LAAs; therefore, this criterion does not apply.

Recommendation. Under this criterion, lands in the LAAs are suitable for further consideration for coal leasing.

Criterion Number 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 shall be considered unsuitable for the duration of the study, demonstration or experiment, except where mining could be conducted in such a way as to enhance or not jeopardize the purposes of the study, as determined by the surface management agency, or where the principal scientific user or agency gives written concurrence to all or certain methods of mining.

Findings. No lands within the LAAs are being used for this purpose.

Recommendation. Under this criterion, lands in the LAAs are suitable for further consideration for coal leasing.

Criterion Number 7 – Cultural Resources

All publicly or privately owned places that are included in the National Register of Historic Places shall be considered unsuitable. This includes any areas that the surface management agency determines, after

consultation with the Advisory Council on Historic Preservation and the State Historic Preservation Officer, are necessary to protect the inherent values of the property that made it eligible for listing in the National Register.

Findings.

Liberty West LAA. There are no cultural sites within any of the LAAs that are listed on the National Register of Historic Places.

McCurtain LAA. A review of the McCurtain LAA by the Oklahoma Archaeological Survey indicates that five cultural resource sites are known to be present within the McCurtain LAA; 34HS116, 34HS117, 34HS199, 34HS200, and 34HS201. However, none of these sites is listed on the National Register of Historic Places.

Bull Hill LAA. A review of the Bull Hill LAA by the Oklahoma Archaeological Survey indicates that eight sites are known to be present within the LAA; 34LT139, 34LT110, 34LTF293, 34LF297, and 34LF161; and three structures shown on 1898 Government Land Office plats. However, none of these sites is listed on the National Register of Historic Places.

Recommendation. Although it is interpreted that this also includes cultural resource sites on privately owned land overlying Federal coal, no lands within any of the LAAs meet this criterion as there are no cultural resource sites that are listed on the National Register of Historic Places. While this criterion does not apply in this case, the cultural resource sites present in the McCurtain and Bull Hill LAAs may meet the definition of a resource of a unique nature with local or regional importance. These sites are considered under the multiple-use screen.

Criterion Number 8 – Natural Areas

Federal lands designated as natural areas or as National Natural Landmarks shall be considered unsuitable.

Findings. The LAAs do not contain lands designated as natural areas or National Natural Landmarks.

Recommendation. Under this criterion, lands in the LAAs are suitable for further consideration for coal leasing.

Criterion Number 9 – Critical Habitat for Threatened or Endangered Plant and Animal Species

Federally designated critical habitat for listed threatened or endangered plant and animal species, and habitat proposed to be designated as critical for listed threatened or endangered plant and animal species or species proposed for listing, and habitat for Federal threatened or endangered species, which is determined by USFWS and the surface management agency to be of essential value and where the presence of threatened or endangered species has been scientifically documented, shall be considered unsuitable.

Findings. There is no Federally designated critical habitat in any of the LAAs. However, the LAAs contain habitat suitable for the American burying beetle (*Nicrophorus americanus*), which is listed as an endangered species by the USFWS.

Recommendation. Lands in the LAAs are suitable for further consideration for coal leasing with inclusion of the standard stipulation for the American burying beetle contained in the 1994 RMP.

Criterion Number 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 endangered or threatened shall be considered unsuitable.

Findings. The LAAs may contain habitat suitable for the American burying beetle, a species listed by the State of Oklahoma as endangered.

Recommendation. Lands in the LAAs are suitable for further consideration for coal leasing with inclusion of the standard stipulation for the American burying beetle contained in the 1994 RMP.

Criterion Number 11 – Bald or Golden Eagle

A bald or golden eagle nest or site on Federal lands that is determined to be active, and an appropriate buffer zone of land around the nest site, shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the USFWS.

Findings. There are no known eagle nests within any of the LAAs.

Recommendation. Lands in the LAAs are suitable for further consideration for coal leasing.

Criterion Number 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 shall be considered unsuitable.

Findings. No eagle roosts or concentrations areas used during migration and wintering are known to exist within the any of the LAAs.

Recommendation. Under this criterion, lands in the LAAs are suitable for further consideration for coal leasing.

Criterion Number 13 – Falcon Nesting Site(s) and Buffer Zone(s)

Federal lands containing a falcon (excluding kestrel) cliff nesting site with an active nest and a buffer zone of Federal land around the nest site shall be considered unsuitable. Consideration of availability of habitat for prey species and of terrain shall be included in the determination of buffer zones. Buffer zones shall be determined in consultation with the USFWS.

Findings. There is no known falcon cliff nesting with an active nest within any of the LAAs.

Recommendation. Under this criterion, lands in the LAAs are suitable for further consideration for coal leasing.

Criterion Number 14 – Habitat for Migratory Bird Species

Federal lands that are high priority habitat for migratory bird species of high Federal interest on a regional or national basis, as determined jointly by the surface management agency and the USFWS, shall be considered unsuitable.

Findings. A wide variety of bird species are found throughout the LAAs including many resident, migratory, wintering, and transient species. Approximately 66 species of birds breed in Oklahoma, and the grasslands and waterways are important for wintering birds. The LAAs are situated in the central flyway according to information provided by the Texas Parks and Wildlife Department, and water resources within this area are important for migratory species.

Recommendation. BLM has a cooperative agreement with the Forest Service and USFWS to promote conservation of migratory birds and minimize potential adverse effects of take under the Migratory Bird Treaty Act. Leasing must consider migratory bird conservation by implementing existing BLM policy, Federal laws, and executive orders. All lands in the LAAs would be available for leasing consideration under this criterion.

Criterion Number 15 – Fish and Wildlife Habitat for Resident Species

Federal lands that the surface management agency and the State jointly agree are for resident species of fish, wildlife, and plants of high interest to the State and that are essential for maintaining these priority wildlife species shall be considered unsuitable.

Findings. No known essential habitat exists for species of high interest in any of the LAAs.

Recommendation. Under this criterion, lands in the LAAs are suitable for further consideration for coal leasing.

Criterion Number 16 – Floodplains

Federal lands in riverine, coastal, and special floodplains (100-year recurrence interval) on which the surface management agency determines that mining could not be undertaken without substantial threat of loss of life or property shall be considered unsuitable for all or certain stipulated methods of coal mining.

Findings. Floodplains have been mapped by the Federal Emergency Management Agency for the Bull Hill LAA. There are no mapped floodplains for the Liberty West or McCurtain LAAs. As such, a 100-foot buffer zone (200-foot total) has been applied to streams within the Liberty West LAA based upon professional judgment. Within the McCurtain LAA, surface disturbance would only occur at the underground mining portal and in the stockpiling and hauling areas. These areas do not contain applicable streams. Within the McCurtain LAA, the primary mining technique will be underground. In accordance with SMCRA and 30 CFR 817.57 (Hydrologic balance: Stream buffer zones), no land within 100 feet of a perennial stream or an intermittent stream shall be subsided. In lieu of floodplain setbacks, this subsidence buffer has been used for the McCurtain LAA streams.

Recommendation. Identified floodplains potentially could be mined with appropriate runoff control measures. Flooding and stream flow alterations are specifically addressed during the mine permitting process. Section 460:20-27-11 in the Oklahoma Administrative Code addresses the "Probable Hydrologic Consequences on Surface and Ground Water." Because the ODM does not specifically enforce the floodplain laws, the leaseholder must comply with the applicable State authority. Before a mining permit

is deemed adequate, and any disturbance could occur, the leaseholder must receive a floodplain permit from the county floodplain administrator. The floodplain administrator reviews the application to determine if the proposed activities (mining) would be safe from flooding and whether it would increase flood hazards elsewhere. The leaseholder must correspond with both the floodplain administrator and the ODM to make any necessary modification to achieve the floodplain permit.

All lands within the LAAs should be available for leasing through the use of site-specific stipulations and resource protection safeguards, which would be described in the operation and reclamation plans submitted to and approved by BLM.

Criterion Number 17 – Municipal Watersheds

Federal lands that have been committed by the surface management agency to use as municipal watersheds shall be considered unsuitable.

Findings. The Bull Hill LAA lies within the watershed for Wister Lake, a primary watershed for the City of Poteau and surrounding communities through the Poteau Valley Improvement Authority.

Recommendation. In order for the Bull Hill LAA to be leased, agreements must be reached with the Poteau Valley Improvement Authority to allow surface disturbance within the municipal watershed. Under this criterion, lands in the Liberty West and McCurtain LAAs are suitable for further consideration for coal leasing. The Bull Hill LAA is suitable for leasing consideration with stipulations.

Criterion Number 18 – National Resource Waters

Federal lands with National Resource Waters, as identified by states in their water quality management plans, and a buffer zone of Federal lands 0.25 mile from the outer edge of the far banks of the water shall be unsuitable.

Findings. There are no designated National Resource Waters located within any of the LAAs.

Recommendation. Under this criterion, lands in the LAAs are suitable for further consideration for coal leasing.

Criterion Number 19 – Alluvial Valley Floors

Federal lands identified by the surface management agency, in consultation with the state in which they are located, as alluvial valley floors according to the definition in 30 CFR 822 § 3400.0-5(a), the final alluvial valley floor guidelines of the OSM when published, and approved state programs under the SMCRA, where mining would interrupt, discontinue, or preclude farming, shall be considered unsuitable. Additionally, when mining Federal land outside an alluvial valley floor would materially damage the quantity or quality of water in surface or underground water systems that would supply alluvial valley floors, the land shall be considered unsuitable.

Findings. Alluvial valley floors were not identified within any of the LAAs.

Recommendation. Under this criterion, lands in the LAAs are suitable for further consideration for coal leasing.

Criterion Number 20 – State or Indian Tribe Proposed Criteria

Federal lands in a state to which is applicable a criterion (i) proposed by the state or Indian tribe located in the planning area, and (ii) adopted by rulemaking by the Secretary, shall be considered unsuitable.

Findings. There is no criterion proposed by state or Indian tribes that have been approved by the Secretary of the Interior.

Recommendation. Under this criterion, lands in the LAAs are suitable for further consideration for coal leasing.

2.3.3 Results of Multiple-use Analysis

The multiple-use screen is intended to identify lands that should be eliminated from further consideration for coal leasing if resources on those lands, other than those identified through the unsuitability criteria screen, are determined to be locally important or unique. Consideration of these other resources or uses at this stage of planning allow for accommodation of unique, site-specific resource values clearly superior to coal, but that are not included in the unsuitability criteria.

The multiple-use values and management considerations in the three LAAs include wetland and riparian areas, Wister Wildlife Management Area, and cultural resources that are not listed on the National Register of Historic Places.

Wetland and riparian areas deemed important by the USFWS have been identified in their letter from July 9, 2003 (Appendix A). Specific areas to be excluded based on this aspect of the multiple use analysis are indicated in that document.

Wister Wildlife Management Area covers a total of 35,500 acres of central LeFlore and eastern Latimer Counties in southeastern Oklahoma. It is located around the 7,000-acre Wister Lake, along and on either side of Highway 59 and 271 South, and south of the Towns of Wister and Heavener. Provisions for development around the Wister Wildlife Management Area are defined by the 1994 RMP. No surface occupancy is allowed in approximately 23,070 acres around the lake as buffers for recreational facilities, roads, trails, and other developments and within the identified flood pool. Leasing within the Wister Wildlife Management Area must be coordinated with the U.S. Army Corps of Engineers (USACE) and ODWC. Should USACE land at Wister Lake be available for lease, stipulations as described in Section 2.3.5 would apply (BLM 1994).

Cultural resources have been identified in the McCurtain and Bull Hill LAAs that could be affected by mining activities. These areas are identified by reference in letters from the Oklahoma Archeological Survey (Appendix A). BLM would attach the standard archaeological stipulation to new coal leases as stated in Section 2.3.5.

2.3.4 Surface Owner Consultation

The BLM is to consult with qualified surface owners to determine whether they are for or against surface mining. Any surface owner who previously gave written consent to any party to conduct surface mining is considered to have expressed a preference for mining. A qualified surface owner is one who holds legal title to the surface of split estate land, has their principal place of residence on the land, or receives a significant portion of their income from the land and have met these conditions for at least three years. If

a significant number of surface owners have expressed a preference against mining, the area may be considered unsuitable for further consideration for surface mining.

Mining within 300 feet of an occupied residence requires a written waiver from the occupant (Oklahoma Administrative Code 460:20-7-4(5)). The operator/lessee would not be allowed to mine closer than 300 feet without this written waiver from the occupant. Also, limits on adverse effects of blasting are set by the Oklahoma mining regulations. Maximum acceptable airblast and ground vibration limits are imposed for all blasting operations. These limits cannot be exceeded at occupied dwellings outside the permit area. The proper blast design ensures that the operator does not exceed these limits. Monitoring also is conducted using seismographs that accurately measure ground vibration and airblast levels at the protected structures.

Communication to inform surface owners and exchange information about the potential mining in the LAAs has been taking place since early in the planning process (and before). Surface owners were contacted individually by the applicant to discuss the surface owners' opinions, concerns, and preferences, and to invite them to attend and participate in the scoping meetings early in the planning process (May 2003). Also, BLM has responded to and will continue to respond to surface owner questions and comments.

During scoping, individuals in the area of the Bull Hill LAA expressed objections to mining activities. (Results of scoping can be reviewed in the Scoping Report for the project issued in June 2003.) BLM has consulted with qualified surface owners through Farrell-Cooper Mining Company to determine preference for or against surface mining and will obtain written consent or rejection. At this time, no written rejections to mining have been provided by qualified surface owners to the BLM.

At the time of the lease sale, a qualified surface owner, as defined in 43 CFR 3400.0-5, must provide written consent in order for a coal operator to enter and commence surface mining. A letter will be sent to all qualified surface owners requesting a written response of consent or rejection. If the applicant cannot provide written consent from the qualified surface owner to enter and commence surface mining, the BLM would issue the lease underlying that particular parcel for underground mining only.

The operator/lessee would not conduct surface mining operations on any land where legal rights have not been granted by the owner of the property to enter and conduct surface mining operations. This "right to enter" is granted through a lease agreement with the surface owner.

2.3.5 Stipulations for Leasing

The coal screen unsuitability criteria and multiple use criteria have identified areas that may be included for leasing consideration with stipulations. The following CLSs have been proposed and have been developed from the 1994 RMP as well as BLM policy documents. Areas may be open to Federal coal leasing under standard lease terms and conditions and any specific stipulations (management decisions) as defined in the 1994 RMP or this Resource Management Plan Amendment (RMPA). Federal coal estate can be considered acceptable for further consideration in the leasing process by application of stipulations. Stipulations are provisions that modify the standard lease rights and are attached and made a part of the lease. Existing stipulations from the 1994 RMP address coal screen Criterion Number 2, Criterion Number 3, Criterion Number 10 and the multiple-use screen conflict identified for riparian and wetland areas. The existing stipulations are as follows:

- COAL LEASE STIPULATION 1 (CLS-1) Rights-of-way: If it is impractical to relocate the right-of-way, mining will be prohibited within the right-of-way and to within a 100-foot buffer zone from the outside of the right-of-way. Relocation approval of both the holder and issuing parties involved in the right-of-way would be required.

- COAL LEASE STIPULATION 2 (CLS-2) DWELLINGS: The coal lessee will consult with the owners of occupied dwellings and maintain or, with the owner's written consent, adjust the designated 300-foot buffer zone.

- COAL LEASE STIPULATION 3 (CLS-3) WETLAND PROTECTION: All or portions of the lands under this lease contain wetland and/or riparian areas. The lessee will not conduct surface-disturbing activities on these areas without the specific approval, in writing, of the authorized officer. Impacts on or disturbance of wetlands and riparian habitats, which occur on this lease, must be avoided, minimized, or compensated. The mitigation goal will be no net loss of in-kind habitats. The mitigation shall be developed in cooperation with appropriate State and Federal agencies. The wetland/riparian stipulation is mandated by EO 11990 "Protection of Wetlands" of May 24, 1977.

- COAL LEASE STIPULATION 4 (CLS-4) AMERICAN BURYING BEETLE PROTECTION: The lessee will not conduct surface-disturbing lease activities that will result in unacceptable impacts on the American Burying Beetle, a Federally listed endangered species. The lessee may be required to arrange for a qualified biologist to conduct field surveys that could result in beetle removal and transplant efforts. Such transplant efforts must be accomplished no more than one year before surface-disturbing activities are to begin. Survey requirements, transplant efforts, and Endangered Species Act coordination/consultation will be accomplished cooperatively with the USFWS. This stipulation would be attached to Federal coal leases, which occur in Bryan, Cherokee, Haskell, Latimer, LeFlore, Muskogee, Pittsburg, Sequoyah and Tulsa Counties.

In addition, BLM employs a standard overall stipulation for cultural resources that is not specifically stated in the 1994 RMP. The standard stipulation for cultural resources states as follows:

- COAL LEASE STIPULATION 5 (CLS–5) CULTURAL RESOUCES: 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 area, that may be adversely affected by lease-related activities and that were not previously inventoried at such a level of intensity. The inventory shall be conducted by a qualified professional cultural resource specialist (i.e., archaeologist, 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 Manager, Program Support Division, Mid-Continent Coordinating Center (PSD manager) of the Office of Surface Mining, 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 PSD manager, 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 PSD manager or authorized officer. The lessee shall protect all cultural resource properties within the lease area from lease-related activities until the cultural resource

mitigation measures can be implemented as part of approved mining and reclamation or exploration plan.

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

If cultural resources are discovered during operations under this lease, the lessee shall immediately bring them to the attention of the PSD manager or authorized officer, or the authorized officer of the surface-managing agency, if the PSD manager is not available. The lessee shall not disturb such resources except as may be subsequently authorized by the PSD manager or authorized officer. Within two working days of notification, the PSD manager 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 surface-managing agency unless otherwise specified by the authorized officer of the BLM or of the surface managing agency, if different.

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

Additional stipulations identified by the coal screen address Criterion Number 16 – Floodplains, Criterion Number 17 – Municipal Watershed, and the multiple-use screen conflict identified for the Wister Wildlife Management Area.

- COAL LEASE STIPULATION 6 (CLS-6) FLOODPLAINS: Floodplains (100-year recurrence interval) have been mapped by the Federal Emergency Management Agency for the Bull Hill LAA. The leaseholder must receive a floodplain permit from the county floodplain administrator. The leaseholder must correspond with both the floodplain administrator and the ODM to make any necessary modification to achieve the floodplain permit.

  The Liberty West and McCurtain LAAs lie within areas that are unmapped by the Federal Emergency Management Agency for floodplains. As such, within the Liberty West LAA a 100-foot buffer zone (200-foot total) would be applied to perennial and intermittent streams. Mining would not be allowed within this buffer zone unless approval is obtained from the County floodplain administrator. Mining within the McCurtain LAA would be conducted in accordance with SMCRA and 30 CFR 817.57 (Hydrologic balance: Stream buffer zones). As such, no land within 100 feet of a perennial stream or an intermittent stream shall be disturbed by underground mining activities, unless the regulatory authority specifically authorizes underground mining activities closer to, or through, such a stream.

- COAL LEASE STIPULATION 7 (CLS-7) MUNICIPAL WATERSHEDS: The Bull Hill LAA lies within the municipal watershed for the City of Poteau. Leasing must be coordinated with the Poteau Valley Improvement Authority, which provides water to the City of Poteau, and agreements must be made with the authorized officer to allow surface mining to occur in this watershed.

- COAL LEASE STIPULATION 8 (CLS-8) WISTER WILDLIFE MANAGEMENT AREA: Leasing within the Wister Wildlife Management Area must be coordinated with the USACE and ODWC or authorized officer. If leasing agreements cannot be reached, no surface mining would be allowed in the Wister Wildlife Management Area.

2.4 ALTERNATIVES

Considering issues identified from the public during scoping, BLM's management concerns, existing management, and the results of the coal screening, three alternative RMP alternatives were considered in detail and are described in Section 2.4.2.

2.4.1 Description of Typical Operations

The description that follows is a general description of the potential mining operations at each of the three LAAs if Alternatives B or C is selected as the proposed action. Methods would be defined in more detail in the mine plan of operations during the mine permitting phase.

2.4.1.1 Liberty West Operations

The Liberty West tract would be developed by surface mining methods. Mining would be a continuation of the adjacent permit, ODM Permit #4268. Mining would progress from east to west as overburden from each pit is spoiled in the preceding open pit using the dragline. Mining would progress in a series of long, narrow pits away from the cropline of the Stigler horizon. The pits would be up to 150 feet wide at the bottom, and may range from 60 to 120 feet in depth. The length would vary but would range from 2,000 to 4,000 feet. Excavation of pits would progress at a rate of approximately 1 mile per two years.

The major equipment used in the overburden- and interburden-removing phases of the operation would be a dragline. Bulldozers, scrapers, and front-end loaders may move supplemental yardage.

Surface coal mining operations using a dragline and mobile equipment would be conducted in the permit area. Coal would be uncovered from a relatively flat-lying coal seam by removal of the predominantly shale and sandstone overburden material. Haul roads would be located between the active pits and the coal pad area located on ODM Permit #4257. Pending the County Commissioner's approval, a portion of a county road may be used to support the pit haul operations.

The area disturbed by mining would be isolated from the surface water in the watershed. Diversion berms would be constructed to divert surface water flows around disturbed area. Additionally, diversion berms and sediment ponds would be constructed to control surface water discharges from within the disturbed area.

Before the overburden excavation begins, the topsoil is removed and stockpiled in designated topsoil storage areas, or the topsoil is redistributed over replaced and graded overburden material. If conditions permit, there would be contemporaneous topsoil removal ahead of the active pit and replacing the topsoil behind the active pit. After topsoil is removed, a part of a pit is drilled out in a blast hole pattern, the holes loaded with explosives and the pattern is detonated.

A bulldozer is used to push the blasted overburden material into the previously excavated pit and to prepare a bench for the dragline. The bulldozer pushes material away from the highwall into the open pit until the uphill grade becomes prohibitive to use the bulldozer. The dragline would work from the end of the pit to the center, removing overburden from the coal seam in a side-cast method of operation.

As a supplement to the dragline capacity in the deeper cover, scrapers may be used to remove the spoil material from the coal seams. Scrapers would cycle from the excavation area to the spoil placement area. Any, or all, of the described equipment also may be used to move spoil material away from the excavation to allow operating room for the dragline.

In general the excavation of the successive pits would backfill the previously excavated adjacent pits, and excess material, created by the swell factor of the overburden material, would be placed on top of the backfilled pits. The handling and subsequent swelling of the overburden material would create somewhat higher topography than there was originally within the permit area.

After the pits are backfilled, topsoil would be redistributed and permanent vegetation would be established on the disturbed areas.

2.4.1.2 McCurtain Operations

Coal from the McCurtain area would be recovered using underground mining methods. The coal would be recovered using continuous miners, shuttle cars, and conveyors. Maintenance crews would be responsible for roof bolting and rehabilitation of access routes. The coal would be conveyed to the surface by belts where it would be crushed and loaded. The exact mix of equipment would be determined by production goals and be reflected in the mine plan filed during the permitting phase of the mine. The portal would remain open for approximately 20 years.

2.4.1.3 Bull Hill Operations

The coal seam would be recovered with a combination of conventional surface mining and auger mining. Mining equipment would include an auger miner, bulldozers, backhoe, front-end loaders, trucks, and motor graders.

Coal would be removed from two steeply dipping coal seams. One pit of coal would be stripped using conventional surface mining methods. The stripping would advance the existing highwall down-dip to a depth of approximately 100 feet to provide additional pit area for the auger mining operations. Auger mining operations would follow the stripping operations and would recover coal 300 to 500 feet into the seam from the highwall. Surface mining operations and reclamation would be similar to the operations described for the Liberty West above. The mining and reclamation sequence would advance as a continuous operation. Excavation of pits would progress at a rate of approximately 1 mile per year.

The coal pad area would be located within the permitted area. Haul roads would be located between the active pits and the coal pad area. Pending the County Commissioner's approval, county roads may be used to support transportation operations.

The mining would have a continuous mining area composed of stripping, augering, and backfilling operations. When mining advances, the stripping operation would advance to the next pit with augering following behind. Blasted material from the stripping operation would be hauled back to the area previously mined by the auger. Backfilling and grading would be an integral part of the mining sequence to achieve contemporaneous reclamation. Stockpiling of spoil would be necessary when auger-mining operations are delayed or when weather interrupts reclamation activities. The handling and subsequent swelling of the overburden material would create somewhat higher topography than there was originally within the permit area.

Auger mining would follow stripping operations closely along the highwall of the coal and would mine 300 to 500 feet down-dip. When the auger miner has reached its limit, it would be withdrawn and moved down the pit to the next auger entry point. The coal would be discharged from the miner's conveyor directly into pit haul trucks and hauled to the coal pad. Mine entries would range from nominally 4.5 feet wide with 1.5-foot-wide pillars to 6 feet wide with 2-foot-wide pillars between entries.

2.4.2 Description of Alternatives

Based on laws, regulations, and policies; issues identified during scoping; BLM's management concerns; and the results of the four coal screens, three alternatives were formulated. These alternatives are Alternative A: No Action; Alternative B: Maximum Resource Production; and Alternative C: Balanced Production and Resource Protection.

2.4.2.1 Alternative A: No Action

Under Alternative A, the three LAAs addressed in this document would not be leased, and only those tracts of land included previously in the 1994 RMP or 1996 RMPA would be considered for leasing.

2.4.2.2 Alternative B: Maximum Resource Production

Under Alternative B, the three LAAs would be leased allowing development of all lands within the leased areas with the exception of those lands considered to be unsuitable for development with stipulations (in accordance with the unsuitability criteria of the coal screen described in Section 2.3). The estimated total number of acres within the three LAAs considered at this time as unsuitable for development, after stipulations, is approximately 1.62 acres, which is less than 1 percent of the total 6,883.17 acres. The entirety of this unsuitable area, after stipulations, is located in the Bull Hill LAA. Table 2-3 is a summary of the area unsuitable for development for each LAA under Alternative B. Maps 2-1, 2-2, and 2-3 illustrate the areas considered to be unsuitable for development, with and without stipulations.

TABLE 2-3
AREA CONSIDERED UNSUITABLE FOR LEASING (ALTERNATIVE B)

Lease Application Area	Total Acres	Area Considered Unsuitable (acres)	Percent of Total
Rights-of-Way and Easements (Criterion 2), Buffer Zones (Criterion 3), Floodplains (Criterion 16), and Municipal Watersheds (Criterion 17) after Stipulations			
Liberty West	640.00	0.00	0.00
McCurtain	2,380.00	0.00	0.00
Bull Hill	3,863.17	1.62	0.04
Total	**6,883.17**	**1.62**	**0.02**

2.4.2.3 Alternative C: Balanced Production and Resource Protection

Under Alternative C, the three LAAs would be leased allowing development of all lands within the leased areas with the exception of those lands considered to be unsuitable for development (1) in accordance with the unsuitability criteria and (2) considering the results of the multiple use screen, which includes wetland and riparian areas, Wister Wildlife Management Area, cultural resources, and priority streams. With application of stipulations, approximately 1.62 acres or less than 1 percent of the originally proposed leases would be unsuitable for consideration. Table 2-4 is a summary of the area (in acres) unsuitable for development by alternative for each LAA. Maps 2-4, 2-5, and 2-6 illustrate the areas considered to be unsuitable for development with or without stipulations.

TABLE 2-4
AREAS CONSIDERED UNSUITABLE FOR DEVELOPMENT

Lease Application Area	Total Area (acres)	Area Considered Unsuitable (acres)	Percent of Total
Unsuitability Criteria Only (Alternative B)			
Rights-of-Way and Easements (Criterion 2), Buffer Zones (Criterion 3), and Floodplains (Criterion 16)			
Liberty West	640.00	0.00	0.00
McCurtain	2,380.00	0.00	0.00
Bull Hill	3,863.17	1.62	0.04
Total	**6,883.17**	**1.62**	**0.02**
Multiple Use Screen			
Wetlands and Riparian Areas, Priority Streams, and Cultural Resources			
Liberty West	640.00	0	0
McCurtain	2,380.00	0	0
Bull Hill	3,863.17	0	0
Total	**6,883.17**	**0**	**0**
Total Unsuitability and Multiple Use Screens (Alternative C)			
Liberty Hill	640.00	0.00	0.00
McCurtain	2,380.00	0.00	0.00
Bull Hill	3,863.17	1.62	0.04
Total	**6,883.17**	**1.62**	**0.02**

NOTE: Under Alternative C, cultural resource sites were not mapped and area of the sites is not included in these calculations. However, the area of the sites is not anticipated to add substantially to the acreage in this table.

2.4.3 Comparison of Alternatives

The three alternatives are distinguished from one another by the type and degree of constraints. Under Alternative A: No Action, the three LAAs would not be leased and, therefore, no subsequent development would result. Tables 2-5 and 2-6 are summaries of potentially developable coal, in acres and tons, for each LAA.

Alternative B: Maximum Resource Production would allow development of all lands within the leased area except for those lands considered at this time to be unsuitable for development, which amounts to approximately 1.62 acres. These unsuitable lands include rights-of-way and easements; buffer zones of rights-of-way, communities, and buildings; floodplains; and municipal watersheds.

Alternative C: Balanced Production and Resource Production would allow development of all lands within the leased area except for those lands considered to be unsuitable for development under Alternative B and, in addition, wetland and riparian areas, priority streams, Wister Wildlife Management Area; and cultural resources would be considered for leasing unless addressed through stipulations. After application of stipulations, no additional acres would be added that would be considered unsuitable for leasing under Alternative B.

The primary difference between Alternatives B and C would be the stipulations included in the lease. Under Alternative B, stipulations CLS-1, 2, 4, 5, 6, and 7 would apply. Under Alternative C, CLS-1, 2, 4, 5, 6, 7, and 8 would apply, provided further protection for wetlands and riparian areas, Wister Wildlife Management Area, and priority streams. (It should be noted that, although known cultural resource sites were not mapped and the area of the sites is not included in the calculations of acreage, the site area is not anticipated to add substantively to the acreage considered unsuitable for development under Alternative C.)

TABLE 2-5
POTENTIALLY DEVELOPABLE COAL (ACRES)

Lease Application Area	Acres with Development Potential		Acres Affected by Unsuitability Criteria After Stipulations	Acres Carried Forward With Unsuitability Stipulations	Acres Affected by Multiple-Use Conflicts		Acres Carried Forward with Multiple-Use Stipulations	Acres Affected by Surface-Owner Consultation
	Surface	Underground			Surface	Underground		
Liberty West	640.00	–	0.00	640.00	0	–	640.00	0
McCurtain	–	2,380.00	0.00	2,386.00	–	0	2,380.00	0
Bull Hill	3,863.17	–	1.62	3,861.55	0	–	3,861.55	0
Total	**4,503.17**	**2,380.00**	**1.62**	**6,881.55**	**0**	**0**	**6,881.55**	**0**

TABLE 2-6
POTENTIALLY DEVELOPABLE COAL (TONS)

Lease Application Area	Development Potential (million tons)		Tons Affected by Unsuitability Criteria After Stipulations (millions)	Tons Carried Forward with Unsuitability Stipulations (millions)	Tons Affected by Multiple-Use Conflicts After Stipulations (millions)		Tons Carried Forward with Multiple-Use Stipulations (millions)	Tons Affected Due to Surface Owner Consultation (millions)
	Surface	Underground			Surface	Underground		
Liberty West	2.62	–	0.00	2.62	0	–	2.62	0
McCurtain		17.14	0.00	17.14	–	0	17.14	0
Bull Hill	27.82	–	0.01	27.81	0	–	27.81	0
Total	**30.44**	**17.14**	**0.01**	**30.43**	**0**	**0**	**47.57**	**0**

3.0 Affected Environment

3.0 AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This chapter provides a summary of the existing condition of the environment in the Lease Application Areas (LAAs). Generally, the discussion is limited to the resources that could be affected by solid mineral leasing and subsequent activities. Much of the information in this chapter is summarized from material contained in the Management Situation Analysis. In preparing the Management Situation Analysis, environmental resource data were collected and compiled using existing data from several sources. The majority of the data was provided by Federal, State, County, and local agencies, as well as private sources. Data gathered included digital (geographic information system [GIS]) data in published and unpublished reports and maps. The data compiled comply with adequacy guidelines under the National Environmental Policy Act. Where data were lacking, the data were interpreted from the best available sources. Field verification of the data was not conducted. Sources used in the preparation of this Resource Management Plan Amendment/Environmental Assessment (RMPA/EA) are listed in the reference section.

GIS has been used to capture, manage, analyze, and display the geographic data for this RMPA/EA. In particular, GIS was used effectively to execute certain spatial analyses. Maps summarizing resource information relevant to the RMPA/EA planning and analysis are provided in the map section of this document.

In accordance with the National Environmental Policy Act regulations codified in Title 40 Code of Federal Regulations Part 1502.15 (40 CFR 1502.15), the affected environment section discusses the existing condition of the human and natural environment that potentially could be affected, beneficially and adversely, by the alternative plans as described in Chapter 2. The affected environment is characterized for the following:

- Physiography and Topography
- Climate and Meteorology
- Land Use
- Access and Transportation
- Geology and Minerals
- Soils
- Water Resources
- Air Quality
- Noise
- Vegetation
- Wildlife
- Special Status Species
- Noxious Weeds

- Hazardous Materials
- Cultural Resources
- Paleontological Resources
- Recreation
- Visual Resources
- Social and Economic Conditions

3.2 PHYSIOGRAPHY AND TOPOGRAPHY

3.2.1 Physiography

Geomorphic, or *physiographic*, regions are broad-scale subdivisions based on terrain texture, rock type, and geologic structure and history. The U.S. Geological Survey's (USGS) three-tiered classification of the United States—by division, province, and section—provides a spatial organization for the great variety of physical features found in the United States (USGS 2002).

Haskell County, where the Liberty West and McCurtain LAAs are located, falls within the Interior Highland physiographic division in the Arkansas Valley section of the Ouachita province. Similarly, Latimer and LeFlore Counties, where the Bull Hill LAA is located, largely fall within the Ouachita Mountains section of the Ouachita province (USGS 2002).

3.2.2 Topography

Liberty West LAA. The Liberty West LAA comprises portions of Sections 1 and 12, T10N, R21E of the Indian Meridian in Haskell County. The LAA ranges in elevation from 610 feet on the northwestern corner to 510 feet at the southwestern corner with an overall slope of 1 percent. Topography generally slopes to the south and east. Several unnamed intermittent streams transport overland flow to a former strip mine drainage canal located south of the area. The LAA is characterized by rolling forested hills with some open pasture.

McCurtain LAA. The McCurtain LAA comprises portions of Sections 8-11 and 14-17, T8N, R22E of the Indian Meridian in Haskell County. The LAA ranges in elevation from 700 feet on Seven Devils Mountain in Section 9 to 500 feet at Mule Creek in Section 14 with an overall slope of 1.5 percent. The topography slopes generally to the west and northwest. Surface water within the area drains to Mule Creek at the southwestern corner of the area. The LAA is characterized by rolling forested hills, reclaimed and unreclaimed strip mines, and pasture land.

Bull Hill LAA. The Bull Hill LAA comprises portions of Sections 9-12, T5N, R20E and Sections 1-3 and 7-10, T5N, R21E of the Indian Meridian in Latimer County. The LAA also encompasses portions of Sections 4-6, T5N, R23E; Sections 31-34, T6N, R24E; Sections 33-36, T6N, R23E; and Sections 1-3, T5N, R22E of the Indian Meridian in LeFlore County. The LAA ranges in elevation from approximately 720 feet on the top of the east-west ridge to approximately 650 feet at the bottom of the ridge. Streams in the area typically flow in an east-west direction between the parallel ridges. Several intermittent streams dissect the Bull Hill LAA including Coal Creek and Cedar Creek. The LAA is characterized by the central ridge, which runs west to east through the center of the Bull Hill LAA.

3.3 CLIMATE AND METEOROLOGY

The climate of east-central and southeastern Oklahoma, which characterizes the LAAs, is mild with warm-to-hot summers and cool winters. According to the Oklahoma Climatological Survey (OCS 2002), annual precipitation in Haskell County averages 47.2 inches per year and comes mostly during fall and spring. Similarly, Latimer County averages 50.4 inches per year and LeFlore County averages 47.9 inches per year. May and September are usually the wettest months based upon the OCS period of record from 1971 to 2000. Normal annual snowfall for the three LAAs ranges from 3 to 9 inches.
The OCS (2001) shows that Haskell County has a mean annual temperature of 60.9 degrees Fahrenheit (°F) with the warmest temperatures occurring in July and coolest in January. Similarly, Latimer County has an average temperature of 61.3°F with the warmest temperatures occurring in July and August and the coolest in January. LeFlore County has an average temperature of 61.3°F with the warmest temperatures in July and August and the coolest temperatures in January.

3.4 LAND USE

The region is characterized with rural qualities and open space; however, some suburban development is dispersed throughout. The Bureau of Land Management (BLM) administers 98,095 acres of Federal mineral estate in the three-county area (BLM 1994). Coal mining is an ongoing activity within the region.

In February and June of 2002, BLM received three applications from Farrell-Cooper Mining Company for competitive coal lease sales in Haskell, Latimer, and LeFlore counties. The total 6,883.17 acres of Federal mineral estate is administered by BLM; however, the majority of the surface is privately owned. Two of these tracts (McCurtain and Bull Hill) represent areas of land that previously had been mined early in the twentieth century. However, improvements in mining technology and economics would now allow mining in these areas again.

Liberty West LAA. Surface ownership in the LAA is private (Farrell-Cooper Mining Company 2002a). There are five landowners and two residences within the LAA. The primary land uses in the Liberty West LAA are also pasture, rangeland; minimal, undeveloped timberland; and limited residential development. The most highly developed area appears to be an equestrian stable and training facility located at the southwestern corner of the LAA.

McCurtain LAA. There are no current mining operations at the subject McCurtain LAA (Farrell-Cooper Mining Company 2003b). Surface ownership in the LAA is private. There are 26 landowners and five residences within the LAA. The portion of State Highway 26 and its easement that crosses the LAA on the southeastern corner, a two-lane asphalt paved highway links the LAA to the town of McCurtain, is on State land. However, the primary mining technique to be used in this LAA would be underground mining, thereby minimizing surface disturbance and interaction with surface ownership and easements.

The primary uses of the land in the McCurtain LAA are pasture and range. Abandoned and reclaimed mine areas and undeveloped timbered areas occupy some of the land. The LAA falls from the northwest to the southeast from Seven Devils Mountain, through undeveloped timber to pastureland, some of which is reclaimed mine land, and then to abandoned strip mines on the southeastern portion. There are small wetlands associated with Mule Creek, the abandoned mine area, and existing in some of the pastures.

Bull Hill LAA. Operations are intended to occur on mostly private lands and some on Federal land (U.S. Army Corps of Engineers), which is administered by the State of Oklahoma as Wister Wildlife Management Area (Farrell-Cooper Mining Company 2002c). There are 59 private landowners and nine residences within the LAA.

Two north-south highways cross the LAA. These include Highway 82 at Red Oak and Highway 271 at Fanshawe (Rand McNally 2003). These easements must be considered in addition to private surface owners. A number of paved county roads and unpaved roads run on section lines throughout the LAA.

The primary uses of the land within the Bull Hill LAA are as pasture and range. Undeveloped timbered areas and abandoned mine lands occupy some of the land. There are active coal mine permits in the area around Red Oak, which are currently benefiting from reclamation activities. Overall, the LAA appears to be primarily undeveloped woodland along the Bull Hill Ridge, which runs from west to east through the LAA. However, there are wetlands associated with small creeks throughout the LAA and in pastures.

3.5 ACCESS AND TRANSPORTATION

Various transportation related facilities provide access to the general area and LAAs. Facilities include airports, railroads, and roadways. Within the region, access to the LAAs is provided largely by an extensive network of highways and roads.

Liberty West LAA. Highway access to the Liberty West LAA is provided by Highway 9, a two-lane, east-west highway that parallels Interstate Highway 40 located approximately 20 miles north. A number of paved county roads and unpaved roads run on section lines throughout the LAA. Local access to the LAA is provided by the network of asphalt and gravel-paved county roads. The LAA is bordered on the west by N4480 Road, an asphalt two-lane county road, and on the east by N4490 Road, a gravel county road. On the north, the LAA is bordered by a gravel county road, E1130 Road. The LAA is bordered on the south by E1150 Road, a gravel county road. Access to the rural community of Tamaha, located approximately 3 miles northeast of the LAA, is provided on paved asphalt two-lane roads from Highway 9 by N 4480 Road and E 1110 Road.

McCurtain LAA. Highway access to the McCurtain LAA is provided by Highway 26, which runs through the middle of the LAA. This two-lane, asphalt-paved highway links the LAA to the Town of McCurtain. Approximately 1 mile of this highway lies within the LAA. Highway access also is provided by Highway 31, located near the western border of the LAA. A number of paved county roads and unpaved roads run on section lines throughout the LAA. The primary local county roads in and around the LAA include E1275 Road and N45 Road in the southern portion, N4510 from Highway 31 in the south-west, and N4515 and N4520 Roads in the north along Seven Devils Mountain (Rand McNally 2003).

Bull Hill LAA. Highway access to the Bull Hill LAA is provided by Highway 270, which runs parallel and approximately 1 to 2 miles north of this east-west oriented LAA. This two-lane, asphalt-paved highway runs through the towns of Panola, Red Oak, and Fanshawe. Two north-south highways link the LAA to Highway 270: Highway 82 at Red Oak and Highway 271 at Fanshawe (Rand McNally 2003). A number of paved county roads and unpaved roads run on section lines throughout the LAA. Access to the eastern end of the LAA is available from N4635 Road near Wister Lake.
Rail access is available along Highway 270 between Red Oak and Fanshawe, approximately 2 miles north of the LAA. This rail line, the Arkansas/Oklahoma Railroad, is owned by the Oklahoma Department of Transportation and currently is used by Farrell-Cooper Mining Company for loading and shipping mined coal from the region.

3.6 GEOLOGY AND MINERALS

3.6.1 Geology

Liberty West LAA. Surface lithology at the Liberty West Tract consists of shales and sandstones of the McAlester Formation. The McAlester Formation (Pennsylvanian) consists of several hundred feet of shale with a few interbedded minor sandstone intervals. The Stigler coal seam, also within the McAlester Formation, lies approximately 60 to 100 feet below the surface within the mining area. Three normal faults are located to the north and northwest of the area. One fault extends to within approximately 1,500 feet north of the area and one fault appears to extend a few hundred feet into the northwestern corner of the area. The geology of the LAA is shown in Map 3-1.

McCurtain LAA. Surface lithology within the McCurtain Tract consists of shales and sandstones of the McAlester Formation. The target coal seam is within the underlying Hartshorne Sandstone, which crops out on the land surface on the flanks of the Milton anticline located southeast of the area. The Hartshorne dips into the subsurface to the northwest toward the axis of the Cowlington syncline. A normal fault is located immediately south of the tract area and a thrust fault associated with the Milton anticline is located approximately 1 to 2 miles southeast of the area. The geology of the LAA is shown in Map 3-2.

Bull Hill LAA. The Bull Hill Tract is orientated along a linear ridge extending from eastern Latimer County into western LeFlore County near the southern edge of the Arkoma Basin coal region. The Hartshorne Sandstone (Pennsylvanian) is resistant to weathering and erosion and often forms ridges and cap rock throughout the Arkoma Basin. The Lower and Upper Hartshorne coal seams are typically 3 to 7 feet thick, and consist of low- or medium-volatile bituminous coal. Near the Bull Hill Tract area, the strata of the Arkoma Basin have been deformed into east-northeast trending anticlines and synclines, some of which are broken by high angle thrust faults. The area is located on the southern flank of the Cavanal syncline. A series of thrust faults are located south of the area. The nearest major fault, Choctaw thrust fault, is located approximately 4 to 5 miles south of the area. The geology of the LAA is shown in Map 3-3.

3.6.2 Minerals

Mineral resources in the region include coal, oil and gas, and coalbed methane gas (energy minerals), and clay and shale, limestone, and sand and gravel.

3.6.2.1 Coal

The 1994 RMP defines areas within the region for which economically strippable coal seams had been identified. Stated interest in coal leasing and development as well as advances in mining technology and improved economics, since that time, have prompted this study to add to the previously defined lease areas.

Mining of coal has occurred previously in the McCurtain tract and in and north of the Bull Hill LAA (BLM 1994). Mining is ongoing adjacent to the Liberty West LAA. Presence of coal in the three LAAs is addressed in Section 3.6.1, and Section 2.3.1 in Chapter 2.0.

3.6.2.2 Oil and Gas

The primary energy mineral extracted in the region is natural gas, and a few oil wells are present as well. The region lies within the Arkoma Basin Province, which includes portions of west-central Arkansas and

southeastern Oklahoma, encompassing an area of about 33,800 square miles (USGS 1995). The Arkoma Basin is characterized by normal faults, which affect Early Pennsylvanian and older rocks. Sedimentary rocks in the Arkoma Basin range in thickness from 3,000 to 20,000 feet and consist primarily of pre-Mississippian carbonate shelf deposits, organic-rich Mississippian marine shales, and Pennsylvanian fluvial deposits.

3.6.2.3 Coalbed Methane Gas

Coalbed methane gas (CBM) plays are related to the coal seams. However, they are separated by great depths. For example, the primary target coalbed for CBM is the Hartshorne seam. Portions addressed for this project include surface outcrops of this coal seam while CBM targets the same seam at depths of 500 to 7,000 feet or more (USGS 1995).

3.6.2.4 Clay and Shale

Clay and shale, found abundantly throughout Oklahoma, are used mainly in the manufacture of brick and tile; stoneware and pottery manufacture accounts for a smaller portion of the clay usage. Within the Region, LeFlore County produced 217,713 tons of clay and shale mineral in 2000. No production was noted for Haskell or Latimer Counties (Oklahoma Department of Mines [ODM] 2001). Two shale pits are shown on the USGS Quadrangle map adjacent to the Bull Hill LAA south of Red Oak and Panola, Oklahoma.

3.6.2.5 Limestone

Limestone represents one of the most widely available of the mineral resources of Oklahoma, and has generally accounted for approximately 60 percent of the reported tonnage of all nonfuel minerals mined in the State. Production of limestone in tons for each of the counties in the Region is shown below (ODM 2001):

- Haskell County: 673,000 tons
- Latimer County: 5,971 tons
- LeFlore County: 65,355 tons

3.6.2.6 Sand and Gravel

Sand and gravel are produced in most counties in Oklahoma from deposits that are found near the many rivers and streams. In the Region, Haskell County produced 2,755 tons in 2000 while LeFlore County produced 273,378 tons in the same time period. No production was noted for Latimer County (ODM 2001).

3.7 SOILS

Liberty West LAA. Predominant soils in the Liberty West LAA include Vian silt loam and Stigler silt loam (Map 3-4). The Stigler silt loam and soils of the Counts-Dela complex occur along intermittent streams in the area. A narrow band of Liberal and Collinsville stony soil, derived from weathering of shale and sandstone, cuts across the northwestern corner of the LAA atop an area of higher elevation. Minor areas of Spiro silt loam, derived from silty sandstone, are located adjacent to intermittent streams in the eastern and southern areas of the LAA (U.S. Department of Agriculture [USDA] 1975).

The Vian silt loam, which covers the majority of the area, is moderately well drained, has a moderately slow permeability, and is suited for pasture and crops if properly managed to improve fertility and reduce erosion. The Vian silt loam also is capable of sustaining forest growth and open land and woodland wildlife. The Stigler silt loam and the Counts-Dela complex soils are derived from shale or clayey sediment and is found in narrow bands along either side of intermittent streams in the area. The Stigler silt loam also is capable of sustaining forest growth and numerous wildlife types (USDA 1975).

McCurtain LAA. Predominant soils in the McCurtain LAA include soils from the Hector Series, Stigler Series, and Tamaha Series (Map 3-5). These soils are found on gently sloping uplands. Specifically, soils of the Hector stony loam and the Hector-Linker complex, derived from weathered sandstone, cap the higher elevations in the central portion of the LAA area. Large areas of Stigler silt loam and the Tamaha silt loam, derived from weathered shale, are located in the northwestern portion of the LAA area. Large areas of soils from the Kanima series are located at the southeastern corner and northwestern corner of the area. The Kanima soils are derived from weathered shale that was displaced in strip-mining operations. Minor areas of soil from the Enders-Hector complex and Naldo fine sandy loam occur in linear outcrops adjacent to the intermittent stream in the southern portion of the LAA area. Minor areas of soils from the Guyton silt loam, Counts silt loam, and Counts-Dela complex are scattered throughout the area (USDA 1975).

The predominant soils in the area from the Hector-Linker complex and the Hector stony loam are well-drained and have relatively rapid permeability. They may sustain woodland vegetation and wildlife but are not suited for croplands or wetlands. Soils of the Stigler silt loam and the Tamaha silt loam are capable of sustaining crops, grasses, forests, and an assortment of associated wildlife.

Bull Hill LAA. Predominant soils in the Bull Hill LAA include the Bengal stony fine sandy loam, soils from the Bengal-Clebit association, the Carnasaw-Clebit association, and the Carnasaw stony loam (Map 3-6). These soils are on the crests and side slopes of mountains and hills. Minor areas of Neff and Rexor silt loams, Sheremore fine sandy loam, Stigler silt loam, Tamaha silt loam, and soils of the Kenn-Ceda Complex occur along intermittent streams in the area (USDA 1981, 1983).

The Bengal series consists of moderately deep, well-drained, slowly permeable soils that formed in colluvium and material that weathered from shale. These gently sloping to steep soils are on crests and side slopes of mountains and hills. Clebit soils commonly are on ridgetops and are shallow over sandstone bedrock. The Carnasaw series consists of deep, well-drained, slowly permeable soils that formed in material weathered from shale. These gently sloping to very steep soils are on ridge crests and side slopes of uplands. The Bengal soils have medium potential for native grass and Clebit soils have low potential. Bengal soils have low potential for loblolly pine and shortleaf pine and Clebit soils have low potential for any woodland, because of shallow depth. These soils have shallow depth, slow permeability, high shrink-swell potential, and stoniness (USDA 1981, 1983).

The Neff and Rexor silt loams are deep, moderately well-drained to well-drained, nearly level to very gently sloping soils that are mainly on narrow floodplains. The Kenn-Cenda complex soils are similar to the Neff and Rexor silt loams and also are located in floodplains but typically are located nearer to the base of hillsides. These floodplain soils are subject to frequent flooding. Due to flooding and dissecting stream channels, the potential for cultivated crops is low. Tall fescue, bermuda grass, and white clover are common grasses on the Neff and Rexor silt loam and the Kenn-Cenda soils. Seasonal wetness, a very shallow water table, and frequent flooding prohibit most urban and recreational uses on these floodplain soils. Sheremore fine sandy loam is located higher on the floodplain at the foot of slopes and alluvial fans. The Sheremore fine sandy loam is deep, moderately well-drained, and is gently sloping at 1 to 3 percent. This soil typically supports pasture and woodland (USDA 1981, 1983).

3.7.1 Prime and Unique Farmlands

Prime farmland soils are defined by the USDA as those that are "best suited to producing food, seed, forage, fiber, and oilseed crops" (Natural Resource Conservation Service [NRCS [formerly Soil Conservation Service]] 2000a). Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed forage, fiber, and oilseed crops, and is also available for these uses. Prime farmland soils are typically loams, silt loams, silts, and clay loams that have developed on floodplains.

Prime farmlands listed by soil type for the Liberty West LAA include the following:

- Stigler Silt Loam, 1 to 3 percent slopes and 3 to 5 percent slopes
- Vian Silt Loam, 1 to 3 percent slopes (NRCS 2000b)

Prime farmlands listed by soil type for the McCurtain LAA include the following:

- Tamaha Silt Loam, 1 to 3 percent slopes and 3 to 5 percent slopes
- Counts Silt Loam, 0 to 1 percent slopes
- Dela Fine Sandy Loam, 0 to 1 percent slopes (NRCS 2000b)

Prime farmlands listed by soil type for the Bull Hill LAA include the following:

- Neff Silt Loam, 0 to 1 percent slopes, occasional flooded
- Rexor Silt Loam, 0 to 1 percent slopes, occasionally flooded
- Shermore Fine Sandy Loam, 1 to 3 percent and 3 to 5 percent slopes
- Stigler Silt Loam, 0 to 1 percent slopes and 1 to 3 percent slopes
- Tamaha Silt Loam, 0 to 1 percent slopes and 1 to 3 percent slopes (NRCS 2000b)

Unique farmlands are lands other than prime farmland that are used for the production of specific high-value food and fiber crops. It has the special combination of soil quality, location growing season, and moisture supply needed to economically produce sustained high-quality and/or high yields of a specific crop. Examples of such crops are citrus, tree nuts, olives, cranberries, fruit, and vegetables (NRCS 2000a). No unique farmlands were listed for Haskell, Latimer or LeFlore Counties (NRCS 2000b).

3.8 WATER RESOURCES

3.8.1 Groundwater

Within Haskell, Latimer, and LeFlore Counties there are no major bedrock aquifers (USGS 1996). The limited groundwater supplies are primarily used for mining, non-irrigation agriculture, and private water supply (Oklahoma Water Resources Board [OWRB] 2003a). The scoping process indicated that groundwater is a major concern to residents in and around the LAAs. Groundwater is used at these locations for domestic as well as agricultural use and for cooling in poultry (chicken) operations.

Liberty West LAA. According to the OWRB (2003a), one groundwater well exists within the Liberty West LAA and is owned by Farrell-Cooper Mining Company. The total depth of this well is 200 feet. The first water zone is located at 37 feet below ground surface (bgs) and the well has an estimated yield of 5 gallons per minute (gpm).

McCurtain and Bull Hill LAAs. Limited data are available for wells from the Hartshorne formation. This is the formation to be mined in the McCurtain and Bull Hill LAAs. The Oklahoma Department of Environmental Quality (ODEQ) monitoring wells in this minor aquifer have identified low pH levels, heavy metal contamination, chlorides, and some controlled industrial waste from historic mining operations and off-site disposal pits for oil field and industrial waste (ODEQ 2002).

Three wells are shown to be located within the McCurtain LAA. Each of these wells is used for domestic water supply. The total well depth ranges from 130 to 198 feet with the first water zone encountered at 50 to 60 feet bgs. Yield of these wells is low, ranging from approximately 2 to 10 gpm (OWRB 2003a).

Nine wells are shown to be located within the Bull Hill LAA. Six of these wells are used for mining, two for domestic water supply, and one is of unknown use. The total well depth ranges from 87 to 170 feet with the first water zone encountered at 20 to 80 feet bgs. Yield data were provided for only one well and was low at 2 gpm (OWRB 2003a).

3.8.2 Surface Water

3.8.2.1 Geography

Liberty West LAA. The Liberty West LAA ranges in elevation from 600 feet on the northwestern corner to 520 feet at the southwestern corner with an overall slope of 1 percent. The LAA is hydrologically divided into two small watersheds that roughly split the LAA in half from northwest to southeast.

McCurtain LAA. The McCurtain LAA ranges in elevation from 700 feet on Seven Devils Mountain to 500 feet at Mule Creek at the south with an overall slope of 1.5 percent. The LAA drains to Mule Creek, which descends from Seven Devils Mountain to the southeast and eventually discharges into the Robert S. Kerr Reservoir.

Bull Hill LAA. The Bull Hill LAA ranges in elevation from approximately 720 feet on the top of the east-west ridge to approximately 650 feet at the bottom of the ridge. The LAA is hydrologically divided into subwatersheds that feed into the Fourche Maline River or Caston Creek and finally to Wister Lake at the far eastern end.

3.8.2.2 Watersheds

The three LAAs are divided into two primary watersheds and numerous subwatersheds.

Liberty West and McCurtain LAAs. Generally, the Liberty West and McCurtain LAAs lie within and eventually discharge to the Robert S. Kerr Reservoir Watershed (Map 3-7). The USGS Hydrologic Unit Code (HUC) system places the Liberty West LAA in the Little Sans Bois Subwatershed, HUC # 11110104-020, while the McCurtain LAA lies within the Upper Sans Bois Subwatershed, HUC # 11110104-030, and Lower Sans Bois Subwatershed, HUC # 11110104-040.

Bull Hill LAA. The Bull Hill LAA lies within and discharges to the Poteau Watershed (Map 3-8). The Bull Hill LAA lies within the Upper and Lower Fourche Maline Subwatersheds, HUC #s 11110105-040 and 11110105-050, as well as the Wister Lake Subwatershed, HUC # 11110105-060 and Caston Creek Subwatershed, HUC # 11110105-070.

3.8.2.3 Water Quantity

Water quantity and use data are provided by the USGS and other sources by primary HUC. As such, water quantity data are discussed in this section by overall watershed.

Robert S. Kerr Watershed

The Liberty West LAA discharges almost directly to the Robert S. Kerr Reservoir (Map 3-9). As such, there is no gaging station between the LAA and the reservoir and no flow data related to the LAA are available.

The McCurtain LAA discharges to the Sans Bois Creek in the Robert S. Kerr Watershed. The USGS maintains a gaging station (No. 07246000) on the Sans Bois near Keota, Oklahoma, approximately 5 miles north of the McCurtain LAA. The contributing drainage area to the creek at the gaging station is 346 square miles. Flow data were available only for the years 1938 through 1942. During this time period the average flow in the creek was 243 cubic feet per second (cfs) with high flows occurring during April and low flows occurring in August (USGS 2001).

Poteau Watershed

Most of the Bull Hill LAA discharges to Fourche Maline Creek and Wister Lake in the Poteau Watershed (Map 3-10). The USGS maintains a gaging station (No. 07247500) on the Fourche Maline near Red Oak, Oklahoma, approximately 1 mile north of the Bull Hill LAA. This gaging station is roughly half-way between Red Oak and Panola, Oklahoma. The contributing drainage area to the creek at the gaging station is 122 square miles. Flow data were available for the years 1938 through 2002. During this time period the average flow in the creek was 138.8 cfs with high flows occurring during May and low flows occurring in August (USGS 2001).

The far eastern end of the Bull Hill LAA discharges to Caston Creek and Wister Lake in the Poteau Watershed. The USGS maintains a gaging station (No. 07248600) on Caston Creek near Wister, Oklahoma, approximately 3 miles northeast of the Bull Hill LAA. The contributing drainage area to the creek at the gaging station is 72.9 square miles. Flow data were available for the years 1978 through 1982. During this time period the average flow in the creek was 75.7 cfs with extremely variable flows according to season. Average flow over the period of record ranged from highs of 277 cfs in May to lows of 1.48 cfs in September (USGS 2001).

3.8.2.4 Water Quality

For water quality purposes, ODEQ has separate definitions for watershed boundaries and a separate watershed numbering system. Under the ODEQ system, Liberty West LAA lies within the Robert S. Kerr Lake Watershed (No. 22020002) while the McCurtain LAA lies within the Sans Bois Creek Watershed (No. 220200004). The Bull Hill LAA comprises parts of the Fourche Maline Creek Watershed (No. 22010004) and Wister Lake Watershed (No. 22010002). These watershed designations are used in this discussion of water quality.

Robert S. Kerr Lake Watershed

Little Sans Bois Creek Watershed, the subwatershed in which the Liberty West LAA is located, is listed in the ODEQ 2002 Integrated Report as a Category 3 waterbody. A Category 3 waterbody is one for which insufficient or no data and information exist to determine if any designated use is attained. To

obtain the data necessary for assessment of attainment of designated use, the watershed is scheduled for additional monitoring in 2013 and no date has been established for development of a total maximum daily load (TMDL) (ODEQ 2002).

Sans Bois Creek Watershed

The Sans Bois Watershed, in which the McCurtain LAA is located, is listed in the ODEQ 2002 Integrated Report as a Category 5 waterbody. A Category 5 waterbody is one for which the water quality standard is not attained. The waterbody is impaired or threatened for one or more designated uses by pollutants and requires a TMDL. A TMDL will be developed for the watershed by 2008. Primary issues affecting the watershed include low dissolved oxygen, pathogens, and turbidity from unknown sources (ODEQ 2002).

Fourche Maline Creek Watershed

The primary portions of Fourche Maline Creek are listed in the 2002 Integrated Report as Category 3 waterbodies. These portions of the watershed are scheduled for monitoring in 2008 and 2013 and no date has been established for development of a TMDL (ODEQ 2002).

The eastern and westernmost portions (37 river miles total) of Fourche Maline Creek are listed in the 2002 Integrated Report as Category 5 waterbodies. A TMDL will be developed for these portions of the watershed by 2005. Primary issues affecting the watershed include lead concentrations, low dissolved oxygen, and pathogens from unknown sources (ODEQ 2002).

Wister Lake Watershed

The Wister Lake watershed at the eastern end of Fourche Maline Creek and the Bull Hill LAA is listed in the ODEQ 2002 Integrated Report as a Category 5 waterbody. Primary issues affecting the watershed include phosphorous from unknown sources (ODEQ 2002). The ODEQ is developing a TMDL to protect the Wister Lake watershed. A TMDL will be developed for these portions of the watershed by 2004.

Federally funded acid mine drainage (AMD) treatment facilities exist in the area of the Bull Hill LAA. These treatment facilities have been constructed to treat AMD from LeBosquet Mine No. 1 (LeBosquet – 064 Project, OCC-AMLRC) and the Bache and Denman No. 1 Mine (OCC-AMLRC Red Oak Project). These mapped abandoned mines have AMD present under artesian, or pressurized, conditions (OSM 2004). According to the OSM, additional unmapped abandoned mines are present in the area of the Bull Hill LAA. These include the Pocahontas Mine, an unnamed mine, and the Riley Mine. The OSM cites additional unnamed and unmapped "mom and pop" operations that may connect to larger, mapped, mine pools (OSM 2004a). Due to presence of geologic and hydrologic conditions with demonstrated capacity to generate AMD, there also may be a higher potential for the AMD discharges as a result of leasing activities.

3.9 AIR QUALITY

The LAAs are within a region that has been classified as an attainment area for all of the primary air pollutants, and air quality is considered good. Information from the Metropolitan Statistical Area for FORT SMITH, AR-OK (2720) was reported in May of 1996. The Metropolitan Statistical Area includes Crawford and Sebastian Counties, Arkansas; LeFlore and Sequoyah Counties, Oklahoma (Shprentz 1996). The average annual mean from 1990-1994 for particulate matter of 10 microns or smaller diameter is 24.5 micrograms per cubic meter ($\mu g/m^3$) (Shprentz 1996). A major source of particulate matter includes industrial and agricultural activities, burning, and road dust (Shprentz 1996). Present visibility is

good. Particulate matter (mainly dust), ozone, and vehicular emissions are slightly higher during dry seasons but still far below the National Ambient Air Quality Standards (NAAQS).

3.10 VEGETATION

Vegetation within the LAAs is influenced by the interaction of many factors including elevation, topography, soil type, temperature, precipitation, and human influence. Generally, the land cover and approximate acres of each within the Liberty West, McCurtain, and Bull Hill LAAs includes forest land (3,768 acres), agricultural/grazing vegetation (2,910 acres), barren land (34 acres), water bodies (46 acres), and wetland areas (98 acres) (Maps 3-11, 3-12, 3-13).

Two major vegetation types were identified that are associated with the LAAs: (1) grasslands, which include bermuda grass and native grass interspersed with bermuda grass and (2) woodland/forest, which includes oak/pine woodland and oak/hickory woodland.

3.10.1 Grasslands

3.10.1.1 Bermuda Grass

Bermuda grass occurs throughout the LAAs and is considered a dominant warm-season grass that is best suited to deep, well-drained to poorly drained soils. The most common types of Bermuda grasses (*Cynodon dactylon*) in the area are coastal, midland, and greenfield bermuda grass. It appears that, in the LAAs, some native vegetation has been cleared in the past and planted with Bermuda grass. Bermuda grass is the dominant vegetation on the Liberty West and McCurtain LAAs where agriculture and grazing are the dominant uses of the areas.

3.10.1.2 Native Grass with Bermuda Grass

Native grass with Bermuda grass is the second most prevalent vegetation in the LAAs, and dominate areas of the Liberty West, McCurtain, and Bull Hill LAAs that are not covered with areas of forest land. The native grasses most likely have increased due to the clearing of oak/pine or oak/hickory woodlands for agricultural and/or grazing purposes. The dominant native grasses are little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), tall fescue (*Festuca arundinacea*), and broomsedge bluestem (*Andropogon virginicus*).

Where native grasses are not dominant, bermuda grass most likely has been planted in or has invaded areas of native grasses areas that have been overgrazed in the past. In some portions of the LAAs, weedy, undesirable vegetation has invaded due to overgrazing. These invading species include greenbriers (*Smilax hispida*), western ragweed (*Ambrosia psilostachya*), crabgrass (*Digitaria* spp.), and foxtail (*Hordeum* spp.).

3.10.2 Woodland/Forest

The woodland/forest type of vegetation is the most dominant vegetation in the LAAs and totals approximately 3,768 acres. Three communities occur in this woodland/forest type—oak/pine woodland, oak/hickory woodland, and postoak-blackjack oak woodlands.

3.10.2.1 Oak/Pine Woodland

Oak/pine woodland vegetation covers approximately 80 percent of the Bull Hill LAA. Intermixed within this vegetative community are the native grasses mentioned above, which are dispersed throughout the woodlands but are not dominant. The oak/pine woodlands occupy the Ouachita Mountain region with an annual average precipitation in this area of approximately 42 to 56 inches (Duck and Fletcher 1945). Common trees within this vegetative community includes loblolly pine (*Pinus taeda*), shortleaf yellow pine (*Pinus echinata*), red oak (*Quercus rubra*), post oak (*Quercus stellata*), and blackjack oak (*Quercus marilandica*). Smaller percentages of tree species also are found in the LAAs including white oak (*Pinus alba*), hackberry (*Celtis occidentalis*), persimmon (*Diospyros virginiana*), and red cedar (*Juniperus virginiana*). Common shrubs include huckleberry (*Vaccinium pallidum*), azalea (*Rhododendron prinophyllum*), and spice bush (*Lindera benzoin*).

3.10.2.2 Oak/Hickory Woodland

Approximately 683 acres of this oak/hickory woodland vegetative community occurs on the McCurtain LAA, which is predominantly undisturbed. Intermixed within this vegetative community are the native grasses mentioned above, which are dispersed throughout the woodlands but are not dominant. At present, the woodland is not used for grazing, though it may have been in the past. The oak/hickory woodlands are designated as being within the Ozark Biotic District, with an annual average precipitation of approximately 38 to 44 inches (Duck and Fletcher 1945). Common trees within this vegetative community include post oak (*Quercus stellata*), American elm (*Ulmus americana*), and hickory (*Carya* spp.). Smaller percentages of tree species found in the LAAs include white oak (*Quercus alba*), hackberry (*Celtis occidentalis*), persimmon (*Dispyros virginiana*), sycamore (*Acer* spp.), winged elm (*Ulmus alata*), and red cedar (*Juniperus virginiana*). Common grasses are big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), purpletop (*Tridens flavus*), and silver bluestem (*Bothriochloa laguroides*) (Farrell-Cooper Mining Company 2001).

3.10.2.3 Postoak-blackjack Oak Woodland

Postoak-blackjack oak woodland vegetative community occurs on a small portion of the McCurtain LAA, which is predominantly undisturbed. Intermixed within this vegetative community are the native grasses mentioned above, which are dispersed throughout the woodlands but are not dominant. The postoak-blackjack oak woodland is most commonly correlated with the oak savannah as specified by the NRCS, and receives an average annual precipitation of 26 to 42 inches. Common trees of this vegetative community include post oak (*Quercus stellata*), blackjack oak (*Quercus marilandica*), and black hickory (*Carya texana*). The understory consists of little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), and other species depending on the site (Duck and Fletcher 1945).

3.10.3 Barren Land, Open Water, and Wetlands

According to information provided by the BLM, and information from Stigler East, Lafayette, McCurtain, Summerfield, LeFlore, and Red Oak National Wetland Inventory maps from the U.S. Fish and Wildlife Service (USFWS), there are approximately 98 acres of wetlands, 46 acres of waterbodies (nonwetland), and 34 acres of barren land within the LAAs (USFWS 1980a,b,c,d,e,f).

A total of approximately 98 acres of wetlands are present in the LAAs. Wetland habitats on the Liberty West, McCurtain, and Bull Hill LAAs consist of open, marshy, shallow water in ponded areas or in streams (Maps 3-12, 3-13, 3-14). Common vegetation in a Standard Habitat Site of this type includes

rushes (*Juncus* spp.), sedges (*Carex* spp.), smartweed (*Polygonum persicaria*), and wild millet (*Panicum* spp.).

3.11 WILDLIFE

The University of Oklahoma, Biological Survey Division, has developed the Biodiversity Information and Data, which is a database of distribution information for certain wildlife found throughout Oklahoma (University of Oklahoma 2003).

3.11.1 Standard Habitat Sites

Wildlife in the LAAs is associated with specific habitat types. The Standard Habitat Sites (SHS) are grouped according to the vegetation type present, landforms, and soil types. SHS occurring on the Liberty West, McCurtain, and Bull Hill LAAs, as provided by the Oklahoma Biological Survey and Farrell-Cooper Mining Company, consists of tallgrass prairie/open land, woodland/forest areas (oak/hickory forest, oak/pine forest, postoak-blackjack oak forest), wetlands, and other (Farrell-Cooper Mining Company 2002c; University of Oklahoma 2003). Specific acres that each SHS occupies within the Decision Area were not provided by BLM.

3.11.1.1 Tallgrass Prairie/Open Land

This SHS occurs in the flat to gently rolling plains of the LAAs, predominantly on the Liberty West LAA. Bermuda grass (*Cynodon dactylon*) is predominantly an invader species within this SHS or had been planted in areas that had been overgrazed. Common native grasses within this SHS include a mixture of such species as big bluestem *(Andropogon gerardii)*, little bluestem *(Schizachyrium scoparium)*, Indian grass *(Sorghastrum nutans)*, switch grass *(Panicum virgatum)*, and silver beard grass *(Bothriochloa saccharoides)* in the eastern portions of the type, with a gradual increase of such species as buffalo grass *(Buchloë dactyloides)*, blue grama *(Bouteloua gracilis),* and side oats grama *(Bouteloua curtipendula)*.

3.11.1.2 Woodland Areas

3.11.1.2.1 Oak/Hickory Forest

The dominant vegetation within the oak/hickory forest SHS include blackjack oak (*Quercus marilandica*), post oak (*Quercus stellata*), red oak (*Quercus rubra*), pin oak (*Quercus palustris*), black oak (*Carya texana*), scaly bark hickory (*Carya laciniosa*), pignut hickory (*Carya glabra*), and winged elm (*Ulmus alata*). The ground cover, including grasses and shrubs, is composed of a mixture of huckleberry (*Vacinium pallidum*), coralberry (*Symphoricarpos orbiculatus*), sassafras (*Sassafras albidum)*, big bluestem (*Andropogon gerardii)*, spice bush (*Lindera benzoin)*, bladdernut (*Staphylea trifolia*), hazelnut (*Corylus americana.*), may apple (*Podophyllum peltatum*), bloodroot (*Sanguinaria canadensis)*, and grape (*Vitis aestivalis*). A small portion of this SHS is represented on the McCurtain LAA.

3.11.1.2.2 Oak/Pine Forest

This SHS differs from the oak/hickory forest in that pine trees instead of the hickory tree are dominant. The more common trees in this SHS include the shortleaf yellow pine *(Pinus echinata)*, loblolly pine *(Pinus taeda)*, white oak *(Quercus alba)*, blackjack oak *(Quercus marilandica)*, post oak *(Quercus stellata)*, spotted oak *(Quercus shumardii)*, willow oak *(Quercus phellos)*, black locust *(Robinia pseudo-acacia)*, black hickory *(Carya texana)*, basswood *(Tilia americana)*, and sugar maple *(Acer saccharum)*.

Huckleberry *(Vaccinium pallidum)*, mock orange *(Philadelphus pubescens)*, pink azalea *(Rhododendron prinophyllum)*, gooseberry *(Ribes* sp.), bladdernut *(Staphylea trifolia)*, and spice bush *(Lindera benzoin)* are the more common herbs and shrubs found in this SHS. Big bluestem *(Andropogon gerardii)* is a common grass over the entire SHS. This SHS dominates approximately 80 percent the Bull Hill LAA.

3.11.1.2.3 Postoak-Blackjack Oak Forest

This SHS commonly occurs in rough and rolling terrains dominated by trees such as post oak *(Quercus stellata)*, blackjack oak *(Quarcus marilandica)*, and black hickory *(Carya texana).* The understory generally consists of little bluestem *(Schizachyrium scoparium)* and big bluestem *(Andropogon gerardii)*. This SHS is found in a small portion of the McCurtain LAA.

3.11.1.3 Wetland Areas

A total of approximately 98 acres of wetlands are present in the LAAs. Wetland habitats on the Liberty West, McCurtain, and Bull Hill LAAs consist of open, marshy, shallow water in ponded areas or in streams. Common vegetation in an SHS of this type includes rushes (*Juncus* spp.), sedges (*Carex* spp.), smartweed (*Polygonum persicaria*), and wild millet (*Panicum* spp.).

3.11.2 Wildlife Habitat Management Plans

BLM, in conjunction with Farrell-Cooper Mining Company, has developed a general Wildlife Habitat Management Plan to improve and protect habitats for wildlife in the LAAs. Of the different vegetation types described in Section 2.10, the SHS that would be considered most sensitive or more important would be the oak/pine woodland vegetative community. According to the Oklahoma Natural Heritage Registry from the Oklahoma National Heritage Inventory, the oak/pine woodland vegetative community is considered to be an area that is voluntarily protected by landowners in the area through the Natural Areas Registry Program. Only a minor portion of this vegetative community would be disturbed during mining operations employing less invasive mining procedures. The majority of mining operations where surface disturbance would occur would be isolated to the tallgrass community, which has a limited value for wildlife habitats.

3.11.3 Big Game

There are four big game species that are harvested legally in Oklahoma. The Oklahoma Department of Wildlife Conservation (ODWC) regulates the seasons, bag limits, and appropriate licensing. Big game species include wild turkey (*Meleagris gallopavo*), white-tailed deer (*Odocoileus virginanus*), elk (*Cervus elaphus*), and bobcat (*Felis rufus*). The most common big game species that occur in the LAAs are the white-tailed deer and turkey. Based on information provided by the ODWC, the SHS that are most utilized by these big game species are the oak/pine and oak/hickory woodlands. No information is available on population estimates for these species in the LAAs.

3.11.4 Small Game

There are 16 small game species that are harvested legally in the State of Oklahoma. The ODWC regulates the seasons, bag limits, and appropriate licensing. Small game species include the ringed-necked pheasant (*Phasianus colchicus*), scaled quail (*Callipedpla squamata*), morning dove (*Zenaida macroura*), fox squirrel (*Sciurus niger*), Virginia rail (*Rallus limicola*), gallinule (*Gallinula martinica*), woodcock (*Scolopax minor*), common snipe (*Gallinago gallinago*), teal (*Anas discors*), cottontail rabbit (*Sylvilagus nuttallii*), raccoon (*Procyon lotor*), badger (rare) (*Melogale spp.*), mink (rare) (*Mustela vison*), opossum

(*Didelphus virginiana*), weasel (*Mustela nevalis*), and beaver (*Castor canadensis*). The more common species that are found in the LAAs are squirrels, foxes, rabbits, raccoons, muskrats, minks, quail, doves, ducks, and beavers. The foxes, rabbits, squirrels, quails, and doves inhabit the tallgrass community (pastureland) where good nesting cover is present and the raccoons, muskrats, minks, beavers, and ducks inhabit the low-lying wetland areas where water is abundant.

3.11.5 Nongame

Nongame species occur throughout the LAAs. The University of Oklahoma, Biological Survey Division, has developed the Biodiversity Information and Data, which is a database of distribution information for reptiles, amphibians, and mammals found throughout Oklahoma. In addition, Partners in Flight (PIF), a cooperative agency, has developed a list of birds from the Species Assessment Database that occur within the Ozark-Ouachita Plateau range, which includes the LAAs.

3.11.5.1 Amphibians and Reptiles

Many species of amphibians and reptiles inhabit the LAAs. A variety of turtles, frogs, lizards, skinks, and snakes were reported to be in the counties associated with the Liberty West, McCurtain, and Bull Hill LAAs (University of Oklahoma 2003). Some of the more common turtles are the common musk turtle (*Sternotherus odoratus*) and the eastern box turtle (*Terrapene Carolina triunguis*). Some of the more common frogs and toads are the cricket frog (*Acris crepitans*), American toad (*Bufo americanus*), western narrow-mouthed toad (*Gastrophryne olivacea*), and the green tree frog (*Litoria caerulea).* Some of the more common skinks include the five-lined skink (*Eumeces fasciatus*) and the ground skink (*Scincella lateralis*). Common lizards include the fence lizard (*Sceloporus undulates*) and the collared lizard (*Crotaphytus collaris*). Some of the more common snakes include the western diamondback rattlesnake (*Crotalus atrox*), copperhead (*Agkistrodon contortrix*), cottonmouth (*Adkistrodon piscivorous*), common garter snake (*Thamnophis sirtalis parietalis*), black rat snake (*Elaphe obsolete*), and coachwhip (*Masticophis flagellum*). Frogs, toads, and turtles are found primarily near sources of water predominantly near the marshy or swampy areas, and the snakes and lizards are found predominantly in the grasslands and scrub habitats where ample cover is abundant.

3.11.5.2 Birds

A wide variety of bird species are found throughout the LAAs, including many resident, migratory, wintering, and transient species. Approximately 66 species of birds breed in Oklahoma, and the grasslands and waterways are important for wintering birds. The LAAs are situated in the central flyway according to information provided by the Texas Parks and Wildlife Department and water resources within this area are important for migratory species.

PIF categorizes birds within this physiographic region into breeding and wintering types. Based on habitat requirements within the LAAs and information provided by the USFWS Bird Checklist for the nearby Sequoyah National Wildlife Refuge, several birds potentially could be located on the Liberty West, Latimer, and Bull Hill LAAs. Some of the more common breeding types in the area are great blue heron (*Ardea herodias*), turkey vulture (*Cathartis aura*), wood duck (*Cairina scultulata*), barred owl (*Strix varia*), great crested flycatcher (*Myiarchus crinitus*), belted kingfisher (*Ceryle alcyon*), house wren (*Troglodytes aedon*), gray catbird (*Dumetella carolinensis*), yellow warbler (*Dendroica petechia*), white-throated sparrow (*Zonotrichia albicollis*), western meadowlark (*Sturnella neglecta*), and field sparrow (*Spizella pusilla*). Some of the more common wintering birds in the LAAs include mallard (*Anas platyrynchos*), snow geese (*Anser caerulescens*), red-shouldered hawk (*Buteo lineatus*), killdeer (*Charadius vociferous*), common yellowthroat warbler (*Geothylipus trichas*), American crow (*Corvus*

brachyrynchos), Lincoln's sparrow (*Melospiza lincolnii*), Brewer's blackbird (*Euphagus cyanocephalus*), and common grackle (*Icteridae troupials*). These birds are predominantly attracted to the water resources and the oak/hickory and oak/pine woodland communities in the LAAs.

3.11.5.3 Mammals

According to information provided in the Biodiversity Information and Data network from the University of Oklahoma, Biological Survey Division, numerous mammals are located within Haskell, LeFlore, and Latimer Counties and have the potential to be located in the LAAs. Based on habitat requirements, common species of rodents include the plains pocket gopher (*Geomyidae geomys*), fox squirrel (*Sciuridae sciurus*), beaver (*Castor canadensis*), hispid cotton rat (*Cricetidae hispidus*), brush mouse (*Cricetidae boylii*), blacktail prairie dog (*Cynomys ludovicianus*), and eastern chipmunk (*Sciuridae striatus*). Rabbit species, including the eastern cottontail (*Leporidae floridanus*) and swamp rabbit (*Leporidae aquaticus*), potentially could be located in the LAAs. Other common mammals in the area include the striped skunk (M*ephitis mephitis*), Virginia opossum (*Dedelphidae virginiana*), red bat (*Vespertilionidae borealis*), and raccoon (*Procyonidae lotor*). Common predators include the coyote (*Canidae latrans*) and bobcat (*Felidae rufus*).

3.11.6 Exotic Mammal Species

No exotic mammal species have been reported to inhabit the LAAs.

Common wildlife within the LAAs, according to information provided by ODWC, includes big game species, such as the white-tailed deer (*Odocoileus virginanus*). Common small game species found in the LAAs are wild turkeys, squirrels, foxes, rabbits, raccoons, muskrats, minks, quail, doves, ducks, and beavers. Other common wildlife within the LAAs are frogs, lizards, snakes, and birds, including many resident, migratory, wintering, and transient species, such as the great blue heron (*Ardea herodias*), wood duck (*Cairina scultulata*), and the barred owl (*Strix varia*). The LAAs are situated in the central flyway of these and other species of migratory birds, according to information provided by the Texas Parks and Wildlife Department, and water resources within this area are important for migratory species.

The ODWC manages and maintains 64 areas through direct ownership and through license agreements with other agencies or entities. Named wildlife management areas (WMAs) provide valuable public access for hunting and various other uses. These diverse areas are located throughout the State and span a variety of habitat types and species. A part of the area that is the Wister WMA falls within the Bull Hill LAA and is leased from the USACE.

3.12 SPECIAL STATUS SPECIES

There are potentially three Federally and State-listed threatened and endangered species that could be located in the LAAs, as stated in a July 9, 2003 USFWS letter (USFWS 2003). These species are the American burying beetle (*Nicrophorus americanus*), Federally and State-listed as endangered; bald eagle (*Haliaeetus leucocephalus*), Federally and State-listed as threatened; and interior least tern (*Sterna antillarum*), Federally and State-listed as endangered. The American burying beetle potentially could be located within numerous locations throughout eastern Oklahoma year-round and requires a habitat that would allow this beetle the maneuverability to be active at night. The bald eagle roosts and nests near large bodies of water and can occur within the region year-round. The interior least tern uses islands and sandy beaches that are clear of vegetation along rivers in Oklahoma from May to September and they prefer shallow water for fishing.

State-listed threatened and endangered species and any rare or imperiled or species of concern were obtained from the ODWC and the Oklahoma Natural Heritage Inventory, respectively. The shorthead redhorse (*Moxostoma macrolepidotum*) is a species of special concern potentially located in the LAAs, based on information from the Natural Heritage Inventory. Although not located within the LAAs, information from the USFWS also stated that the scaleshell mussel (*Leptodea leptondon*) occurs in the Poteau River north and south of Wister Reservoir.

3.13 NOXIOUS WEEDS

According to information provided by the Oklahoma Department of Agriculture (ODA) (ODA 2002), Food and Forestry Division, three species of weeds were listed on the Noxious Weeds List for the State of Oklahoma: musk thistle (*Carduus nutans*), Scotch thistle (*Onopordum acanthium*), and Canada thistle (*Circium arvense*). The ODA finds these invasive species to be a nuisance in all counties across the State of Oklahoma.

3.14 HAZARDOUS MATERIALS

There is one Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) site under voluntary cleanup agreement with ODEQ in LeFlore County (Oklahoma Department of Health [ODH] 2003): Rab Valley Wood Preserving. This facility is working under an agreement for voluntary cleanup with the ODEQ. Rab Valley Wood Preserving, CERCLIS OKD 987068749, is in Panama, a community of approximately 1,500 people. The contaminants of concern are polyaromatic hydrocarbons, pentachlorophenols, and dioxin/furans, which resulted from the wood treatment with creosote and pentachlorophenol. There is a potential path of exposure through both the soil and the water (ODEQ 1996). Based on the location and extent of this site, it does not appear the hazardous materials have affected any of the three LAAs.

3.15 NOISE

3.15.1 Fundamentals of Acoustics

Noise is generally defined as loud, unpleasant, unexpected, or undesired sound that disrupts or interferes with normal human activities. Although exposure to high noise levels has been demonstrated to cause hearing loss, the principal human response to environmental noise is annoyance. The response of individuals to similar noise events is diverse and influenced by the type of noise, the perceived importance of the noise and its appropriateness in the setting, the time of day, the type of activity during which the noise occurs, and the sensitivity of the individual.

Sound is a physical phenomenon consisting of minute vibrations, which travel through a medium, such as air, and are sensed by the human ear. Sound generally is characterized by a number of variables including frequency and intensity. Frequency describes the sound's pitch and is measured in Hertz (Hz), while intensity describes the sound's loudness and is measured in decibels (dB). Decibels are measured using a logarithmic scale. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB. Sound levels above about 120 dB begin to be felt inside the human ear as discomfort and eventually pain at still higher levels. The minimum change in the sound level of individual events that an average human ear can detect is about 3 dB. An increase (or decrease) in sound level of about 10 dB is usually perceived by the average person as a doubling (or halving) of the sound's loudness, and this relation holds true for loud sounds and for quieter sounds.

Because of the logarithmic nature of the decibel unit, sound levels cannot be added or subtracted directly and are somewhat cumbersome to handle mathematically. However, some simple rules of thumb are useful in dealing with sound levels. First, if a sound's intensity is doubled, the sound level increases by 3 dB, regardless of the initial sound level. Thus, for example: 60 dB + 60 dB = 63 dB, and 80 dB + 80 dB = 83 dB.

Hertz is a measure of how many times each second the crest of a sound pressure wave passes a fixed point. For example, when a drummer beats a drum, the skin of the drum vibrates a number of times per second. A particular tone that makes the drum skin vibrate 100 times per second generates a sound pressure wave that is oscillating at 100 Hz, and this pressure oscillation is perceived as a tonal pitch of 100 Hz. Sound frequencies between 20 Hz and 20,000 Hz are within the range of sensitivity of the best human ear.

Sound from a tuning fork (a pure tone) contains a single frequency. In contrast, most sounds one hears in the environment do not consist of a single frequency, but rather a broad band of frequencies differing in sound level. The method commonly used to quantify environmental sounds consists of evaluating all of the frequencies of a sound according to a weighting system that reflects that human hearing is less sensitive at low frequencies and extremely high frequencies than at the mid-range frequencies. This is called "A" weighting, and the decibel level measured is called the A-weighted sound level (dBA). In practice, the level of a noise source is conveniently measured using a sound-level meter that includes a filter corresponding to the dBA curve.

Although the dBA may adequately indicate the level of environmental noise at any instant in time, community noise levels vary continuously. Most environmental noise includes a conglomeration of noise from distant sources that creates a relatively steady background noise in which no particular source is identifiable. A single descriptor called the equivalent sound level (Leq) is used. Leq is the energy-mean A-weighted sound level during a measured time interval. It is the "equivalent" constant sound level that would have to be produced by a given source to equal the fluctuating level measured.

Finally, another sound measure known as the day-night average noise level (Ldn) is defined as the A-weighted average sound level for a 24-hour day. It is calculated by adding a 10-decibel penalty to sound levels in the night (10:00 p.m. to 7:00 a.m.) to compensate for the increased sensitivity to noise during the quieter evening and nighttime hours. Sound levels of typical noise sources and environments are provided in Table 3-1 to provide a frame of reference.

Some land uses are considered sensitive to noise. Noise-sensitive receptors are land uses associated with indoor and outdoor activities that may be subject to stress or significant interference from noise. They often include residential dwellings, mobile homes, hotels, motels, hospitals, nursing homes, educational facilities, and libraries.

3.16 CULTURAL RESOURCES

3.16.1 Cultural Historical Context

Human groups have occupied Oklahoma for at least 10,000 years, and possibly longer. These groups adapted to environmental conditions that have changed significantly since the end of the Pleistocene epoch, circa 10,000 years before present (BP). Whereas the climate of eastern Oklahoma today generally is characterized by hot, humid summers and cool, dry winters (Albert and Wyckoff 1984:17), the regional climate during the Holocene epoch (post-10,000 BP) has varied from warm and dry (circa 9000-4000 BP), through a period of generally greater effective moisture (circa 4000-1000 BP), to warm and wet

conditions (circa 1000 BP-present) (Albert and Wyckoff 1984:39-42). Major droughts interrupted the more recent end of this sequence at 250, 400, 800, and 2000 years BP (Albert and Wyckoff 1984:42). Climatic fluctuations altered the pattern of natural vegetation from grassland and oak savanna to forests of oak, hickory, and pine, as well as a mosaic of woodlands and prairies (Albert and Wyckoff 1984:38-39). The distributions of animals mirrored these vegetation changes, an outcome that was important to the prehistoric groups that used these lands, plants, animals, and minerals.

The regional culture history is summarized in Table 3-2. The prehistoric era includes several named cultural stages and periods, each with designated age ranges, and the last column summarizes salient attributes for each stage. For the historic era, socioeconomic themes are identified, along with the approximate age range and highlights of each theme.

TABLE 3-1
SOUND LEVELS OF TYPICAL NOISE SOURCES AND NOISE ENVIRONMENTS

Noise Source (at given distance)	Noise Environment	A-Weighted Sound Level (decibels)	Human Judgment of Noise Loudness (relative to reference loudness of 70 decibels*)
Military jet take-off with afterburner (50 feet)	Carrier Flight Deck	140	
Civil defense siren (100 feet)		130	
Commercial jet take-off (200 feet)		120	32 times as loud **Threshold of pain**
Pile driver (50 feet)	Rock Music Concert	110	16 times as loud
Ambulance siren (100 feet) Newspaper press (5 feet) Power lawn mower (3 feet)		100	8 times as loud **Very loud**
Motorcycle (25 feet) Propeller plane fly-over (1,000 feet) Diesel truck, 40 miles per hour (mph) (50 feet)	Boiler Room Printing Press Plant	90	4 times as loud
Garbage disposal (3 feet)	Higher Limit of Urban Ambient Sound	80	2 times as loud
Passenger car, 65 mph (25 feet) Living room stereo (15 feet) Vacuum cleaner (3 feet) Electronic typewriter (10 feet)		70	Reference loudness* **Moderately loud**
Normal conversation (5 feet) Air conditioning unit (100 feet)	Data Processing Center Department Store	60	1/2 as loud
Light traffic (100 feet)	Private Business Office	50	1/4 as loud
Bird calls (distant)	Lower Limit of Urban Ambient Sound	40	1/8 as loud **Quiet**
Soft whisper (5 feet)	Quiet Bedroom	30	
	Recording Studio	20	**Just audible**
		10	**Threshold of hearing**

SOURCE: Compiled by URS Corporation 2003
NOTE: 70 decibels is the reference point for loudness.

TABLE 3-2
SUMMARY OF OKLAHOMA CULTURAL HISTORY

ERA	EPISODE (stage)	PERIOD(S)	AGE RANGE	ATTRIBUTES
Prehistoric	Early Specialized Hunters (Paleoindian)		10,000-7500 before Christ (BC)	• Hunters pursued mammoth, bison, and other large game animals • Distinctive spear points (e.g., Clovis, Folsom, Agate Basin, and Scottsbluff)
	Foragers (Archaic)	Early Archaic	7500-4000 BC	• Changing environmental conditions • Broad spectrum resource exploitation: fishing, gathering plants, and hunting large and small game animals (white-tailed deer, elk, turkey, and raccoon) • Diversified tool kit (ground stone, smaller side- and corner-notched projectile points, bone artifacts, beads, and fishing hooks and weights) • Features (firepits, burned rock middens, storage cists, and architecture)
		Middle Archaic	4000-2000 BC	
		Late Archaic	2000 BC-AD 300	
	Formative	Fourche Maline	anno domini (AD) 300-900	• Ceramics • Expanding stemmed and corner-notched projectile points
		Harlan	AD 900-1200	• Advance in cultural complexity • Two site types: – Sites with mounds—local or regional community centers; include mortuary structures with human burials – Sites without mounds—satellite communities and farmsteads • Trade and exchange network controlled by a religious and political authority • Subsistence based on agriculture, hunting, fishing, and plant gathering • Varied artifact assemblages, including chipped stone, ground stone, bone, pottery, stone pipes, stone beads, copper, shell, and wood
		Spiro	AD 1200-1450	• Peak of social complexity and cultural elaboration • Found in the floodplains and valley of the Arkansas River and its tributaries • Three basic site types: – ceremonial centers (with public buildings and platform mounds) – villages – impermanent camps • Subsistence patterns focused on hunting, fishing, and gathering
	Protohistoric	Wichita	AD 1450-1541	• Include Taovaya, Tawakoni, Iscani, Wichita proper, Waco, and Kitsai • Large concentrated villages surrounded by earthwork fortifications • Houses were small circular structures, oval-shaped structures, or large circular structures • Villages surrounded by small refuse mounds and cache pits • Subsistence through hunting, fishing, gathering, and plant cultivation • Toolkits of stone, bone, shell, and clay tools and implements • Traded horse, slaves, furs, hides, animal products, honey, and tobacco with Spanish and French for firearms, glass beads, ornaments, or metal tools

TABLE 3-2 (continued)
SUMMARY OF OKLAHOMA CULTURAL HISTORY

ERA	THEME	AGE RANGE (approximate)	HIGHLIGHTS
Historic	Exploration	AD1541-1824	• Spanish (Francisco Vásquez de Coronado and Hernando De Soto) • French (Jean Baptiste Bénard de la Harpe) • American (after Louisiana Purchase in 1804) • Fort Smith established at mouth of Poteau River in 1817 • Fort Gibson established on east bank of Grand River in 1824 • Fort Towson established near mouth of Kiamich River in 1824 • First steamboat ascended the Arkansas River in 1820
	Settlement	AD 1800-1860	• Choteau brothers establish first permanent white settlement at present site of Salina in 1802 • Indian Territory created in 1820 and following Indian tribes were relocated there: – Cherokees from North Carolina, Tennessee, Georgia, and Alabama – Creeks from Georgia and Alabama – Choctaws from Alabama and Mississippi – Chickasaws from Mississippi and Tennessee – Seminole from Florida – Cheyenne, Arapaho, Kiowa, Comanche, and Apache from the west
	Civil War	AD 1860-1865	• Peripheral to main actions of war • Minor skirmishes and battles • Confederate outposts established until 1862 • Federal forces invaded state in 1862 • Indian tribes caught between the North and South
	Reconstruction and Tribal Settlement	AD 1865-1875	• Indian tribes renewed treaties with U.S. government and established themselves over next 10 years • "Oklahoma," which means "Red People" in the Choctaw language, first used at this time • Various rail lines built across the territory beginning in late 1860s and mostly used for transporting cattle
	Non-Indian Settlement	AD 1875-1890	• Cattle ranches established in the western half of the territory between 1875 and 1880 • Organic Act passed in 1889 opened Oklahoma country to settlement by people other than Indians and cattle ranchers
	Statehood	AD 1890-1907	• Statehood convention held in Oklahoma City in 1891, but debate continued for 10 years • Bill passed in Congress on June 14, 1906, that provided for the admission of Oklahoma and Indian Territory into the Union as one state • Oklahoma admitted as the 46th state on November 16, 1907

NOTE: Data from Bell 1984a,b,c; Brown 1984; Galm 1984; Gettys 1984; Maloney 1998; Wyckoff 1984

3.16.2 Site Inventory

According to the office of the Oklahoma Archeological Survey (OAS), documentation and photographs for any sites in excess of 45 years of age should be submitted on OAS Site Forms if encountered during activities. Sites less than 45 years of age do not require forms; however, basic details about the site (location and/or address and age) should be recorded. Isolated artifacts should be recorded on an OAS Isolated Find Record form.

Liberty West and McCurtain. Of the sites listed by the OAS within Haskell County, none occur within the Liberty West LAA and should not be affected by the proposed activities (OAS 2003a). OAS requires that a Class III cultural resources inventory be conducted before the commencement of surface disturbance related to mining. If no sites are found in the LAA, then letters to that effect should be forwarded to the OAS and State Historic Preservation Officer for both prehistoric and historic properties.

Five sites from the OAS database were found within the McCurtain LAA: 34HS116, 34HS117, 34HS199, 34HS200, and 34HS201 (OAS 2003b). Based upon the topographic and hydrologic settings of the LAAs, archaeological materials are deemed likely to be present. A Class III cultural resources inventory of the LAA should be conducted.

Bull Hill LAA. A review of the OAS database reveals that eight sites occur within the Bull Hill LAA: 34LT139, 34LT110, 34LTF293, 34LF297, 34LF161, and three structures shown on 1898 Government Land Office plats (OAS 2003c). Based on the topographic and hydrologic settings of the LAA, archaeological materials are likely to be present. A Class III cultural resources inventory of the LAA should be conducted.

3.17 PALEONTOLOGICAL RESOURCES

An intensive paleontological inventory has not been conducted for coal reserves in the region. However, abundant plant fossils are likely to exist in shales and sandstones proximal to the Stigler and Hartshorne coal seams. Preserved trunks of calamites and cordaites as well as other plant fossils occur in the McAlester Formation.

Invertebrate ichnofossils (arthropod tracks, resting traces, and feeding trails) have been observed near the base of the Keota Sandstone Member of the McAlester Formation in Haskell County. Ichnofauna from the Keota Sandstone include *Tonganoxichnum buildexensis* Mangano, butatois, Maples and Lanier, *Paleohelcura tridactyla* Gilmore, *Diplichnites gouldi, Pseudobradypus* Matthew, and *Notalacerata* Butts. This is the first record of *Pseudobradypus* in western North America, and the second of *Notalacerta* (Lerner et al. 2002). Both ichnotaxa also are known from the Pennsylvanian of eastern North America.

No known concentrations of vertebrate fossils or bone beds occur in the region.

3.18 RECREATION

The region features many unique recreational opportunities. The only recreational feature that is located in an LAA is Wister Lake State Park, which overlaps the eastern portion of the Bull Hill LAA. A description of Wister Lake State Park that falls within the Bull Hill LAA is provided below. Descriptions of outlying state parks are included because their visual resource features could be affected by the proposed mining activities in the Bull Hill LAA.

No other designated recreation feature is located within any of the LAAs; however, the coal screen unsuitability criteria buffer area for Wister Lake State Park overlaps with the easternmost portion of the Bull Hill LAA. A description of Wister Lake State Park is provided in Section 3.18.1. Descriptions of other State parks are included because visual resources potentially could be affected by the proposed mining in the Bull Hill LAA.

Hunting is a popular recreational activity throughout Oklahoma. The ODWC manages and maintains 64 WMAs. These areas provide valuable public access for hunting and various other uses. The Wister WMA falls partially within the Bull Hill LAA. Hunting seasons applicable to the LAA include crow, rabbit (cottontail and swamp), silf turkey, quail, deer, dove, and squirrel (ODWC 2004).

3.18.1 Wister Lake State Park

Set in the mountains of southeastern Oklahoma, Wister Lake State Park is habitat for a wide variety of game and nongame animals. The 7,300-acre Wister Lake offers an abundance of northeastern bluegill, channel catfish, sand bass, and crappie. Five camping areas offer 182 developed and primitive sites. There are also 15 cabins with fireplaces and a Nature Center (Oklahoma Tourism and Recreation Department [OTRD] 2002).

3.18.2 Talimena State Park

Talimena State Park, located in the Winding Stair Mountains of LeFlore County, has 22 campsites, a playground, and hiking trail on 20 park acres. The State Park is associated with the Talimena Scenic Drive, which winds through the Ouachita National Forest in southern LeFlore County (OTRD 2002).

3.18.3 Ouachita National Forest

The Ouachita National Forest occupies almost the southern third of LeFlore County. The forest is located immediately south of Wister Lake and is bounded on the north by State Highway 128 at Summerfield. The forest has many unique features including trails, a wilderness area, and a scenic drive (U.S. Forest Service [USFS] 2003).

The Talimena Scenic Byway falls over Winding Stair and Rich Mountains, cresting the highest points between the Appalachians and Rockies. The Winding Stair Mountain National Recreation Area surrounds the byway in Oklahoma.

3.19 VISUAL RESOUCES

3.19.1 Introduction and Methodology

The study area for visual resources includes those areas that viewers may travel through, recreate in, or reside in, or where existing views may be affected by the proposed action.

Although the surface lands in the LAAs are not managed by BLM, for purposes of analysis the description of the visual resources are based on the methodology described in the BLM's Visual Resource Inventory Manual (BLM 1986). The visual inventory consists of three factors: (1) scenic quality evaluation, (2) sensitivity analysis, and (3) distance zone analysis. The scenic quality evaluation involves the rating of the scenic beauty of an area, which takes into consideration such factors as landform, vegetation, water, color, adjacent scenery, scarcity, and cultural modifications. Sensitivity analysis is a measure of the public's concern for the scenic quality of an area, and is based on factors such as number of viewers, type of users (e.g., commuters or recreationists), public interest, and adjacent land use.

Landscapes also are classified into distance zones based on visibility from travel routes or other possible sensitive viewing locations. Three distance zones are noted: foreground/middleground (0 to 5 miles), background (5 to 15 miles), and a seldom-seen zone (greater than 15 miles or not seen).

Based on these three factors, lands are placed into one of four resource inventory classes. These Visual Resource Management (VRM) classes represent the relative value of the visual resource and provide a basis for considering visual values in the resource management planning process. Each VRM class has specific visual objectives defining how the visual environment is to be managed, with VRM Class I the most protective of the resource, and VRM Class IV allowing the most modification to the existing character of the landscape. The objective of each class is defined as follows (BLM 1986):

- Class I is intended to preserve the existing character of the landscape. This class provides for natural ecological changes; however, it does not preclude very limited management activity. The level of change to the characteristic landscape should be very low and must not attract attention.

- Class II is intended to retain the existing character of the landscape. The level of change to the characteristic landscape should be low. Management activities may be seen, but should not attract the attention of the casual observer. Any changes must repeat the basic elements of form, line, color, and texture found in the predominant natural features of the characteristic landscape.

- Class III is intended to partially retain the existing character of the landscape. The level of change to the characteristic landscape should be moderate. Management activities may attract attention but should not dominate the view of the casual observer. Changes should repeat the basic elements found in the predominant natural features of the characteristic landscape.

- Class IV is intended to provide for management activities that require major modification of the existing character of the landscape. The level of change to the characteristic landscape can be high. These management activities may dominate the view and be the major focus of viewer attention. However, every attempt should be made to minimize the impact of these activities through careful location, minimal disturbance, and repeating the basic elements.

3.19.2 Baseline Conditions

The region is located in the Arkansas Valley section and the Ouachita Mountain section of the Ouachita physiographic province (Fenneman 1931) in southeast Oklahoma. The Arkansas Valley section is a peneplain with residual ridges; the Ouachita Mountain section is a mountainous area with significant local relief. Land use in the area is generally agricultural or forested, and vegetation is primarily bermuda grass or native grass with bermuda, or an oak/pine or oak/hickory woodland. Other land cover types that influence the visual appearance of the landscape include disturbed areas from ongoing or past coal mining, barren land, water bodies, and wetlands.

Liberty West LAA. The Liberty West LAA is the northernmost LAA, located approximately 8 miles northeast of the Town of Stigler and 3 to 4 miles from the Canadian River. It is a flat to rolling site with a grass land cover and an agricultural/grazing land use. There is a subtle diversity in color and landform and the scenery is considered common within the area. Existing and past coal mining disturbance has impacted some of the surrounding area. The LAA is not located in a high-use area and visual sensitivity is considered low. Local county roads provide access in the area and some viewers would have foreground-middleground views of the proposed activity; however, these roads are lightly used. The area would be classified as a VRM Class III to IV area, depending on visibility.

McCurtain LAA. The McCurtain LAA is located in southeastern Haskell County. The site contains large areas of past coal mining disturbance. Some of these areas have been reclaimed and are now flat to rolling terrain with a grassy ground cover. Other areas of past disturbance are classified as barren land and have impacted the area visually. The McCurtain LAA contains forested areas, primarily on the hillsides, which add some variety in land cover colors, forms, and textures. Visual sensitivity of the site is considered low, due to the existing and past coal disturbance, and generally low number of potential viewers. Highway 26 passes through the area and provides foreground-middleground views of portions of the site. VRM classification would be Classes III and IV, depending on visibility and viewer location.

Bull Hill LAA. The Bull Hill LAA is located in east-central Latimer County and west-central LeFlore County. The LAA has several significant distinctions from the other two LAAs discussed in this report. The Bull Hill LAA is a long, linear LAA that follows along the sides and top of east-west running ridges, including Red Oak Ridge and Bull Hill. The site is mostly forested, with the oak/pine woodland community type covering approximately 80 percent of the LAA. The landscape in the area is mountainous with intervening valleys. The variety in landform, colors, forms, and texture of vegetation, and the visual influence of the surrounding mountains and water features combine to create an area of moderate to high scenic quality.

The easternmost portion of the LAA is located adjacent to Wister Lake State Park. This heavily used state park provides many activities, including picnicking, camping, hiking, and boating. U.S. Highway 271 parallels the Bull Hill LAA approximately 0.5 to 2 miles to the north. The Ouachita National Forest is located about 5 miles south of the LAA. The Talimena Scenic Byway, located within the forest, is located about 10 miles south of the LAA and has numerous photographic look-out points that have an overview of the surrounding landscape. Due to the presence of the state park, national forest, and the state highway, visual sensitivity is considered high. The LAA is within the foreground-middleground viewshed of viewers on the state highway and from some locations within the state park and national forest. VRM classification is Class II or III, based on distance and visibility from local observation points.

3.20 SOCIAL AND ECONOMIC CONDITIONS

3.20.1 Study Area

Socioeconomic resources include populations, economies (including employment and earnings), housing, public services, and social attitudes and values. For this assessment, the socioeconomic study area was defined as the potential area of influence of the three lease areas within their respective counties in Oklahoma. Both the McCurtain and Liberty West LAAs are located within Haskell County while the Bull Hill LAA stretches horizontally through the centers of eastern Latimer County and western LeFlore County. These counties are three of 77 counties in Oklahoma. Haskell County encompasses 577 square miles, Latimer County encompasses 722 square miles, and LeFlore County encompasses 1,586; together, the three counties represent 4.2 percent of the 68,667-square-mile State of Oklahoma.

The 2000 census population in the tri-county area, at 70,593, represents 2 percent of the population of the State. The most populous place in the study area is Poteau, located in LeFlore County, with a total population of 7,939 per the 2000 Census. Other places in LeFlore County include the City of Heavener and the Towns of Arkoma, Bokoshe, Cameron, Cowlington, Fanshawe, Fort Coffee, Howe, LeFlore, Panama, Pocola, Rock Island, Shady Point, Spiro, Talihina, and Wister. Stigler City, with a population of 2,731, is the most populous place in Haskell County; other places in this County include the Towns of Keota, Kinta, McCurtain, Tamaha, and Whitefield. The City of Wilburton, with a population of 2,972, is the most populous place in Latimer County; the only other census designated place in this County is Red Oak town (U.S. Census Bureau 2003).

Economic and social development in the study area is influenced by its history as part of the Choctaw Nation Indian Territory, the coal boom of the late 1800s to early 1900s, and railroad expansion along the old Butterfield Trail, the first transcontinental link between the East and West. Today the area retains its rural nature; draws on its rich history, mineral resources, forests, ranch land, and recreational opportunities; and is supported by government, agriculture, manufacturing, mining, and tourism industries (Oklahoma Department of Commerce 2003). Latimer County is the least densely populated with 14.0 persons per square mile, followed by Haskell County with 20.4 persons per square mile, and LeFlore with 30.3 persons per square mile. This is comparable to the statewide average of 50.3 persons per square mile and nationwide average of 79.6 persons per square mile (U.S. Census Bureau 2003).

3.20.2 Demographics

Selected demographic data from the 2000 U.S. Census for the three Counties that comprise the study area are presented in Table 3-3. Statistics for Oklahoma and the United States are included for comparative purposes. Haskell County and Latimer County, with populations of 11,792 and 10,692, respectively, are about five times less populous than LeFlore County, which is 48,109. Gender distribution among the three Counties is generally similar, with slightly more females than males. This is similar to both the State and national distribution. This is generally true with age distribution, with the number of persons under 20 roughly the same as that of the State and national averages. One exception is in Haskell County, where the population tends to be somewhat older (17 percent of the persons are age 65 and older compared to the national average of 12.4 percent). Median age in Haskell County is slightly higher than that of the other two Counties in the study area, the State, and the Nation.

The distribution of race within the Counties does not differ dramatically when compared to that of either the State in which they occur or the Nation. The percentage of Whites within the three Counties is very similar to that of the State as a whole, with the percentage slightly higher in LeFlore and Haskell Counties and slightly lower in Latimer County. All three Counties have lower percentages of Blacks than that of the State and Nation, but the percentages of American Indians/Alaska Natives are higher than both averages. The Asian populations in all of the Counties are smaller than the State or national populations. All three Counties have somewhat lower populations of persons of all races of Hispanic or Latino origin than that of Oklahoma, and significantly lower than the national percentage (12.5 percent).

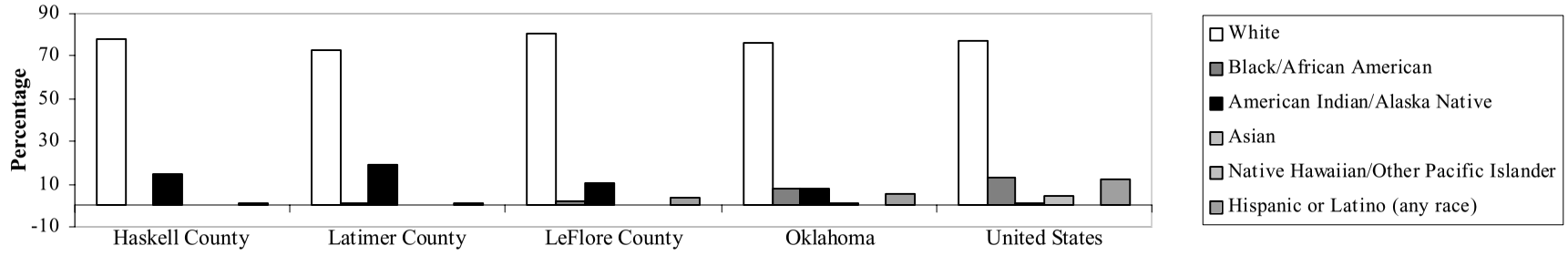
3.20.3 Employment and Earnings

As shown in Table 3-4, there is a higher percentage of farm employment in the three Counties as compared to the State and Nation. Haskell County has the largest amount of farm employment at 17.7 percent and the average for the three Counties combined is 15.1 percent. In 2001, farm earnings were greatest in LeFlore County (at $48 million), whereas under $8 million was earned in Haskell County and a loss of more than $200,000 was reported in this sector in Latimer County (U.S. Bureau of Economic Analysis 2003a). While private employment is greater than government and government enterprises employment, there are fewer jobs in the private sector in the tri-County study area as compared to the State and the Nation. Together, 23 percent of all jobs were government jobs, with 90 percent of these being State and local government jobs (refer to Table 3-4). Personal income from this sector in 2001 was $185 million, with State and local government earnings totaling $164 million (U.S. Bureau of Economic Analysis 2003a).

TABLE 3-3
SELECTED CENSUS 2000 DEMOGRAPHIC INFORMATION

	Haskell County		Latimer County		LeFlore County		Oklahoma		United States	
Total Population	11,792		10,692		48,109		3,450,654		281,421,906	
Persons per Square Mile	20.4		14.8		30.3		50.3		79.6	
Gender	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**	**Number**	**Percent**
Male	5,766	48.9	5,277	49.4	23,968	49.8	1,695,895	49.1	138,053,563	49.1
Female	6,026	51.1	5,415	50.6	24,141	50.2	1,754,759	50.9	143,368,343	50.9
Age										
Under 20 Years	3,473	28.8	3,270	30.6	14,140	29.3	1,002,280	29.0	84,522, 713	30.0
20 to 64 Years	6,376	54.0	5,704	53.3	27,354	56.9	1,992,424	57.7	161,907,440	57.6
Age 65 and Older	2,024	17.2	1,718	16.1	6,615	13.7	455,950	13.2	34,991,753	12.4
Median Age	38.6	NA	36.8	NA	36.1	NA	35.5	NA	35.3	NA
Race and Ethnicity										
White	9,226	78.2	7,806	73.0	38,657	80.4	2,628,434	76.2	216,930,975	77.1
Black or African American	72	0.6	103	1.0	1,065	2.2	260,968	7.6	36,419,434	12.9
American Indian/Alaska Native	1,722	14.6	2,076	19.4	5,157	10.7	273,230	7.9	4,119,301	1.5
Asian	34	0.3	19	0.2	103	0.2	46,767	1.4	11,898,828	4.2
Native Hawaiian/Other Pacific Islander	0	0.0	1	0.0	14	0.0	2,372	0.1	874,414	0.3
Hispanic or Latino (any Race)[1]	177	1.5	164	1.5	1,849	3.8	179,304	5.2	35,305,818	12.5

Graphical Representation of Race Distribution



SOURCE: U.S. Census Bureau 2000a, 2003

NOTES: [1]People of Hispanic or Latino origin may be of any race. People of Hispanic or Latino origin, in particular, include those who indicate their origin as Mexican, Puerto Rican, Cuban, Central or South American, or some other Hispanic origin The U.S. Census Bureau uses the terms "Hispanic" and "Latino" interchangeably (U.S. Census Bureau 2001).

NA = Not applicable

TABLE 3-4
2001 EMPLOYMENT BY INDUSTRY[1]

	Haskell County		Latimer County		LeFlore County		Oklahoma		United States	
	No. of Jobs	% of Total	No. of Jobs	% of Total	No. of Jobs	% of Total	No. of Jobs	% of Total	No. of Jobs	% of Total
Farm employment	1,106	17.7	815	11.2	2,318	12.4	101,861	5.0	3,075,000	1.8
Nonfarm employment	5,128	82.3	6,479	88.8	16,377	87.6	1,939,420	95.0	164,460,600	98.1
Private employment	4,097	65.7	4,671	64.0	12,773	68.3	1,605,082	78.6	141,296,600	84.3
Forestry, fishing, related activities, and other[2]	(D)	(D)	98	0.1	229	1.2	8,430	0.4	908,100	0.5
Mining	191	3.1	1,663	22.8	321	1.7	54,117	2.7	783,200	0.4
Utilities	52	0.8	64	0.9	136	0.7	11,441	0.6	626,400	0.4
Construction	499	8.0	(D)	(D)	1,150	6.2	112,615	5.5	9,841,800	5.9
Manufacturing	221	3.5	(D)	(D)	2,108	11.3	177,535	8.7	17,025,100	10.2
Wholesale trade	118	1.9	(D)	(D)	288	1.5	63,367	3.1	6,323,300	3.8
Retail trade	691	11.1	458	6.3	2,441	13.1	229,668	11.3	18,679,100	11.2
Transportation and warehousing	173	2.8	(D)	(D)	533	2.9	58,271	2.9	5,460,500	3.2
Information	(D)	(D)	(D)	(D)	127	0.7	41,868	2.0	4,065,700	2.4
Finance and insurance	(D)	(D)	100	1.4	605	3.2	81,728	4.0	8,143,200	4.9
Real estate rental and leasing	(D)	(D)	91	1.2	373	2.0	61,118	3.0	5,602,200	3.3
Professional and technical services	101	1.6	93	1.2	444	2.4	90,331	4.4	10,525,100	6.2
Management of companies and enterprises	0	0	0	0	(D)	(D)	13,845	0.7	1,796,600	1.1
Administrative and waste services	112	1.8	263	3.6	(D)	(D)	126,631	6.2	9,827,500	5.9
Educational services	(L)	(L)	(L)	(L)	51	0.3	21,589	1.0	2,952,600	1.8
Health care and social assistance	1,112	17.8	309	4.2	1,182	6.3	178,516	8.7	15,520,600	9.3
Arts, entertainment, and recreation	57	0.9	(D)	(D)	214	1.1	27,209	1.3	3,290,500	2.0
Accommodation and food services	145	2.3	(D)	(D)	798	4.3	125,910	6.2	11,014,100	6.6
Other services	338	5.4	(D)	(D)	1,272	6.8	120,893	0.6	8,911,000	5.3
Government and govt. enterprises	1,031	16.5	1,808	24.8	3,604	19.3	334,338	16.4	23,164,000	13.8
Federal, civilian	63	1.0	23	0.3	209	1.1	44,982	2.2	2,728,000	1.6
Military	58	0.9	53	0.7	238	1.3	41,612	2.0	2,097,000	1.3
State and local	910	14.6	1,732	23.7	3,157	16.9	247,744	12.1	18,339,000	10.9
State	85	1.4	776	10.6	800	4.3	80,956	4.0	5,028,000	3.0
Local	825	13.2	956	13.1	2,357	12.6	166,788	8.2	13,311,000	7.9

SOURCE: U.S. Bureau of Economic Analysis 2003b

NOTES: [1]Estimates of employment for 2001 are based on 2002 North American Industry Classification System (NAICS).

[2]"Other" consists of the number of jobs held by U.S. residents employed by international organizations and foreign embassies and consulates in the United States.

(D) Not shown to avoid disclosure of confidential information, but the estimates for this item are included in the totals.

(L) Less than 10 jobs, but the estimates for this item are included in the totals.

Where data for 2001 are reported, the largest private employment sector in these three Counties is retail trade, accounting for 14 percent of all jobs and $55 million in personal income in the region (U.S. Bureau of Economic Analysis 2003a). However, the economic activities in the three Counties vary substantially. In Haskell County, the healthcare and social assistance sector accounted for the largest number of jobs (17.8 percent) (refer to Table 3-4) and provided nearly $16 million in personal income (U.S. Bureau of Economic Analysis 2003a). Mining was the second largest employer in Latimer County, providing 22.8 percent of all jobs (refer to Table 3-4) and $67 million in earnings (U.S. Bureau of Economic Analysis 2003a). LeFlore County has the most diversified economic base, with the State and local government (at 16.9 percent), transportation and warehousing (at 13.1 percent), and manufacturing (at 11.3 percent) all accounting for more than 10 percent of all jobs (refer to Table 3-4).

As shown in Table 3-5, average earnings in the study area are less than State and national averages. The per capita personal income has been increasing at a greater rate in Haskell County and Latimer County than the State and national increases. From 1999 to 2001, the per capita personal income increased 17.3 percent in Latimer County and 13.2 percent in Haskell County, while the increase in the State was 9.6 percent and the United States was 8.3 percent. LeFlore County's increase, at 3.9 percent, was less than all other areas. Unemployment in the study area in recent years has been higher than the state unemployment rate and, with the exception of Haskell County, higher than the national average. Latimer County shows a marked increase in unemployment from 2001 to 2002 (refer to Table 3-5).
The poverty rate in the study area is higher than the State or Nation. Latimer County has the highest poverty rate in the study area, at 22.7 percent (refer to Table 3-5).

TABLE 3-5
GENERAL INCOME, UNEMPLOYMENT, AND POVERTY CHARACTERISTICS

	Haskell County	Latimer County	LeFlore County	Oklahoma	United States
Income					
Per Capita Personal Income (2001)	$19,427	$21,256	$17,932	$24,945	$30,413.
Per Capita Personal Income (2000)	$17,768	$19,090	$17,620	$24,007	$29,760
Per Capita Personal Income (1999)	$16,865	$17,585	$17,240	$22,551	$27,880
Median Household Income (1999)	$24,553	$23,962	$27,278	$33,400	$41,994
Unemployment (Civilian Labor Force)					
Unemployment Rate (2000)	5.3%	5.3%	4.4%	3.1%	4.0%
Unemployment Rate (2001)	4.7%	5.1%	5.8%	3.8%	4.7%
Unemployment Rate (2002)	5.3%	6.9%	5.9%	4.5%	5.8%
Poverty					
Number of Persons Below Poverty Level (1999)	2,377	2,275	8,857	491,235	33,899,812
Poverty Rate Among Individuals (1999)	20.5%	22.7%	19.1%	14.7%	12.4%

SOURCES: Per Capita Personal Income: U.S. Bureau of Economic Analysis 2003c; Unemployment Rates: U.S. Department of Labor 2003a, 2003b; all other data: U.S. Census Bureau 2000a

3.20.4 Minority and Low-income Populations

The identification of minority and low-income populations is relevant for this study because Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that Federal agencies make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations, low-income populations, and American Indian Tribes. Environmental justice refers to the right to a safe and healthy ethnicity, and socioeconomic status. Environmental justice applies to all environmental resources. This information is to be regarded as baseline identification of those minority and/or low-income populations that potentially could be adversely affected by resources management decisions made by BLM.

For purposes of this analysis, minority populations and low-income populations are defined as follows:

> Minority populations are persons of Hispanic or Latino origin of any race; Blacks; American Indian; Alaska Natives; and Asians or Pacific Islanders (without double-counting persons of Hispanic/Latino origin who also are contained in the latter groups).
>
> Low-income populations are persons living below the poverty level. The U.S. Census Bureau uses a set of money income thresholds that vary by family size and composition to determine who is poor. If a family's total income is less than that family's threshold, then that family, and every individual in it, is considered poor. A summary of the 48 thresholds provides a general sense of the "poverty line" or "poverty level," but is not used to compute poverty data. Based on this, the poverty level for a family of four in 1999 having two children under the age of 18 was $16,895 (U.S. Census Bureau 2002).

For this analysis, census designated places are identified as containing disproportionately high percentages of minority and/or low-income populations if either of two criteria are met: (1) the percentage of persons in minority/low-income populations in the census designated place exceeds the average for the comparison population (Oklahoma), which is 25.9 percent for minority and 14.7 percent for low income; or (2) the minority and/or low-income population exceeds 50.0 percent, indicating that in that area, minorities constitute a majority of the population. The results of this comparison analysis are that nearly all communities within the study area are considered disproportionately low income and about one-third of all communities in the study area are considered minority (Table 3-6). Of the three counties, Latimer County has the highest proportion of minority and low-income populations. The Town of Fort Coffee in LeFlore County has the greatest proportion of minority and low-income populations in the study area, at 63.5 percent and 30.6 percent, respectively. The minority population in the Town of Talahina, also in LeFlore County, is 51.3 percent, while the low-income population is 29.2 percent. No other areas exceed 50 percent in either minority or low-income populations.

3.20.5 Housing

As shown in Table 3-7, all three Counties have experienced an increase in housing units from 1990 to 2000 in comparison to the State average, but this increase has been lower than the national average. LeFlore County has experienced the fastest growth, with an 11.7 percent increase in housing units over the decade, followed by Latimer County, with a 9.4 percent increase, and Haskell County with an 8.5 percent increase. Home ownership rates in all three Counties (Haskell County at 77.5 percent, Latimer County at 74.6 percent, and LeFlore County at 75.2) exceed those of the State (68.4 percent) and Nation (66.2 percent).

TABLE 3-6
MINORITY AND LOW INCOME POPULATIONS

Oklahoma (Comparison Population)	**Minority Population = 25.9%**			**Low-income Population = 14.7%**		
		Minority Population			**Low-Income Population**	
Geographic Area	**Total Minority[a]**	**>50 %**	**>25.9%**	**Poverty Rate[b]**	**Poverty Rate >50 %**	**Poverty Rate >14.2%**
Haskell County	**22.0%**	**No**	**No**	**20.5%**	**No**	**Yes**
Keota town	26.9%	No	Yes	27.0%	No	Yes
Kinta town	15.5%	No	No	10.3%	No	No
McCurtain town	27.1%	No	Yes	22.5%	No	Yes
Stigler city	20.0%	No	No	25.8%	No	Yes
Tamaha town	19.5%	No	No	8.9%	No	No
Whitefield town	23.7%	No	No	23.2%	No	Yes
Latimer County	**27.7%**	**No**	**Yes**	**22.7%**	**No**	**Yes**
Red Oak town	28.2%	No	Yes	25.5%	No	Yes
Wilburton city	24.1%	No	No	24.9%	No	Yes
LeFlore County	**21.7%**	**No**	**No**	**19.1%**	**No**	**Yes**
Arkoma town	10.9%	No	No	20.1%	No	Yes
Bokoshe town	29.3%	No	Yes	27.9%	No	Yes
Cameron town	12.7%	No	No	19.6%	No	Yes
Cowlington town	15.2%	No	No	9.6%	No	No
Fanshawe town	16.2%	No	No	29.2%	No	Yes
Fort Coffee town	63.5%	Yes	Yes	30.6%	No	Yes
Heavener city	38.5%	No	Yes	26.3%	No	Yes
Howe town	20.0%	No	No	26.2%	No	Yes
LeFlore town	32.3%	No	Yes	29.7%	No	Yes
Panama town	16.6%	No	No	24.3%	No	Yes
Pocola town	14.2%	No	No	15.4%	No	Yes
Poteau city	21.2%	No	No	22.1%	No	Yes
Rock Island town	12.3%	No	No	11.5%	No	No
Shady Point town	14.8%	No	No	23.8%	No	Yes
Spiro town	17.2%	No	No	29.3%	No	Yes
Talihina town	51.3%	Yes	Yes	29.2%	No	Yes
Wister town	15.5%	No	No	19.4%	No	Yes

SOURCES: U.S. Census Bureau 2000b, 2000c

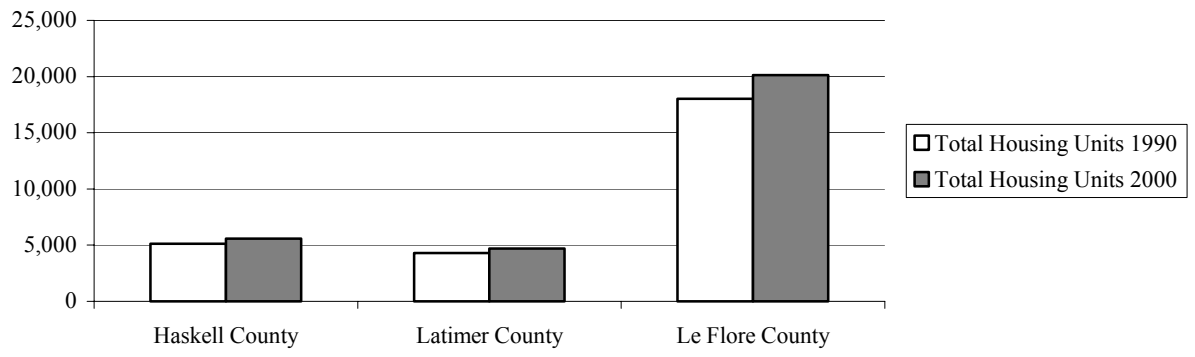
NOTES: [a] The total minority population includes individuals of Hispanic/Latino origin, but those that are also Black/African Americans, American Indian/Alaska Natives, Asians, and Native Hawaiian/Other Pacific Islanders are not included in the total in order to avoid double counting.

[b] Poverty rate among individuals, based on poverty status in 1999.

TABLE 3-7
HOUSING CHARACTERISTICS

Housing Characteristics	Haskell County	Latimer County	LeFlore County	Oklahoma	United States
Total Housing Units 1990	5,138	4,303	18,029	1,406,499	102,263,678
Total Housing Units 2000	5,573	4.709	20,142	1,514,400	115,904,641
Percent Change 1990 to 2000	8.5%	9.4%	11.7%	7.7%	13.3%

Graphical Representation



SOURCES: U.S. Census Bureau 1990, 2000a

3.20.6 Social and Economic Contributions of Mining

The coal industry in Oklahoma produced nearly 1.4 million tons of coal in six counties. Production in Haskell, Latimer, and LeFlore Counties accounted for more than 82 percent of State production (ODM 2002). The mining industry in the tri-county area employs approximately 2,175 people (U.S. Bureau of Economic Analysis 2003b). Based on a partial list of employee zip codes, mining activities in the three counties currently draw employees from at least 48 communities in nine other Oklahoma and two Arkansas counties. A typical salary for a job in the coal-mining sector in Haskell, Latimer, and LeFlore Counties is $36,000 per year plus benefits. In the coal industry, it is estimated that every employee translates into seven additional indirect jobs throughout the domestic economy (John T. Boyd Company 1995).

Mining company expenditures, royalties, and tax payments translate into additional indirect economic impacts. It is estimated that nearly 40 percent of the sale price of coal typically is returned to Federal, State, and local governments in the form of taxes. This is more than double that of oil and almost six times more than natural gas (John T. Boyd Company 1995). Nearly one-third of Oklahoma's coal is produced from Federal leases (Energy Information Administration 1992). All Federal coal leases must pay rental and royalties on their leases. Royalties for productive cola operations are based on the value and weight of the material sold. Applicable regulations are codified at 43 CFR 3400.35. In addition, Federal, State, and local business taxes are levied on business income and property, and employees pay personal income taxes on wages earned. Per the Abandoned Mine Land Reclamation Program, a tax of 35 cents per ton for surface-mined coal, 15 cents per ton for coal mined underground, and 10 cents per ton for lignite mined are paid on all active coal-mining operations. These fees are deposited into the U.S. Treasury's interest-bearing Abandoned Mine Reclamation Fund, which is used to pay reclamation cost of

abandoned mine projects. Of those fees collected in Oklahoma, 50 percent supports emergency projects and high priority project in other states, funds the Small Operator Assistance Program, funds additional reclamation of abandoned mine problems directly through state reclamation programs, and pays for collection, audit, and administration costs (OSM 2002).

Coal mining supports other sectors in the local and Oklahoma economies. Applied Energy Service (AES) Shady Point Power Plant, located in Poteau, is the largest purchaser of all Oklahoma coal, generally purchasing 65 percent of the State's total coal production (AES 1999). This 320-megawatt fluidized bed combustion power plant is capable of burning the high-sulfur coal found in Oklahoma. The second largest purchasers of the State's coal are other industries such as paper mills, cement plants, lime plants, automobile plants, and block plants, located in Oklahoma, Arkansas, Kansas, and Texas. Specialty markets comprise the third largest class of purchasers of the State's coal. These specialty markets consist of coal filter manufacturers, well drilling fluid packagers, carbon processing plants, black smith coal, and charcoal processing plants (Farrell-Cooper Mining Company 2003b).

Mitigation and reclamation associated with mining address the effects of historic and current mining operations, and may provide benefits to local communities. As a result of the projects in the area, more than 20 miles of roads have been rebuilt in the tri-County Region, more than 500 acres of abandoned mine lands have been reclaimed, more than 15 miles of abandoned high wall left by historical surface mining (prior to the passage of the Surface Mining Control and Reclamation Act of 1977) have been eliminated, and more than 400 acres of wildlife habitat with wetlands and open water resources have been created (Farrell-Cooper Mining Company 2003b).

3.20.7 Social Attitudes and Values

As reflected by agency and public scoping comments, there is considerable value placed on the economic contributions from and strong social ties of communities and individuals to coal mining. Most of the comments received focused on the economic benefit of mining. In the rural areas supported by the operation of the coal mines, mining continues to be central to the livelihood and lifestyle in the area. Mining provides a source of high-paying jobs and financial support for individuals and families. Many value not only the direct employment but also the indirect employment provided by other related industries, purchase of goods and services, support for small businesses, and tax payments that support schools, roads, etc. Many individuals and agencies noted the value of reclamation and the conversion/return of abandoned mine lands to productive uses (e.g., pasture, wildlife habitat, fisheries).

These attitudes and values are reflective of the long-standing relationship between coal mining and the local economy and lifestyle. Commercial coal production in Oklahoma began in the 1870s, with the construction of the Missouri-Kansas-Texas Railroad. Production has fluctuated over the years with world events—rising with World War I, falling due to the Depression, rising again to meet the demand of World War II, decreasing during the post-World War II era, and rising again with the Arab oil embargo, when production reached an all-time record of 6 million short tons in 1978. Since then, demand for the high sulfur content coal produced in Oklahoma has decreased (Energy Information Administration 1992).

There also were some negative attitudes about the social and economic impacts of mining, with concern that land values decline and future growth is impaired as a result of mining. These attitudes, expressed during scoping, were principally in reference to those lands adjacent to the subject LAAs rather than from the Region in general.

Other comments, not necessarily correlated with social or economic concerns but nonetheless reflective of attitudes and values, pertained to other resources such as air quality, water quality and quantity, noise,

wildlife and habitat, public health and safety, and landowner rights and compensation. In general, these comments reflect the value for these resources and concern for their protection. Many comments pertained to concerns about the potential impacts of the proposed action.

4.0 Environmental Consequences

4.0 ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This chapter describes the predicted consequences, or potential effects, on the environment of implementing any of the alternative plans, described in Chapter 2.0, in association with potential coal leasing and development (e.g., development, production, reclamation). This chapter begins with a summary of the methods used to assess impacts and then describes the potential impacts that could result from the alternative plans.

Using the information regarding the existing condition of the environment (Chapter 3.0) and a description of typical coal mining activities projected for the three lease application areas, the types of impacts that the alternatives could have on the resources and resource uses were identified and quantified only to the extent practical for this Resource Management Plan Amendment (RMPA) and Environmental Assessment (EA). It should be noted that no ground-disturbing activities would result directly from the alternatives addressed in this document. Although the issuance of a lease grants rights could result in surface-disturbing activities, further site- and project-specific environmental evaluation is required prior to final approval of the activities.

Impacts are defined as modifications to the environment, as it presently exists, that are brought about by an outside action. Impacts can be beneficial (positive) or adverse (negative), and result from the action directly or indirectly. Impacts can be permanent, long-lasting (long term), or temporary (short term). Typically, long-term impacts are defined as those that substantially would remain for the life of the project and beyond, and short-term impacts are defined as those changes to the environment during mining activities that generally would revert to preconstruction conditions (except tree growth) at or within a few years of the end of disturbance. Short-term impacts may range from less than one to three years in duration. Impacts can vary in significance from no change, to a full modification or elimination of the environmental condition. Throughout this analysis, emphasis was placed on lease stipulations that could be applied to mitigate impacts in areas that are sensitive to potential mining activities.

4.1.1 Impact Types

The analysis includes three types of effects (see Title 40 Code of Federal Regulations [CFR] Part 1508 Subparts 1508.7 and 1508.8. Direct effects are caused by the action and occur at the same time and place. Indirect effects are caused by the proposed action and occur at the same time and place. Cumulative effects result from incremental impacts of the action when added to other past, present, or reasonably foreseeable future actions regardless of what person or agency (Federal or non-Federal) undertakes those actions. Reasonably foreseeable future actions consist of projects, actions, or developments that can be projected, with a reasonable degree of confidence, to occur within a defined time frame and that will impact the same, or portions of the same, resource.

In order to determine the vulnerability of resources to impacts, resources were evaluated in terms of the following general criteria:

- Resource significance: a measure of formal concern for a resource through legal protection or by designation of special status.
- Resource sensitivity: the probable response of a particular resource to project-related activities.

- Resource quality: a measure of rarity, intrinsic worth, or distinctiveness, including local value and importance of a resource.
- Resource quantity: a measure of resource abundance and the amount of the resource potentially affected.

4.1.2 Reasonable Foreseeable Development

Reasonable foreseeable development (RFD) is a projection of the coal mining activities that are likely to occur in the three coal lease areas over the life of the projects. The RFD for the three lease application areas is based on the estimate of coal to mined and the method of mining (i.e., surface or underground).

4.1.3 Mitigation Planning

The impact assessment took into account the rules, regulations, guidelines, and best management practices or techniques that would apply generally to the proposed projects. Further site-specific environmental evaluation and mitigation planning would be required at the time the mine permit application is submitted.

4.2 IMPACTS OF THE ALTERNATIVES

The potential impacts of the three alternatives considered are described in the sections below beginning with the no-action alternative followed by the two action alternatives. If one of the action alternatives is selected, it should be noted that the exact locations of the proposed mining activities are not known. However, based on the general description of the typical construction and operation activities that would take place, certain types of impacts would result regardless of which action alternative was selected as the proposed action. These impacts common to the action alternatives are described as well as the potential impacts that could result on each of the Lease Application Areas (LAAs).

It is important to note that, although the Bureau of Land Management (BLM) does not have the authority to make decisions regarding surface lands that are not public lands (i.e., BLM-administered lands), BLM is responsible for disclosing the potential impacts on split estate resulting from a BLM decision to lease Federal mineral estate. While subsequent development and reclamation is regulated by law (refer to Chapter 2.0, Section 2.2), it is the responsibility of the landowner to work and reach agreement with the lessee/operator regarding treatment of the surface.

4.2.1 No Action (Alternative A)

If no action is taken leasing and subsequent development would be precluded. No action as an alternative serves as the baseline condition for evaluating the environmental consequences of the action alternatives.

4.2.1.1 Land Use

If no action is taken there would be no surface-disturbing activities related to coal mining and existing uses would be maintained. However, taking no action represents a lost opportunity for potential environmental and/or land use enhancements through reclamation in areas that (1) have been disturbed previously and not reclaimed appropriately or that do not meet the needs of the current landowners (e.g., areas of the Bull Hill LAA) or (2) could benefit from improvements for productive uses, wildlife habitat (e.g., constructed wetlands), or grazing land for livestock.

4.2.1.2 Access and Transportation

If no action is taken the access and transportation in the three areas would be preserved as described in Chapter 3.0, Section 3.5.

4.2.1.3 Geology and Minerals

If no action were taken impacts on the geology or mineral resources would not result beyond the baseline conditions described in Chapter 3.0, Section 3.6. The approximate 47.6 million tons of coal would remain available for potential future mining.

4.2.1.4 Soils and Reclamation

If no action is taken impacts on soils would not result beyond the baseline condition described in Chapter 3.0, Section 3.7. However, taking no action would represent a lost opportunity for environmental enhancements through reclamation in areas that (1) have been disturbed previously and not reclaimed in accordance with current standards appropriately (e.g., areas of the Bull Hill and McCurtain LAAs) or (2) could benefit from improvements for future productive uses.

4.2.1.5 Water Resources

If no action is taken adverse impacts on the quality and quantity of groundwater or surface water would not result beyond the baseline conditions described in Chapter 3.0, Section 3.8.

4.2.1.6 Air

If no action is taken the baseline levels of pollutants in the region as well as existing sources and regional influences on air quality would remain the primary sources of emissions effecting the region.

4.2.1.7 Vegetation, Wildlife, and Special Status Species

If no action is taken impacts on vegetation, habitat for wildlife, and special status species would not result beyond the baseline conditions described in Chapter 3.0, Sections 3.10, 3.11, and 3.12 respectively. However, taking no action represents a lost opportunity for potential environmental enhancements through reclamation in areas that (1) have been disturbed previously and not reclaimed appropriately or that do not meet the needs of the current land owners (e.g., areas of the Bull Hill LAA) or (2) could benefit from improvements for productive uses, wildlife habitat (e.g., constructed wetlands), as well as the potential to reduce the presence of noxious weeds.

4.2.1.8 Noxious Weeds

The Oklahoma Department of Agriculture, Food and Forestry Service (2002) finds the invasive species—musk thistle, Scotch thistle, and Canada thistle—to be a nuisance in all counties in Oklahoma. It is not known that any of these species inhabit the areas of the three LAAs. However, if the species are present, taking no action would allow their continued presence (whereas, mining activities could offer the opportunity to reduce or eliminate invasive species in the areas that are cleared).

4.2.1.9 Noise

If no action is taken the baseline levels of noise in the areas of the LAAs would not increase.

4.2.1.10 Cultural Resources

If no action is taken no ground-disturbing mining activities to cause adverse impacts on cultural resources, known or unknown, would result. Archaeological sites would not be threatened, nor would the sites be investigated further through mitigative data recovery studies. Since the sites are on private lands, it is unlikely that the sites will be actively managed for protection.

4.2.1.11 Paleontological Resources

If no action is taken there would be no ground-disturbing activities from mining that would cause adverse impacts on paleontological resources.

4.2.1.12 Recreation

If no action is taken dispersed, informal recreational activities in the region and, particularly in the areas of the LAAs, would not be adversely impacted by activities associated with the proposed action.

4.2.1.13 Visual Resources

If no action is taken there would be no change to the existing visual character of the Liberty Hill, McCurtain, or the Bull Hill LAAs. However, taking no action represents a lost opportunity for potential environmental enhancements through reclamation in areas that (1) have been disturbed previously and not reclaimed appropriately (e.g., areas of the Bull Hill LAA) or (2) could benefit from improvements for productive uses and to visual character and quality.

4.2.1.14 Social and Economic Conditions

The principal socioeconomic issues include both direct and secondary economic effects provided by mining and potential impacts on resources from mining that might impair future economic growth. In addition, potential environmental justice impacts on populations defined as minority or low income (refer to Table 3-6) must be considered in accordance with Executive Order 12898.

Liberty West LAA. If no action is taken the most direct socioeconomic impact would be the loss of jobs and earnings from the eventual closure of the Liberty Mine. With no-action, Liberty West LAA would become a bypass lease area and most likely never would be mined. As a result, the mining company estimates that the adjacent Liberty Mine complex would cease operations in 2008 (Farrell-Cooper Mining Company 2003b). The jobs and earnings at the Liberty Mine Complex would be lost. Currently, the Liberty Mine complex employs 84 directly with an annual average wage of $36,000 (plus $18,000 annually in benefits). The combined total of wages and benefits expenditures is $4,536,000 annually (based on current, noninflationary estimates).

Aside from the specific direct job and earnings impacts at each LAA, no-action at all of the LAAs would have similar and compounding additional socioeconomic impacts. With the elimination or reduction of mining operations, there would be associated reductions or eliminations in taxes and royalties. Job losses and expenditure reductions in the mining industry would have the potential for additional reductions in employment and income in related industries. Socioeconomic modeling would be required to more accurately quantify associated secondary (indirect and induced) impacts on employment and income. However, the indirect impact would result from the reduction or elimination of purchase of goods and services to support mining operations at the Liberty Mine Complex. The induced impact component would occur because of decreased consumer spending due to the direct and following indirect reductions

in employment and income. The induced impacts, which would be expected to be the larger portion of the secondary impacts, would be largely manifested in the trade and services sectors, since these are the industries most influenced by expenditures currently related to the mining operations. Historically, the mining industry in the southeastern portion of Oklahoma has had a 1.26 income multiplier and 1.49 employment multiplier (Oklahoma State University 1992). If these historic multipliers apply[2], the secondary employment loss would be 125 jobs from the Liberty Mine Complex. The total annual secondary income loss would be $3,810,240 associated with the Liberty Mine Complex.

The community ability to adapt to this change would be influenced by the small, rural, and economically disadvantaged nature of the communities. It is not clear whether other job opportunities would be available in the mining job market or what other industry may provide job opportunities to supplant the lost jobs. However, in general, job growth has been in the services sector, which would typically pay less and may not offer the benefits of the current jobs provided at the mining complexes. Lifestyle and quality of life considerations would be most prominent for those individuals and communities directly impacted by the closure/reduction of operations at the Liberty Mine complex. While most impacts would be expected in Haskell, Latimer, and LeFlore Counties, more dispersed regional impacts are predicted. Currently, the mining company draws employees from nine different counties in Oklahoma and two counties in Arkansas (Farrell-Cooper Mining Company 2003a). The Applied Energy Service Shady Point Power Plant and other purchasers of the coal that would be produced from these operations would have to identify other raw material sources.

The current mining company, Farrell-Cooper, draws employees from a wide area, and loss of direct and indirect employment likely would be dispersed throughout the region. Consequently, it is not anticipated that effects would be experienced disproportionately by environmental justice populations identified in Table 3-6.

McCurtain LAA. If no action is taken the McCurtain LAA would not be leased and there would not be the economic effects as described under Alternative B or Alternative C. It is unclear whether or not this area would be leased by another mining interest in the future. However, the opportunity still would be present and, thus, this element of the no-action alternative is considered neither positive nor negative.

Bull Hill LAA. Without the expansion of the Heavener East Mine Complex in the Bull Hill LAA, the mining company estimates that operations at this complex would cease or be reduced by as much as one-half. Currently, the complex provides 70 direct jobs that pay an average of $36,000 annually (plus $18,000 annually in benefits). Thus, there would be a loss of 35 to 70 direct jobs or total wages and benefits expenditures totaling $1,890,000 to $3,780,000 annually (based on current, noninflationary estimates).

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[2] Modeling of secondary socioeconomic impacts is beyond the level of analysis needed for the estimated environmental consequences of the alternatives evaluated in this EA. These readily available historic multipliers provide a defensible estimate in lieu of specific modeling to quantify those secondary impacts. It should be noted that these multipliers would be sensitive to shifts in the distribution of employment and income by industry not just in the three counties primarily evaluated in this EA (Haskell, Latimer, and LeFlore), but also six nearby counties in southeastern Oklahoma that comprised the economic development district in the referenced source document (Pittsburg, Pushmataha, McCurtain, Atoka, Choctaw, and Bryan). Comparing the mining employment and income data for these nine counties from the historical data (available for all counties except for Choctaw) to the most recent year data were available, found that mining has increased as a share of employment by nearly three points and as a share of income by nearly four points (U.S. Bureau of Economic Analysis 1985 and 1997 to 2000). Thus, the historical multiplier may be slightly lower than a current multiplier for the mining industry in this area.

Aside from the specific direct job and earnings impacts at each LAA, no-action at all of the LAAs would have similar and compounding additional socioeconomic impacts. With the elimination or reduction of mining operations, there would be associated reductions or eliminations in taxes and royalties. Job losses and expenditure reductions in the mining industry would have the potential for additional reductions in employment and income in related industries. Socioeconomic modeling would be required to more accurately quantify associated secondary (indirect and induced) impacts on employment and income. However, the indirect impact would result from the reduction or elimination of purchase of goods and services to support mining operations at the Heavener East Mine Complex. The induced impact component would occur due to the decreased consumer spending due to the direct and following indirect reductions in employment and income. The induced impacts, which would be expected to be the larger portion of the secondary impacts, would be largely manifested in the trade and services sectors, since these are the industries most influenced by expenditures currently related to the mining operations. Historically, the mining industry in the southeastern portion of Oklahoma has had a 1.26 income multiplier and 1.49 employment multiplier (Oklahoma State University 1992). If these historic multipliers apply, the secondary employment loss would be 52 to 104 jobs from the Heavener East Mine Complex. The total annual secondary income loss would be $1,587,600 to $3,175,200 associated with the Heavener East Mine Complex.

The community ability to adapt to this change would be influenced by the small, rural, and economically disadvantaged nature of the communities. It is not clear whether other job opportunities would be available in the mining job market or what other industry may provide job opportunities to supplant the lost jobs. However, in general, job growth has been in the services sector, which typically would pay less and may not offer the benefits of the current jobs provided at the mining complexes. Lifestyle and quality of life considerations would be most prominent for those individuals and communities directly impacted by the closure/reduction of operations at the Heavener East Mine Complex. While most impacts would be expected in Haskell, Latimer, and LeFlore Counties, more dispersed regional impacts are predicted. Currently, the mining company draws employees from nine different counties in Oklahoma and two counties in Arkansas (Farrell-Cooper Mining Company 2003a). The Applied Energy Service Shady Point Power Plant and other purchasers of the coal that would be produced from these operations would have to identify other raw material sources.

The current mining company, Farrell-Cooper, draws employees from a wide area, and loss of direct and indirect employment likely would be dispersed throughout the region. Consequently, it is not anticipated that effects would be disproportionately experienced by environmental justice populations identified in Table 3-6.

4.2.2 Alternative B: Maximum Resource Production

4.2.2.1 Land Use

Impacts Common to the Action Alternatives

In areas where surface disturbance would occur, there would be direct and indirect, short-term impacts on the existing uses in all of the LAAs. In areas where surface mining would take place, mining would progress in a series of long, narrow pits. Overburden would be removed to reach the coal seam. Once the coal is removed, the overburden is replaced. In general the excavation of the successive pits would backfill the previously excavated adjacent pits. After the pits are backfilled, topsoil would be redistributed and permanent vegetation would be established on the disturbed area. From the commencement of the mining activity in an area until reclamation of the area is successful and can be productive, the area being mined is not productive for other purposes. Reclamation would take approximately seven years—the area

would be considered disturbed for about two years (from mining activities to immediately following reclamation) and in transition for about five years. The exact location of mining is not known; however, residences would be avoided by mining activities by a minimum of 300 feet. Residents could be affected by noise from operations and by momentary noise and vibration from blasting (refer to Section 4.2.2.11). The level of noise from blasting would be within the range allowed by law and would result in a short-term effect (annoyance). Vibration resulting from blasting also would be short term, but could result in damages. Visual sensitivity would be high in those instances where mining activities were to be within foreground distance of the sensitive viewpoint. However, the level of visual impact would decrease as the active mining area progresses farther from the viewpoint and as the area is reclaimed. Also, residents could be inconvenienced if access to their properties is impaired.

Liberty West LAA. The primary uses in the Liberty West LAA (i.e., pasture and rangeland) would be impacted. A small amount of undeveloped woodland also exists in the area. Four dwellings and a number outbuildings are located within the Liberty West LAA. As stated previously, residences would be avoided by mining activities by a minimum of 300 feet; however, residents could be affected indirectly and temporarily inconvenienced by nearby mining activities. Pasture and rangeland would be affected temporarily during the time that the mining activities move through these areas. If woodland areas are cleared for mining and revegetated to regenerate woodlands, reclamation of those areas would require a longer period of time.

McCurtain LAA. Underground mining is proposed for the McCurtain LAA and only approximately 20 surface acres of the LAA in the southeast corner would be disturbed as a result of portal construction, staging areas, haul roads, etc. This area was disturbed previously by mining activities and abandoned unreclaimed, and, at present, is not used for any productive use. Therefore, impacts on the surface from the proposed mining activities would be limited to this area. Approximately 20 acres of formerly unreclaimed mine lands (Oklahoma Corporation Commission Abandoned Mine Lands 2003) would be reclaimed. This reclamation of the portal, staging, and hauling areas would restore this land to productive uses.

Where mining would occur underground, there is a potential that the surface could subside after the coal has been removed from the seam. The amount of subsidence, if any, cannot be predicted. However, subsidence of the surface is not anticipated to affect existing land uses (i.e., pasture and range, undeveloped woodland areas, and abandoned mined land).

In reviewing aerial photographs of the area, it appears that there are five dwellings within the McCurtain LAA. Mining would be prohibited within 300 feet of these structures.

Bull Hill LAA. The primary land uses within the Bull Hill LAA are pasture and rangeland; however, pasture and rangeland is only a small portion of the entire LAA and is limited but evenly distributed over ridgetops and down across the ridge slopes. Similar distributions would be observed after completion of mining and would extend throughout the mined area. Approximately 3,090 acres of the total 3,863 acres in the LAA are occupied dominantly by woodlands—approximately 80 percent.

In reviewing aerial photographs of the area, it appears that there are nine dwellings within the Bull Hill LAA. Residences would be avoided by mining activities by a minimum of 300 feet; however, residents could be affected indirectly and temporarily inconvenienced by nearby mining activities.

4.2.2.2 Access and Transportation

Impacts Common to the Action Alternatives

Impacts on public access in the LAAs may result from the mining operations. While it is unlikely that highways and major roads would be mined through, some county and local roads may be removed temporarily from public use or rerouted temporarily during mining operations. This may result in increased travel time and possibly adverse road conditions. In the event that roads are affected in these ways, the mining company would have to coordinate road closures and/or rerouting with the Counties. Agreements with the Counties would stipulate required road construction standards.

There are two types of transportation associated with the proposed mining operations: worker commuting traffic (usually automobiles and pickup trucks) and materials transportation (mainly heavy trucks and tractor-trailer rigs). It is anticipated that the increase in traffic would be modest, remaining within the roadway capacity. Since the highways and major roads in the areas are important transportation corridors and carry light- and heavy-duty vehicles, the mix of heavy vehicles from the mining operations in the traffic stream would not change substantially. Therefore, any increase in the risk of traffic accidents would be minor and proportional to the overall increase in traffic. In summary, leasing and subsequent development of the proposed mining operations would not cause major adverse change to highway traffic and safety conditions in the vicinity of the LAAs.

Liberty West LAA. The primary county road accessing the community of Tamaha from Highway 9 and the City of Stigler, N 4480 Road, forms the western boundary of the Liberty West LAA. However, the area of this road would not be mined and, therefore, would not be affected. Agreements with Haskell County would stipulate required reconstruction standards for affected roads. Considering the conditions of the existing county roads in this area, road reconstruction would be a long-term benefit to access and transportation.

McCurtain LAA. Highway access to the McCurtain LAA is provided by Highway 26 and approximately 1 mile of this highway is located within the LAA. While it is unlikely that the highway would be mined through, some county roads within the LAAs could be affected. Agreements with Haskell County would stipulate required reconstruction standards. Considering the condition of existing county roads, road reconstruction would be a long-term benefit to access and transportation.

Bull Hill LAA. Two north-south highways, Highway 82 at Red Oak and Highway 271 at Fanshawe, cross the Bull Hill LAA. The extent of the highway crossings is estimated to be approximately 0.5 mile at each location. While it is unlikely that highways would be mined through, some county roads within the LAA could be affected. Agreements with Latimer and/or LeFlore Counties would stipulate required reconstruction standards. Considering the condition of existing county roads, road reconstruction would be a long-term benefit to access and transportation.

4.2.2.3 Geology and Minerals

Impacts Common to the Action Alternatives

Geologic impacts resulting from the mining operations include removal of mineral resources, disruption of overlying stratigraphic sequences, and possible destruction of minor plant fossil deposits. The removal of mineral resources (coal and possibly other minerals for economic purposes) represents a long-term, irreversible, irretrievable impact. Due to the lack of significant stratigraphic or structural resources in the areas, impacts on these resources are not anticipated to be significant.

4.2.2.4 Soils and Reclamation

Potential impacts on soils from the mining activities include the physical loss of soil materials and decreases in soil productivity. Physical losses would occur as a result of accelerated erosion and removal by excavation, construction uses, or burial. For example, sheet or rill erosion on roads or staging areas and gully erosion alongside roads or staging areas could occur. Off-site impacts potentially resulting from such conditions are related to the erosion and sedimentation of watercourses from concentrated flows and the deposition of eroded material. For this reason, sediment basins would be constructed for surface runoff, minimizing off-site soil transport and conserving soil resources on site. Erosion of soils during mining operations would be a minor and short-term adverse impact.

Long-term soil productivity could be decreased by soil excavation, erosion, compaction from traffic or construction in work or staging areas, and by potential losses of microbial populations during a lengthy period of stockpiling. Some areas could be affected by traffic and/or light-duty construction activities that would not involve significant removal of soils. Compacted and denuded soils remaining in these areas would be subject to accelerated erosion, decreased infiltration and percolation, poorer aeration, and decreased root penetration. The ultimate effect of these factors could be reduced soil productivity with potential detrimental effects on postmining land uses.

For these reasons, effective reclamation is critical. Although specific reclamation and closure plans have not been developed for the three LAAs, such plans will be required as part of the mine Plan of Operations if the lands are leased and a mining company proceeds with development. The basic components of the reclamation program would include site recontouring and drainage restoration, erosion and sedimentation controls, stabilization of process solutions, and topsoil replacement and revegetation efforts. The overall intent of a reclamation program is to recreate productive land uses; control erosion and sedimentation; and restore stable, safe, and productive postmining conditions to the degree practical and achievable with available technologies and best management practices. Erosion and land use impacts could result if revegetation does not control erosion and noxious weeds and adequately restore postmining land uses.

Generally, reclamation of a surface coal mine site is planned and designed to reasonably ensure public safety and to return the land to productive postmining land uses compatible with and supportive of its premining uses. Reclamation plans typically include the following key measures.

- As part of reclamation, the project site would be surveyed for potential public safety hazards. No chemical or electrical hazards would remain after reclamation. Physical hazards would be minimized.
- Facilities would be dismantled and removed from the site.
- Erosion control measures other than vegetation would be implemented as needed to prevent sedimentation of surface drainages.
- Diversion channels would be prepared for postclosure functioning.
- Ripping, grading, and seedbed preparation would be performed on surfaces planned for reclamation, A surface material survey would be conducted before reseeding to determine the need for seedbed amendments. Mulching may be used in conjunction with revegetation practices.
- Grasses would be emphasized in reseeding mixes to ensure short-term site stabilization, but shrubs and forbs also would be seeded. Native and adapted seed would be used.

- Methods of seeding and establishing vegetation would be reviewed before planting. Where topography and site conditions allow, drill seeding is preferred. Hydroseeding and broadcast seeding also may be employed as site-specific conditions dictate.
- Opportunities for innovative reclamation practices may emerge during the life of a project. Areas where special reclamation practices may be warranted include wetland and riparian area replacement, riparian expansion, and stockpond construction.

Even when a reclamation plan is submitted, it is recognized that analysis, planning, and implementation of reclamation practices continues as the projects progress. Where necessary, additional mitigation measures may be recommended. Such activities would be an ongoing part of project activities and would involve input from appropriate agency personnel in developing and carrying out a coordinated reclamation program.

Prime and Unique Farmlands: Impacts on prime and unique farmlands are not anticipated to vary greatly between LAAs and are addressed in this section in common. In the Liberty West and Bull Hill LAAs, before overburden excavation, the topsoil would be removed and stockpiled in designated topsoil storage areas, or the topsoil would be redistributed over replaced and graded overburden material. Similarly, topsoil would be removed from the proposed areas of disturbance at the McCurtain LAA prior to portal and road construction. If conditions permit, there would be contemporaneous topsoil removal ahead of the active pit and replacing the topsoil behind the active pit on the Liberty West and Bull Hill LAAs. After the pits are backfilled, topsoil would be redistributed and permanent vegetation would be established on the regraded area. When prime or unique farmlands are encountered, the mining company is required to replace the topsoil horizons in their original order (i.e., no commingling of topsoil is allowed).

Liberty West LAA. At the Liberty West LAA, coal is to be recovered by surface mining techniques. Soils that could be impacted include large areas of Vian silt loam and smaller areas of Stigler silt loam. A narrow band of Liberal and Collinsville stony soil, at the northwest corner of the tract is in an area considered unsuitable for development and could be preserved. Small areas of Stigler silt loam and soils of the Counts-Dela complex adjacent to intermittent streams may be disturbed by surface mining activities under Alternative B.

While impacts on soils are unavoidable, effective reclamation can restore the disturbed areas to productive postmining land uses. Reclamation also could allow the opportunity for environmental or land use enhancements. At the Liberty West LAA, the topsoil would be removed and stockpiled in designated topsoil storage areas or redistributed over replaced and graded overburden material. If conditions permit, there would be contemporaneous topsoil removal ahead of the active pit and replacing the topsoil behind the active pit. Following replacement of the topsoil, permanent vegetation would be established on the disturbed areas. Mining operations also would result in construction of temporary haul roads. In the areas used for haul roads, compaction of soils would result. Transportation areas would be reclaimed as described above, with topsoil placement and revegetation.

McCurtain LAA. Coal from the McCurtain LAA would be recovered using underground mining methods. The only surface area that would be disturbed would be the portal and loading areas. Impacts on soils at this location would be similar to those areas described above where activities other than excavation would take place.

Bull Hill LAA. At the Bull Hill LAA coal would be recovered by conventional surface mining and auger mining techniques. Soils that may be impacted at the Bull Hill LAA include Bengal stony fine sandy

loam, soils from the Bengal-Clebit association, the Carnasaw-Clebit association, and the Carnasaw stony loam. These soils are often stoney and shallow and have low to medium potential for grasses and woodlands. Impacts would be the same as those described above.

4.2.2.5 Water

Impacts Common to the Action Alternatives

The primary water resource issues include (1) impacts on groundwater and surface water quality, (2) reduction in surface and groundwater for current users and water-dependent resources, (3) physical and chemical impacts caused by discharging dredged or fill material, and (4) changes in channel dynamics caused by diverting streams.

Water Quality

Coal mine drainage and the potential for acid mine drainage (AMD) are the primary concerns associated with groundwater and surface water quality resulting from surface and subsurface coal mining. Sulfur compounds in coal and overlying strata, when exposed to air and water, oxidizes, producing iron and sulfuric acid. Ferric iron, when discharged to surface water, hydrolyzes to produce hydrated iron oxide and more acidity. The acid lowers the pH of the water, making it corrosive and unable to support many forms of aquatic life. Acid formation is most serious in areas of moderate rainfall, such as southeastern Oklahoma, where rapid oxidation and solution of exposed minerals can occur.

Various impacts range in severity from isolated nuisance type problems to water quality impacts affecting large volumes of groundwater and miles of watercourse. Potentially impacted uses include agricultural (irrigation and livestock), industrial, aquatic habitat, and potability of water supplies. While recreational uses and scenic resource appreciation also may be realized, these are not currently uses of the potentially affected streams. The nature of mine drainage also may result in corrosion and incrustation problems with respect to such man-made structures as pipes, well screens, dams, bridges, water intakes, and pumps. The compromising of well casings (water supply or oil and gas wells) can be troublesome because it then can allow the migration and comingling of water from one aquifer with another, often leading to inter- and intra-aquifer contamination (Merritt and Emrich 1970). Also, AMD in particular can be toxic to vegetation when recharging to the shallow groundwater system and soil water zones.

Many factors control the rate and extent of AMD formation in surface and subsurface coal mines. More abundant sulfur in the overburden tends to increase the acidity of drainage. Iron-oxidizing bacteria and low pH values speed up the acid-forming reaction. Rates of acid formation tend to be slower if limestone or other neutralizers are present. Access to air containing the oxygen needed for sulfur oxidation is commonly the limiting factor in the rate of acid generation. Both access to air and exposure of sulfur surfaces are promoted by breaking the sulfur-bearing rock, which occurs during removal of overburden, stockpiling of spoil, and removal of coal.

Water plays a key role in the formation and transport of coal mine drainage. It is an essential part of the sulfur oxidation process. It is also the transport medium for sulfur oxidation and neutralizing products. There are three primary means by which water enters surface mine spoil piles. These are:

- surface infiltration (from precipitation and/or snowmelt)
- groundwater inflow from the highwall
- upward leakage from underlying aquifers (in groundwater discharge areas)

All three can be important although the two primary players are surface infiltration and groundwater inflow from the highwall.

Prior to beginning mining activities, exploratory drilling would be conducted to confirm locations and types of subsurface materials including coal. These exploratory drilling activities collect 2- to 4-inch cores of subsurface material to a depth of approximately 200 feet. The OSM indicates that these exploratory operations have the potential to drill into abandoned mine works. There are a large number of both mapped and unmapped abandoned mines in the area of the Bull Hill LAA with the potential to have AMD present under artesian conditions. According to the OSM, similar conditions are not known to exist in the area of the McCurtain and Liberty LAAs.

Drilling into AMD-containing mine works could result in effects from the release of pressurized AMD at the surface. Surface releases of AMD are critical because of their potential to damage riparian habitat and water quality of the Fourche Maline River and Wister Lake, which include sensitive habitat for species covered by the Endangered Species Act and Migratory Bird Treaty Act.

Surface Water Quality. Surface water runoff from each of the LAAs would be permitted through the Oklahoma Department of Environmental Quality (ODEQ) under a National Pollutant Discharge Elimination System (NPDES) for storm water. If wastewater is produced by coal treatment processes, it too would be required have an NPDES permit. These permits would stipulate water quality criteria that must be met prior to discharge.

Liberty West LAA. Discharge criteria for the Liberty West LAA would be established under the basic guidelines for stormwater or wastewater discharge by Standard Industrial Code (SIC) and as developed by the U.S. Environmental Protection Agency (EPA) and the ODEQ. These NPDES discharge limits would be established to protect the watershed and watercourses from coal mine and acid mine drainage as well as other factors.

Bull Hill and McCurtain LAAs. The discharge water quality criteria for the Bull Hill and McCurtain LAAs would be more restrictive based upon their discharge to a Category 5 waterbody. A Category 5 waterbody is one for which the water quality standard is not attained. A total maximum daily load (TMDL) would be developed for the Sans Bois watershed (McCurtain LAA) by 2008. Primary issues affecting the watershed include low dissolved oxygen, pathogens, and turbidity from unknown sources (ODEQ 2002). A TMDL would be developed for portions of the Fourche Maline Creek (Bull Hill) watershed by 2005. Primary issues affecting the watershed include lead concentrations, low dissolved oxygen, and pathogens from unknown sources (ODEQ 2002). Primary issues affecting the east end of the Bull Hill LAA and the Wister Lake Watershed include phosphorous from unknown sources (ODEQ 2002). The ODEQ is developing a TMDL to protect the Wister Lake watershed in 2004.

Groundwater Quality. Groundwater controls used at surface and subsurface mining sites typically involve dewatering of the subsurface aquifers to address water production. After coal removal and overburden replacement, the aquifer is allowed to rewater. Impacts on groundwater quality also may occur within the LAAs including increased fine particles after the pits are filled and AMD. Fine particulate increases should be a short-term effect as the aquifer is rewatered and developed from well pumping. AMD may be a long-term adverse effect.

Liberty West LAA. There are no domestic groundwater wells currently located in the Liberty West LAA that would be affected by potential impacts on groundwater quality (Oklahoma Water Resource Board [OWRB] 2003b).

Bull Hill and McCurtain LAAs. The ODEQ has identified several monitoring wells in the Hartshorne Formation minor aquifer with low pH levels, heavy metal contamination, chlorides, and some controlled industrial waste from historic mining operations and off-site disposal pits for oil field and industrial waste (ODEQ 2002). However, the three existing groundwater wells within the McCurtain LAA are used for domestic supply, indicating that groundwater quality at this location is suitable for use as domestic raw water. Similarly, at least two domestic use groundwater wells are located within the Bull Hill LAA. The treatment processes used on each well prior to use are not known. Due to the impacted nature of the existing aquifer, groundwater quality impacts may be minor, though potentially long-term and adverse.

Water Quantity

Groundwater Quantity. Impacts on groundwater quantity would be similar for all LAAs and are discussed here in common. The one well located in the area of the Liberty West LAA is used for mining and has an estimated yield of 5 gallons per minute (gpm). Three wells are shown to be located within the McCurtain LAA. Yield of these wells is low, ranging from approximately 2 to 10 gpm (OWRB 2003a). Nine wells are shown to be located within the Bull Hill LAA. Yield data were provided for only one well and was low at 2 gpm (OWRB 2003a). Most (67 percent) of these wells are used for mining purposes.

Groundwater controls used at surface and subsurface mining sites typically involve dewatering of the subsurface aquifers to address water production. After coal removal and overburden replacement, the aquifer is allowed to rewater. Dewatering during mining may affect area groundwater wells by temporarily drawing down the aquifer in the mined area. This would result in a temporary adverse effect on the domestic raw water wells within and around the LAAs. When mining is conducted near the wells, water may not be available for domestic use. This would be a short-term, but substantial, adverse effect.

Surface Water Quantity. Impacts on surface water quantity would be similar for all LAAs and are discussed here in common. During mining operations, the area disturbed by mining would be isolated from the surface water in the watershed. Diversion berms would be constructed to divert surface water flows around disturbed area. As a result, no net change in surface water quantity should result from diversion around the disturbed areas.

Diversion berms and sediment ponds would be constructed to control surface water discharges from within the disturbed area. Within these areas, surface water quantity would be expected to be higher due to decreased evapotranspiration resulting from removal of vegetative cover. In addition, runoff within the disturbed area would be expected to exhibit lower infiltration rates due to faster runoff. Both of these factors would result in higher surface water quantities developed in the disturbed areas. Sediment ponds would be used to control the rate of surface water flow offsite. In addition, coordination and permitting through the county floodplain manager should minimize the potential for downstream impacts due to increased surface water volumes during storm events. No appreciable short-term or long-term effects from surface water diversion are anticipated in the Liberty West, McCurtain, or Bull Hill LAAs.

During mining activities, existing surface water features may be removed by surface mining at the Liberty West and Bull Hill LAAs. Depending upon the lease agreement reached between the landowner and the coal lessee, these surface water features are typically replaced, expanded, or increased in number after reclamation. These changes in surface water features would be determined by the landowner in agreement with the coal lessee. Short-term impacts on surface water availability would be adverse in the Liberty West and Bull Hill LAAs. However, long-term impacts are anticipated to be beneficial due to construction or reconstruction of water features during reclamation. No impacts on surface water features are anticipated in the McCurtain LAA due to restrictions the Surface Mining Control and Reclamation Act places on perennial and intermittent stream subsidence.

4.2.2.6 Air Quality

Air quality impacts would be similar for all LAAs and are discussed here in common. The primary project emissions would be dust (particulate matter): process dust (e.g., dust from crushing and conveying systems) and nonprocess dust (e.g., dust from materials handling, blasting, and transport of coal along unpaved haul roads, and maintenance activities such as road repair and grading). However, dust control would be required by the air permit and the mine Plan of Operation, developed by the lessee and specific to each LAA. These controls apply to both operational and maintenance activities and reduce fugitive dust emissions.

Emissions from the combustions of fossil fuels in vehicles also would contribute to effects on air quality (particulate matter, nitrous oxide, sulfur dioxide, carbon monoxide, and volatile organic carbon).

The project would comply with the EPA's Conformity Rule, which requires all Federal actions to conform to State Implementation Plans (SIPs) to improve ambient air quality. The Conformity Rule requires a conformity determination based on air emission analyses for each proposed Federal action within a nonattainment area. At this time, the Conformity Rule only applies to Federal actions in nonattainment areas; therefore, a conformity determination is not required. In the event an air permit were required for a coal processing plant or similar facility, the lessee would be responsible for compliance.

4.2.2.7 Vegetation

<u>Impacts Common to the Action Alternatives</u>

Direct impacts on vegetation result from clearing the surface for excavation, haul roads, and staging areas. The absence of vegetation represents a loss of a vegetative cover to stabilize soils from erosion, loss of habitat, and habitat fragmentation. Indirect impacts would be associated with accelerated wind and water erosion that affect areas adjacent to earth-moving operations. The potential also would exist for noxious weeds to be spread at the expense of native vegetation as areas are cleared for mining activities. Considering that reclamation would restore vegetation to productive postmining uses, the initial impacts from mining would be direct but short term. Also, reclamation allows opportunities for environmental enhancements.

Wetlands. Wetlands are protected under the umbrella of the 1977 Clean Water Act and are described in 40 CFR 328. Specifically, Section 301 of the Act prohibits unpermitted discharges of pollutants into wetlands and Section 404 prohibits the discharge of dredge or fill material into wetlands. Wetlands and riparian areas are important fish and wildlife habitat, serving as crucial sources of food and shelter for numerous types of wildlife, including migratory birds (U.S. Fish and Wildlife Service [USFWS] 2003). The wetland systems encountered in the LAAs, according to draft mine plan maps (Farrell-Cooper Mining Company 2000), are discussed below.

Liberty West LAA. According to information provided by the USFWS National Wetland Inventory (NWI) map for the Stigler East Quadrangle, several wetlands would be impacted by coal mining activities on the Liberty West tract (Farrell-Cooper Mining Company 2000; USFWS 1980a,b,c,d,e,f). The planned mining area, which encompasses the west and northern portions of this tract, currently encroaches on approximately 6 acres of palustrine, open-water, permanent, diked/impounded (POWHh) isolated wetlands located on the southern, western, and northern portions of this tract. The haul roads that are designed to run east-west through this tract to the mine areas encroach upon approximately 3 acres of isolated POWHh wetland systems and a riverine, intermittent, streambedded, seasonal (R4SBC) wetland system (USFWS 1980a,b,c,d,e,f).

McCurtain and Bull Hill LAAs. According to draft mine plan maps of the McCurtain and Bull Hill LAAs (Farrell-Cooper Mining Company 2000), which represent the areas that would be affected on each tract by coal mining activities, combined with information provided by the USFWS NWI maps for the McCurtain, Summerfield, LeFlore, Lafayette, and Red Oak quadrangle maps, the mined areas would not encroach on wetlands of any type (Farrell-Cooper Mining Company 2002d, 2002e; USFWS 1980b, c, d, e, f). Therefore, there would appear to be no appreciable effect on wetlands on either the McCurtain or Bull Hill LAAs from mining activities under Alternative B.

Riparian Areas. Riparian areas exist in the three LAAs. Some of these riparian areas could be affected directly from mining activities. The potential exists for additional direct impacts on riparian vegetation from spills or short-term changes in water quality during operations. This vegetation type may be affected indirectly by changes in hydrology due to stream diversion. The loss of riparian vegetation would be considered important because of its value as wildlife habitat and its limited existence in the LAAs.

According to the BLM's 1994 Resource Management Plan, the BLM maintains a "Riparian Area Management Policy," which is designed to maintain, restore, and/or improve riparian areas to achieve a healthy and productive ecological condition for maximum long-term benefits (U.S. Department of the Interior [USDI], BLM 1994). In addition, Executive Order 11990 instructs the U.S. Army Corps of Engineers (USACE) to protect wetlands and the riparian areas associated with the wetlands (USACE 1977).

Liberty West LAA. Based on draft mine plan maps of the Liberty West LAA (Farrell-Cooper Mining Company 2000), which reflect the areas that would be affected by mine operations, and information provided by the USFWS NWI maps, several wetlands and their associated riparian areas would be affected by coal mining operations (Farrell-Cooper Mining Company 2000; USFWS 1980a). Though not substantial, there are minor riparian areas surrounding each of the wetland systems (ponds, creeks) that would be impacted on the Liberty West tract. The riparian buffers could act as a habitat for wetland wildlife. Because the thin layer of riparian area is small in the Liberty West tract, only a minor impact would be anticipated to occur.

McCurtain LAA. According to draft mine plan maps for the McCurtain LAA (Farrell-Cooper Mining Company 2000) and information provided by the USFWS NWI maps (1980b), no riparian areas should be affected from underground coal mining techniques that would be used on the McCurtain tract.

Bull Hill LAA. The easternmost portion of the Bull Hill tract, between the City of Fanshawe and Wister Lake, borders the riparian areas associated with Wister Lake. The oak/pine woody vegetation riparian area on the north of Wister Lake is a POWh-type wetland system. However, a railroad separates the Bull Hill tract from the Wister Lake riparian area, creating an established man-made buffer. The presence of this railroad buffer reduces the effect of mining operations to result in a minor impact on the riparian area under Alternative B. Impacts on riparian areas in the remainder of the Bull Hill LAA (westernmost) also appear to be minor because the wetlands are buffered by distance from mining operations. These conclusions are based on information gathered from draft mine plan maps (Farrell-Cooper Mining Company 2000) and information provided by the USFWS NWI maps (1980c,d,e,f).

4.2.2.8 Wildlife

Impacts Common to the Action Alternatives

The magnitude of impacts on wildlife depends on the time of year, location, amount of surface disturbance, sensitivity and adaptability of the wildlife species present, and duration of human activities

and noise associated with mining activities. Deviation in normal activity patterns and use of habitat by wildlife may affect the animal's energy budget and, therefore, the welfare and productivity of the animal.

Direct impacts on wildlife include habitat loss and/or fragmentation, disturbance or displacement of wildlife, some mortality of individual animals, and hazards created by harmful substances. Loss or fragmentation of habitat would result from clearing of vegetation for mining activities, roads, and ancillary facilities. The magnitude of the impacts may be greater if the habitat affected is rare or used during critical periods in the animal's life, or if construction is near a water source used by wildlife. Increased noise and human activity may disturb or displace wildlife. Although wildlife species are likely to avoid areas where increased human activity is occurring, wildlife may be forced to less desirable habitat due to human presence. Also, it is possible to displace animals into adjacent habitats beyond the carrying capacity of those habitats, potentially increasing the competition for limited resources. Vehicles and facilities at the mine sites present possible hazards if leaks or spills of hazardous materials (such as petroleum products) occur.

Indirect impacts on wildlife could include the secondary effects of habitat fragmentation and the effects of soil erosion. Habitat fragmentation is the division of an extensive habitat into smaller habitat patches. Soil erosion caused by mining operations could result in increased sedimentation into streams, thereby affecting aquatic habitat downstream of mining activities as well as degrading the water sources for wildlife populations.

Wildlife Management Areas

Wildlife Management Areas (WMAs) were established in the State of Oklahoma to promote the sound management of fish and wildlife resources that reside within the WMAs. WMAs generally are designated as public hunting areas, game management areas, migratory bird refuges, waterfowl refuges, or wetland development units (Oklahoma Department of Wildlife Conservation [ODWC] 2003c).

Avian Habitat

According to information provided by the Texas Parks and Wildlife Department (TPWD), the LAAs are located within the Central Flyway Zone of North America (TPWD 2003). In addition, according to information provided by the USFWS, each LAA is located adjacent to or near WMAs, State Parks, or National Wildlife Refuges (NWR), all of which manage habitats specifically for migratory birds (USFWS 2003). All birds are afforded protection under the Migratory Bird Treaty Act (MBTA). Based on the proximity of these LAAs to WMAs, State Parks, and NWR, there is a potential for migratory birds to use the LAA as habitat. Therefore, there could be an impact on migratory birds from mining activities and permanent removal of woodland vegetation, which is suitable habitat for these birds.

Liberty West LAA. The Liberty West tract is located between the Sequoyah NWR and Little Sans Bois Creek, which are both sensitive receptors. The receptors/WMAs are located approximately 1.5 to 2.0 miles south, north, and east of the Liberty West tract. Based on this distance and the lack of woodland vegetation, it appears that coal mining activities on the Liberty West tract would have no appreciable effect on the habitat of migratory birds or other species under Alternative B.

McCurtain LAA. The McCurtain LAA is located approximately 1 mile south of the Sans Bois Creek. Migratory birds could utilize the area of the McCurtain tract as a habitat, but may not prefer this tract as habitat since Seven Devils Mountain and one mile separate Sans Bois Creek from the McCurtain tract. Therefore, it appears that coal mining activities under this alternative on the McCurtain tract would cause little to no impact on migratory bird habitat.

Bull Hill LAA. A portion of the Bull Hill LAA is located within Wister WMA, Wister Lake State Park, and along the Fourche Maline River, which are sensitive receptors for migratory birds. Under Alternative B, surface mining would not be allowed in the Wister Lake State Park. According to information provided by the USFWS, removal of the riparian area from the Wister Reservoir and the Fourche Maline River (near the Bull Hill tracts) also could contribute to the degradation of habitat for migratory birds.

Habitat Enhancement

Wildlife habitat enhancement plans are designed to protect wildlife and sensitive areas of plant communities. The Standard Habitat Site that would be considered most sensitive or more important would be the oak/pine woodland vegetative community located on the Bull Hill tract. According to the Oklahoma Natural Heritage Registry from the Oklahoma Natural Heritage Inventory (ONHI), the oak/pine woodland vegetative community is considered to be an area that is voluntarily protected by landowners in the area through the Natural Areas Registry Program (ONHI 2003). The vegetative community on the Bull Hill tract has not been designated as a natural area under the Surface Mining Control and Reclamation Act (Section 3461.59(h)). Mining activities on the Bull Hill tract or (the other LAAs) would not affect Wildlife Habitat Enhancement Plans under Alternative B.

Big Game

Liberty West and McCurtain LAAs. Vegetation on the Liberty West tract consists predominantly of native grasses and Bermuda grass, with minor woody vegetation around the streams. Generally, big game would not be attracted to this type of vegetation. A small portion of the McCurtain tract has the oak/pine woodland community established, which is the preferred habitat of big game. However, less than 3 percent of this woodland vegetation type would be affected by activities associated with mining at the portal, staging, and loading area (subsurface mining is proposed on the McCurtain LAA). Therefore, impacts on big game wildlife on the Liberty West or McCurtain LAAs are not anticipated.

Bull Hill LAA. Approximately 80 percent of the Bull Hill LAA consists of the oak/pine forest. Common trees within this vegetative community includes loblolly pine (*Pinus taeda*), shortleaf yellow pine (*Pinus echinata*), red oak (*Quercus rubra*), post oak (*Quercus stellata*), and blackjack oak (*Quercus marilandica*). According to information provided by the ODWC, the oak/pine forest is one of the most used Standard Habitat Sites used by big game, including the white-tailed deer (*Odocoileus virginanus*) and wild turkey (*Meleagris gallopavo*) (ODWC 2003b).

Based on the predominant type of vegetation on the Bull Hill tract, it appears that mining activities under Alternative B could result in indirect impacts on big game. The alteration in vegetation type from woodlands to a grass community, if woodlands are not re-established, would force big game utilizing this area to be displaced to adjacent, more desirable habitat.

Small Game

Since the vegetation on the Liberty West LAA is predominantly native and invasive grasses, some small game animals would be attracted to this habitat. The quail and pheasants tend to utilize the heavy cover of the thick grasses to hide and as a source of food. The McCurtain and Bull Hill LAAs contain predominantly woody vegetation, but would be attractive to small game species such as squirrels. No Federal or State regulations appear to have been established for protecting small game. Displacement of these small game animals and some mortality of individual animals most likely would result from coal mining activities.

Nongame

Several nongame wildlife species are believed to inhabit the LAAs, including amphibians, reptiles, birds, and various mammals. The grass and woodland habitats on each LAA supports a wide variety of nongame wildlife species. These nongame species most likely would be displaced to areas of more desirable habitat and some mortality of individual animals most likely would result from mining activities.

4.2.2.9 Special Status Species

There are three Federally and State-listed threatened and endangered species that have the potential to occur in the LAAs. In addition, there is one species of special concern (shorthead redhorse) potentially located in the LAAs. A list of Federally listed species was provided in a letter dated July 9, 2003 from the USFWS (2003) (Appendix A). The species are described in this section. State-listed threatened and endangered species and any rare or imperiled or species of concern were obtained from the ODWC (2003b) and the ONHI (2003), respectively.

Impacts Common to the Action Alternatives

Impacts associated with mining activities that could affect special status plant and animal species are the same as those described for vegetation and wildlife in previous sections. The type of habitat disturbed and the effects on species associated with those habitats would be determined on a site-specific basis when the detailed mine Plan of Operations is reviewed for approval.

According to information provided by the USFWS and the ODWC, the American burying beetle (*Nicrophorus americanus*) has the potential to be located on all three LAAs. This species is Federally and State-listed as endangered and inhabits habitat areas, from the post-oak savannah to grassland/scrub areas, that would allow this beetle the maneuverability to be active at night. Coal Lease Stipulation 4 (CLS-4) provided in the BLM's 1994 RMP states that no coal mining activities may be performed that would result in unacceptable impacts on the American burying beetle and that additional studies will be conducted to identify methods for either removing or transplanting the affected species. Under the requirements of this stipulation, no appreciable impact to the American burying beetle should occur as a result of leasing. Therefore, lands within the LAAs may be considered suitable for mining with the inclusion of CLS-4 for the American burying beetle.

The USFWS has stated in their July 9, 2003 letter that additional measures should be taken prior to mining to prevent an impact on the American burying beetle. Surveys, conducted by a biologist with a Section 10 permit, should be conducted when the American burying beetle is active, which is late April to mid-September, and prior to construction. If survey results are negative, then project activities could proceed. If survey results are positive, then baiting away or trapping and relocating the American burying beetle must be implemented prior to the dormant season to avoid substantial adverse impacts on this beetle. If the survey cannot be postponed until the American burying beetle active period, or if results are positive for the survey, then formal consultation under Section 7 must take place.

Liberty West and McCurtain LAAs. In addition to the American burying beetle, information from the USFWS and the ODWC indicates that the bald eagle (*Haliaeetus leucocephalus*) and the interior least tern (*Sterna antillarum*) have the potential to be located on the LAAs. The bald eagle, Federally and State-listed as threatened, roosts and nests near large bodies of water and can occur within the region year-round. They prefer quiet areas of rivers, lakeshores, and man-made reservoirs. No bald eagles were observed during the April 2003 site reconnaissance. The interior least tern, Federally and State-listed as

endangered, uses islands and sandy beaches along rivers in Oklahoma from May to September. The sand must be mostly clear of vegetation to be used by terns. Least terns prefer shallow water for fishing and water levels must be low enough so that the nests stay dry. Based on the habitat requirements for the bald eagle and interior least tern, the potential for these species to inhabit the McCurtain and Liberty West tracts are low. Therefore, impacts on the bald eagle and interior least tern are not anticipated to occur.

Bull Hill LAA. It is not anticipated that the interior least tern would be impacted on the Bull Hill LAA based on this species' habitat requirements. However, potential habitat does exist for the bald eagle on the adjacent Wister WMA. The bald eagle currently could utilize the area on the LAA and adjacent areas. Removal of suitable habitat for the bald eagle could result in adverse impact on the species.

4.2.2.10 Noxious Weeds

Information provided by the Oklahoma Department of Agriculture (ODA), Food and Forestry Division, states that three invasive species of weeds, listed on the Noxious Weeds List for the State of Oklahoma, including musk thistle (*Carduus nutans*), Scotch thistle (*Onopordum acanthium*), and Canada thistle (*Circium arvense*), are a nuisance in all counties across the State of Oklahoma (ODA 2002).

No noxious weeds were observed on the LAAs during a site reconnaissance on April 10, 2003. However, draft mine plan maps were not available at that time and not all of the areas that may be mined, including haul road and staging areas, were observed during the site reconnaissance. If present in the LAAs, the removal of these noxious weeds as a result of clearing for mining activities could be substantially beneficial. During reclamation, a seed mix would be used that does not include seeds of noxious weeds, and reclamation progress would be monitored for invasive species. Corrective measures then could be applied to the extent practical if noxious weeds are found.

4.2.2.11 Noise

Noise impacts would be similar in each LAA and are presented in this section in common. This analysis focuses on noise impacts from the operation of the mining equipment and support equipment. Because the location of all mobile equipment cannot be predicted, the analysis considers typical noise levels resulting from process components without regard to location.

The level of significance to residences for each impact is based upon the applicable noise guidelines. The Housing and Urban Development (HUD) Guidelines define the maximum acceptable noise level as 65 A-weighted sound level (dBA) day-night average noise level (Ldn) (HUD 1979). The EPA has recommended a noise level of 55 dBA Ldn (EPA 1971). Due to the long-term nature of the potential noise impact, the lower level 55 dBA Ldn would be considered the level of significance for this analysis.

Project-related operations resulting in noise generation would include the removal of the overburden and interburden and blasting. Significant noise-producing equipment associated with these activities includes draglines, bulldozers, scrapers, and front-end loaders. Typical noise levels from the equipment are presented in Figure 4-1. Acoustical calculations were performed to estimate the location of the 55 and 65 dBA noise contours. The calculations assume "hard-site" point source attenuation characteristics. Strictly speaking, hard-site propagation decays sound at a rate of approximately 6 dB per doubling of distance from the source-receiver pair. This is a logarithmic relationship describing the acoustical spreading of a pure undisturbed spherical wave in air. The calculations are for equipment operating at a constant sound level, in direct line-of-sight of a receptor. The actual distance to the contours may be less than estimated, due to noise attenuation achieved by intervening topography and structures, dense ground vegetation, and/or atmospheric absorption. Therefore, the calculations are considered worst case.

The distance to the noise contours is summarized in Table 4-1. The mining process for this alternative requires the equipment to be moved. The exact location of mining activity in relation to residences is not known. However, mining may occur as close as 300 feet from residences. At 300 feet, sound levels would range from approximately 58 to 77 dBA. The distance range for the 55 dBA noise contour reflects the range in noise output of the equipment as presented in Figure 4-1.

The estimated sound levels would be applicable to Liberty West, Bull Hill, and McCurtain surface mining areas. However, noise generated by underground mining would be limited to the surface portal and loading areas.

TABLE 4-1
SOUND LEVELS AND DISTANCE TO CONTOURS

Noise Source	Sound Level at 50 Feet (dBA)	Sound Level at 300 Feet (dBA)	Approximate Distance to Noise Contour (feet)	
			55 dBA	65 dBA
Dragline Crane	76-88	61-73	550-2,250	175-700
Bulldozer	80-92	65-77	875-3,550	275-3,525
Scraper	80-92	65-77	875-3,550	275-3,525
Front-End Loader	73-85	58-70	400-1,575	125-500

SOURCE: URS Corporation 2003

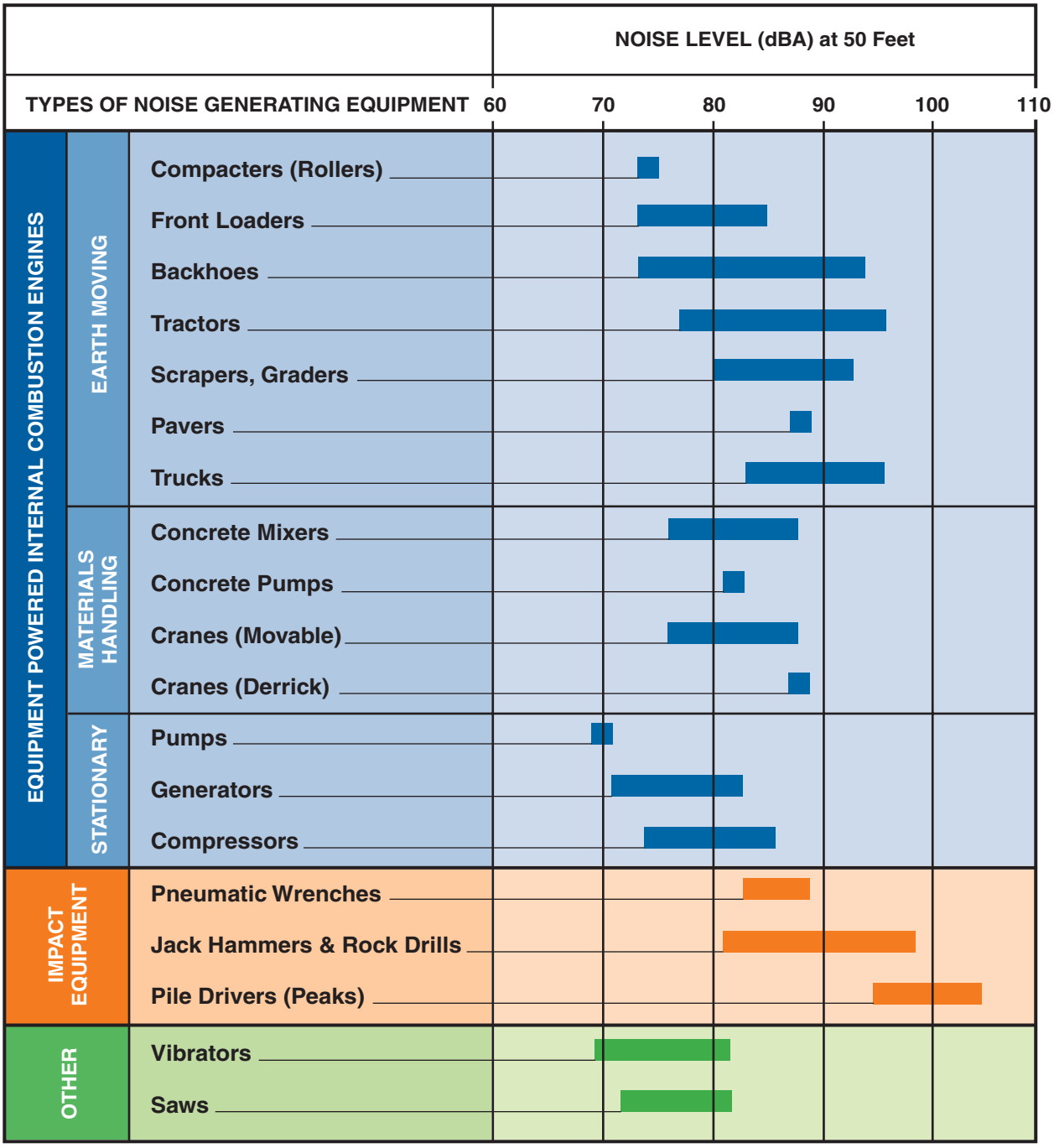
Blasting

Noise and vibration perceived by blasting is the result of an air blast, which is the airborne noise component of blasting. An air blast is a pressure disturbance that travels through the air like any other sound, and it is quantified in the same manner as any noise event. Because of the impulsive nature of the blast, it is commonly referred to as an “over-pressure” (a temporary increase in air pressure over the standard atmospheric pressure). Generally, noise from blasting is of short duration.

Because the air blast contains mostly low frequencies (typically less than 200 Hertz), it is often felt rather than heard. The overpressure (and resultant noise level) is a function of the source strength (charge weight), weather conditions, and distance to the receiver. Air blasts impinging upon a structure can impart an impulsive force and thus cause windows or walls to vibrate, but this only occurs where the source (blasting) and receiver (residence) are in direct line of sight with the over-pressure wave. Blasting noise usually lasts from approximately 2 to 10 seconds.

The evaluation of noise-limit criteria for blasting effects is based solely on existing empirical blasting data and the causality of its effects. Significance of the noise impact created by blasting in this analysis is based on guidelines developed by the Dahlgren Naval Surface Warfare Center (Pater 1976). The blasting effects criteria are divided into two categories: damage criteria and annoyance criteria. As a rule, damage threshold criteria correspond to significantly higher noise and vibration levels than annoyance threshold criteria. Damage thresholds typically are associated with increases in the occurrence of broken windows, small cracks, and minor cosmetic damage to structures, such as residences. Annoyance thresholds typically correspond to a significant percentage of residents being highly annoyed by occasional blasting events. Annoyance criteria account for some secondary effects such as rattling of windows or dishes, startle, and perceived threat of damage to a structure.

Typical Construction Equipment Noise Generation Levels



URS

Figure 4-1

The guidelines identify the possibility of complaint or structural damage resulting from a blasting event. The sound levels are expressed in dBP, which is the unweighted peak sound pressure level (in decibels 20 microPascals). The peak sound pressure level is the maximum instantaneous level that occurs during the blast (Table 4-2). The dBA is most commonly used to evaluate environmental noise from highways, railroads, and airports. The method uses a weighting factor that discriminates against low- and high-frequency noise, which simulates hearing of the human ear. Because low-frequency noise is a major component of ordnance detonation, it would not be appropriate to use the dBA metric for this assessment.

TABLE 4-2
BLASTING NOISE IMPACT GUIDELINES

Predicted Sound Level (dBP)	Possibility of Complaints or Damage
<115	Low possibility of complaints
115-130	Moderate possibility of complaints
130-140	High possibility of noise complaints, possibility of damage to buildings
>140	Threshold for permanent physiological damage to unprotected human ears, high risk of structural damage to buildings

Sound levels were measured during three blasting events at the Liberty LAA. Hole depths varied from 85 to 92 feet. The total amount of explosives in the holes was between 1,800 and 2,400 pounds. There were 5 feet of backfill above the hole and 25 feet of stemming on top of the explosives. The measured peak sound level for each of the three events was 126 dB, 127 dB and 126 dB at 3,600, 4,050 and 4,200 feet, respectively (Farrell-Cooper Mining Company 2003c). Based on the measured levels, the blast would have resulted in a moderate possibility of complaints. Blasting at much closer distances to, and in line-of-sight to residences, may result in a number of complaints and the possibility of damage to buildings.

Public Law 95-87 was passed to address the impacts of blasting from coal mining operations on adjacent lands. The regulations promulgated from this law set maximum levels of overpressure. These regulations must be abided by any mining operation. The standards that exist are not distance dependent. According to the regulations, airblast shall not exceed the maximum limits listed in the Table 4-3 at the location of any dwelling, public building, school, church, or community or institutional building outside the permit area, except as provided in 30 CFR 810.67(b)(1)(c).

TABLE 4-3
AIRBLAST LIMITS

Lower Frequency Limit of Measuring System (in Hz (13dB)	Maximum Level (in dB)
0.1 Hz or lower flat response[1]	134 peak
2 Hz or lower flat response	133 peak
6 Hz or lower flat response	129 peak
C-weighted slow response[1]	105 peak dBC

SOURCE: 30 CFR 816.67(3)
NOTE: [1] Only when approved by the regulatory authority.

4.2.2.12 Cultural Resources

In accordance with the provisions of the National Historic Preservation Act and 36 CFR 800, the BLM has consulted with the Oklahoma Historic Preservation Office, Oklahoma Archeological Survey, Native American tribes, and the interested public regarding the potential impacts the proposed alternatives may have on cultural resources. Once final mine Plans of Operation are developed by the lessee, these areas would be surveyed for cultural resources. Any cultural resources identified that may be affected by the proposed project would be evaluated and treated in accordance with 36 CFR 800.

4.2.2.13 Recreation

Hunting is allowed on private lands in Haskell, Latimer, and LeFlore Counties. One landowner indicated during scoping that the landowner uses the land for hunting by private individuals for a fee. This and other hunting in the Liberty West and Bull Hill LAAs would be restricted during mining activities. On the McCurtain LAA, hunting would be restricted in areas of active surface disturbance—a short-term impact.

Because the Liberty West and McCurtain LAAs would be returned to land use similar to pre-mining condition, recreational hunting should not be affected long term. In the Bull Hill LAA, land use would be modified from primarily woodland to grassland, and the type of hunting in this area may be altered long term.

Under Alternative B, stipulations would restrict potential mining in the Wister WMA managed by the ODWC. Hunting in the WMA may be affected due to displacement of game species from active adjacent mining area into the habitat of the WMA.

Potential impacts on recreational resources also would occur primarily because mining activities would be in the viewshed of a scenic or recreational area. These impacts are more directly addressed in the following section through analysis of visual resources. Recreation in and adjacent to the Liberty West and McCurtain LAAs is infrequent and dispersed. Therefore, impacts on recreation at the Liberty West and McCurtain LAAs would not be anticipated. However, impacts could occur in the Bull Hill LAA.

Visibility and visual sensitivity of the Bull Hill LAA is potentially high due to the long linear nature of the tracts on the topographic high ground, visible in areas from U.S. Highway 271 and Wister State Park. The results of the coal screen (Chapter 2.0, Section 2.3.2), unsuitability Criterion Number 3 indicates that a 300-foot buffer area along the boundary of Wister Lake State Park is unsuitable for development, which would eliminate that portion of the LAA from mining activities. However, the Bull Hill activities would be within the foreground views of viewers in Wister Lake State Park. Impacts on recreation in the park would be short term, being limited to visual impact during active mining operations in adjacent and foreground view areas only.

4.2.2.14 Visual Resources

Methodology

The assessment of visual impacts is based upon methodology developed in the BLM's visual contrast rating system (BLM 1986). The degree to which project operations would impact the scenic qualities of the landscape depends on the amount of visible contrast created by project operations in relation to the existing landscape character, and the visibility of the disturbance to sensitive viewpoints in the area. The amount of contrast is dependent on how the project affects the existing landscape elements (line, form, color and texture), and is determined by evaluating factors such as spatial dominance, scale of the

disturbance, existing landscape disturbance, impacts on landforms, soil color, structural elements, and vegetation patterns. Variables to consider in determining the visibility of the operations include topographic or vegetation screening, view distance, and viewer sensitivity.

The BLM's visual resource management system combines a foreground and middleground viewing distance into a zone of 0 to 3-5 miles. For the purpose of this visual analysis, the foreground distance has been defined to be 0-0.5 mile. This is an appropriate distinction to make as potential impacts are quite different between viewing a landscape disturbance within 0.5 mile versus viewing it from several miles away. Visual impacts may be high within the foreground distance, making allowances for any vegetation or topographic screening. Generally, impacts tend to decrease the farther a viewer is from the disturbance, and visual impacts are moderate as views are beyond the foreground distance.

Liberty West LAA. Surface mining would involve several activities that would result in noticeable visual contrasts. Mining would involve the construction of a series of long, narrow pits that would be approximately 150 feet wide at the bottom and range from 60 to 120 in depth. The pits would range from 2,000 to 4,000 feet in length. Topsoil would be removed from the pit area and stockpiled, which would result in color contrasts between the disturbed ground and the surrounding vegetation. The stockpiles would also create landform contrasts. A dragline would remove the overburden and bulldozers would be used to push the excavated overburden into the previously excavated pits. As the pit is excavated and the coal mined, coal is loaded and hauled to the coal pad area. Diversion berms also may be constructed for the diversion of surface water flows. All of these activities result in physical alteration of the existing landscape, and would cause noticeable visual contrasts. These contrasts would include changes in landform, color contrasts, changes in vegetation, and changes in the amount of traffic (hauling coal) and general level of human activity. However, the scale of the disturbance is limited, in general, to the active area being mined, because the concurrent filling-in of the previously mined pit and reclamation activities would reduce the total amount of disturbed land visible at any one time. The area of major visual impacts also would move with the mining activity and would not remain in any one location for the duration of mining within the LAA.

Two residences are located within the Liberty West LAA, and they would all experience a substantial degree of visual impact as mining proceeded in the vicinity of the homes. Alternative B includes a 300-foot buffer around homes, but sensitivity to visual impacts would be considered to be high within the foreground viewing distance, which in this type of landscape would be up to 0.25 to 0.5 miles, depending on topography and vegetation. Visual effects would be highest just outside the 300-foot buffer and would decrease as mining proceeded further away from the homes. Visual impact would be temporary as the mining moved through the area. With successful reclamation, long-term effects would be minor.

McCurtain LAA. Coal in the McCurtain LAA would be recovered with underground mining methods. Only the portal area (approximately 20 acres) would be disturbed. The above-ground activities such as crushing, loading, and hauling of the coal would increase the level of visible industrial activity and be noticeable to any potential viewers in the area. The LAA contains five residences and no nearby recreation areas. Sensitivity and the potential impacts of these activities are low.

Bull Hill LAA. Operations in the Bull Hill LAA would involve surface mining and auger mining. The potential for visual contrasts are similar to the effects described for the Liberty West LAA, and include contrasts in landform, color, vegetation patterns and a general increase in human activity including traffic from haul trucks. Operations at Bull Hill have one difference from Liberty West in that much of the mining would occur on ridgetops, and the change in landform would be more pronounced than what would be experienced of level terrain.

Visibility and visual sensitivity of the Bull Hill tracts is potentially high due to the long linear nature of the tracts on the topographic high ground, visible in areas from U.S. Highway 271 and Wister Lake State Park. The results of the coal screen (Chapter 2.0, Section 2.3.2), unsuitability Criterion Number 3, indicates that a 300-foot buffer area along the boundary of Wister Lake State Park is unsuitable for development, which would eliminate that portion of the LAA from mining activities. However, the Bull Hill activities would remain within the foreground views of viewers in Wister Lake State Park. Impacts on recreation in the State Park would be short term—limited to the period of active mining operations in foreground views only. Most viewers on U.S. Highway 271 are more than 0.5 mile distant from the mining areas, as are the homes along the highway. At those distances, the visual contrasts would be visible but would not strongly attract visual attention.

There are nine residences within portions of the Bull Hill tracts, and visual sensitivity would be high in those instances where mining activities came within the foreground view distance of the sensitive viewpoints. As discussed for the Liberty West operations, the level of visual impact decreases as the active mining area moves farther from the viewpoint, and the impact would be temporary as the mining moves away from the sensitive locations and the previously mined areas are reclaimed.

4.2.2.15 Social and Economic Conditions

The principal socioeconomic issues include the economic benefits provided by mining, beneficial secondary economic effects, and potential impacts on resources from mining that might impair future economic growth. In addition, potential environmental justice impacts to populations defined as minority or low income (see Table 3-6) must be considered in accordance with Executive Order 12898.

Impacts Common to the Action Alternatives

The continuation or expansion of mining in the LAAs would contribute positively to the local job market. Latimer County is particularly sensitive to changes in mining employment, given its relatively large share of employment in the mining industry. Benefits such as direct and secondary (indirect or induced) job creation and retention; direct and secondary earnings; lease payments; taxes and royalties returned to Federal, State, and local governments; and corporate contributions to charities and local community groups likely would continue or increase in proportion to jobs and coal production in the planning area. These direct and secondary impacts would be similar to the current activities described in Section 3.20.6.

The history and presence of mining in the area suggests that it is an established part of the lifestyle in local communities. Future growth would occur in this context under all action alternatives and would, thus, be consistent with the prevalent community attitudes and values. Resource-specific concerns also were raised during scoping that were perceived as potentially linked to economic issues; these are addressed in the appropriate resource sections.

Given the effects associated with Alternative B, there would not be a disproportionate share of such impacts on environmental justice populations. Public input has not indicated any other specific concerns related to environmental justice.

Liberty West LAA. Under Alternative B, employment and earnings associated with the Liberty Mine Complex would be expected to remain at current levels over the time required to mine the entire area. This is estimated at 84 employees earning $36,000 (plus $18,000 in benefits) or total wages of $3,024,000 in wages (plus $1,512,000 in benefits) annually. If historic multipliers apply (Oklahoma State University 1992), estimated secondary employment of 125 persons and earnings of $3,810,240 would continue to be realized in associated economic sectors.

McCurtain LAA. Under Alternative B, this area would be established as a new mine operation. It would be expected to employ about 50 persons at an annual average rate of $40,500 (plus $24,300 annually in benefits). The total annual wage expenditures would be $2,025,000 and the total annual benefits expenditures would be $1,215,000. The immediate area, including the McCurtain LAA, would be mined over approximately 25 years and followed by reclamation efforts, as appropriate. If historic multipliers apply (Oklahoma State University 1992), estimated secondary employment of 75 persons and earnings of $2,551,500 would continue to be realized in associated economic sectors.

Bull Hill LAA. Under Alternative B, current employment at the Heavener East Mine complex would increase by 10 to 12 personnel over current job levels of 70. Earnings from increasing jobs would be similar to existing jobs, which pay an average of $36,000, plus $18,000 in benefits. The total annual expenditures for wages would be $2,880,000 to $2,952,000 (an increase of $360,000 to $432,000 over current levels). The total annual expenditures for benefits would be $1,440,000 to $1,476,000 (an increase of $180,000 to $216,000 over current levels). If historic multipliers apply (Oklahoma State University 1992), estimated secondary employment would increase by 15 to 18 persons and estimated secondary earnings would increase by $453,600 to $544,320 over current levels. Using the same historic multipliers current secondary employment would be 104 and current secondary income would be $3,175,200. It is estimated that the Bull Hill LAA would be mined in approximately 10 years, and followed by reclamation efforts as appropriate.

4.2.3 Alternative C: Balanced Production and Resource Protection

The types and degree of impacts that could result from proposed mining activities under Alternative C would be similar or the same as those impacts described for Alternative B (Section 4.2.3). The primary difference between Alternatives B and C would be the stipulations included in the lease. Under Alternative C, stipulations CLS-1 through CLS-7 would apply (as they would under Alternative B) as well as CLS-8, which would provide further protection for wetlands and riparian areas, Wister WMA, and priority streams.

4.3 CUMULATIVE EFFECTS

4.3.1 Noise

Noise from mining activities may result in a cumulative increase in the noise environment at any given location. In general, sound level variations of less than 3 dBA are not detectable by the human ear. The quantitative increase is dependent on the specific location of the facilities. The cumulative increase would tend to be unnoticeable in areas near loud commercial or industrial noise sources or near high-traffic roadways. The cumulative increase would tend to be apparent in quiet rural or residential areas such as the LAAs.

4.3.2 McCurtain AML Project

During the 1940s, 1960s, and 1970s, the area around and in the McCurtain LAA was strip mined for coal. At that time, reclamation laws were not in existence; therefore, the coal companies abandoned this area without reclamation. Furthermore, the companies, their bonds, and assets no longer exist. These lands are now abandoned mine lands (AML) and are being addressed through the Oklahoma Conservation Commission's (OCC) AML program (OCC-AML 2004).

Businesses and the general public began dumping trash on the site 40 to 45 years ago. To dump more trash unseen, members of the public created their own side roads with easy access and hiding places for a

number of illegal activities. These roads remain open today. The area has open access from Oklahoma State Highway 26 and a county road serving LeFlore and Haskell Counties. The landowner's, neighbor's, Sheriff's, and County Commissioner's attempts to stop dumping and other illegal activities have been futile because of the open pubic road and side roads (OCC-AML 2004).

Current concerns at the 170-acre former mining site include:

- Illegal commercial and household trash dumping containing unknown chemical hazards
- Impacts on the watershed and two streams from chemical dumping
- General health hazard and environmental degradation issues
- Degradation of wildlife habitat and feeding grounds for potential bald eagles, American burying beetle, duck, deer, raccoon, bob white, quail, beaver, and other terrestrial wildlife habitat (OCC-AML 2004)

The OCC's AML cleanup plan for this area includes:

- Eliminating 26.7 acres of hazardous water bodies
- Eliminating several thousand linear feet of highwall of varying heights
- Removing contaminants and pollutants
- Reclaiming and rehabilitating the watershed by conversion to greenspace
- Establishing erosion control and riparian zones along two freshwater streams
- Realigning the existing county public access road
- Removing side roads
- Providing official trash receptacle stations free to the public on a temporary basis (OCC-AML 2004).

As part of the McCurtain LAA, Farrell-Cooper Mining Company has requested that 20 acres of the 170-acre planned reclamation area be removed from the OCC's AML plan. This accounts for roughly 12 percent of the total planned reclamation area. The area to be removed from the AML program is the south ½ of the northwest ¼ of section 14, T8N, R22E of Haskell County. If the LAA is leased and Farrell-Cooper Mining Company is the successful bidder, the company would be responsible for reclamation of this 20-acre portion, making its permanent use compatible with the remaining 150 acres (OCC-AML 2004). This represents an approximate $240,000 reduction in costs to the public for the implementation of the AML program (12 percent of projected $2,000,000 total) (OCC-AML 2003) a beneficial conversion of land use, and improvements to topography as a result of proposed leasing of the McCurtain LAA.

4.4 MITIGATION PLANNING

4.4.1 Water Quality and Acid Mine Drainage

Exploratory drilling on the Bull Hill LAA should be conducted only if there are means immediately available to plug the drilling holes if AMD were encountered. In the event that AMD is encountered, plugging should be completed in accordance with the American Water Works Association (AWWA)

Standard for Water Wells, AWWA A100-97 Wells intended for use as monitoring wells can be completed as such with adequate control to prevent artesian flow. However, there also should be a plan to shut-in the wells permanently at a later date in accordance with the AWWA standard.

It is also recommended that the lessee collect drilled overburden samples during exploratory drilling and conduct Modified Sobek Method-type acid base accounting tests to determine the potential for AMD production (OSM 2004b).

There are two primary means of managing water on surface coal mines to prevent acid mine drainage (AMD). The first is to minimize infiltration into the spoil surface. A second is to minimize the contact time between groundwater and acid-producing mine spoil.

4.4.1.1 Minimize Infiltration

Reclamation and revegetation can reduce the production of AMD by promoting surface runoff and evapotranspiration, thus minimizing infiltration into the backfilled spoil. AMD problems may decrease significantly when sites are mined and reclaimed quickly (Perry et al.1997). Rapid reclamation reduces the amount of available water as well as its contact time with acid-forming materials and limits the time available for sulfur oxidation, two important items in acid production. One method to help ensure rapid reclamation is to limit the total surface area disturbed and unrevegetated at any one time. Another is to minimize the temporary cessation of backfilling. All of these factors contribute to the potential for impacts on surface and groundwater quality.

Although relatively simple, an adequate erosion and sedimentation plan is an essential component of water management on surface mines. Well-designed erosion and sedimentation controls can prevent a significant amount of infiltration into a mine site. Poor controls may add to the problem. The use of erosion and sedimentation controls has been a recommended practice since the mid-1950s (Braley 1954; Brant and Moulton 1960). Such controls include diversion ditches, collection ditches, and sedimentation and treatment ponds as described below.

<u>Diversion Ditches</u>

These features are positioned where they will divert surface water away from a surface mine site. They usually are located above the final highwall or in areas where it is necessary to divert surface flows away from spoil material. Diversion ditches may not be needed on all mine sites due to topography or the presence of highwall berms or topsoil piles. Their function is to prevent excessive infiltration of surface water into backfilled spoils.

<u>Collection Ditches</u>

The purpose of collection ditches is to collect runoff (mostly from precipitation) from active or recently backfilled areas and convey it to sedimentation ponds in a nonerosive manner. Collection ditches normally are located in undisturbed ground below the mining area; however, they may at times need to be constructed in relatively permeable spoil material. When constructed in spoil, collection ditches may direct large quantities of water into the backfill. To prevent this, ditches in spoil should be lined with impermeable material to prevent infiltration. Additional factors to consider are: (a) the elimination, where possible, of cross-site ditches; and (b) removal of ditches once vegetation is fully established. Promoting rapid reclamation and revegetation of the site allows for rapid removal of these features.

Sedimentation and Treatment Ponds

Like collection ditches, ponds should be located with regard to possible infiltration of water. If constructed in spoil material and not lined properly, large amounts of infiltration are possible. Ponds should be located in original ground, when practical, or lined with impermeable material. Experience has shown that it is better to construct ponds in original ground rather than attempting to line them. Ponds to be left as permanent features or in AMD prone areas should not be constructed in spoil.

Low Permeability Barriers

Reclamation and revegetation can reduce the production of AMD by promoting surface runoff and evapotranspiration, thus minimizing infiltration into the backfilled spoil. Another method to reduce surface water infiltration is the construction of a low-permeability barrier immediately below the topsoil and subsoil. This barrier can be composed of clay or other suitable material such as a fly-ash cement (Sheetz et al. 1997). Barriers to infiltration can be constructed using conventional mining equipment but can significantly increase the cost of reclamation. Also, other considerations such as slope stability and soil suitability for reclamation must be taken into consideration.

4.4.1.2 Minimize Exposure

AMD problems may decrease significantly when sites are mined and reclaimed quickly (Perry et al. 1997). Rapid reclamation reduces the amount of available water as well as its contact time with acid-forming materials and limits the time available for pyrite oxidation, two important items in acid production. One method to help insure rapid reclamation is to limit the total surface area disturbed and unrevegetated at any one time. Another is to minimize the temporary cessation of backfilling.

Mining operators through the years have used various forms of drains in controlling water on surface mining sites. Some examples are rock drains under spoil piles and the establishment of first (or last) cut drains through the lowwall. The idea behind highwall drains is quite simple; collect groundwater entering a mine site before it comes into contact with mine spoil and convey it rapidly through the site with minimal contact with spoil. In this manner, groundwater largely unaffected by mine drainage will "bypass" most potentially acid-forming material (i.e., pit cleanings and pyritic spoil) and exit the site with minimal chemical change.

4.4.2 Vegetation

4.4.2.1 General Vegetation

The most appropriate mitigation measures for the Liberty West LAA are to avoid the wetland areas. Mitigation measures that could be used to lessen the impact on vegetation at the Bull Hill LAA include minimizing the area of disturbance within the oak/pine woody vegetation to only the areas that are absolutely needed for coal mining activities and planting trees during revegetation activities, such as the loblolly pine (*Pinus taeda*), red oak (*Quercus rubra*), and the blackjack oak (*Quercus marilandica*). Landowners would be consulted regarding revegetation preference.

4.4.2.2 Wetlands

The best mitigation measure to prevent impact on wetlands would be avoidance. Care should be taken to avoid these isolated wetlands and streams during mining activities and haul road construction. If this can not be accomplished, then minimizing impact on wetlands through project modifications should be a

priority. Lastly, mitigating impacts through wetland creation, enhancement, or restoration also is an option. However, before any construction activities can take place within a wetland, a Section 404 permit must be obtained from the USACE.

4.4.3 Wildlife

4.4.3.1 Wildlife Habitat

Mitigation for migratory birds includes minimizing the impact on the vegetation that would be utilized by these birds for a habitat. Specifically, the vegetation that extends from the Wister WMA north onto the Bull Hill LAA, where there is the greatest impact, would need to be left in place as much as possible. Only the vegetation needed for coal mining activities should be taken from this area to maintain the potential migratory bird habitat. Though not as practical, another mitigation measure would be to adjust the proposed mine area to avoid any woody vegetation that might be used as a habitat by migratory birds. Though some coal may be left in place by this method, the impact on migratory birds would be lessened.

4.4.3.2 Big Game

Considering the predominant woodland type of vegetation on the Bull Hill LAA, it appears that removal of the woodland by mining activities would result in a substantial impact on big game wildlife. The alteration in vegetation type from woodlands to a grass community would force big game animals that are most likely located in this area to be displaced. Ways of mitigating the impact on big game include minimizing the number of trees removed to what is necessary for project activities and rehabilitating the area by planting native trees in addition to a standard grass planting rehabilitation efforts. The mining company would consult with the landowners regarding tree removal and rehabilitation.

4.4.3.3 Wildlife Management Areas

A portion of the Bull Hill LAA is located within the Wister WMA and Wister Lake State Park. Surface mining would not be allowed within Wister Lake State Park. However, since the Wister WMA extends into the areas of the LAA, it appears that coal mining activities on the Bull Hill LAA could result in an adverse impact on the Wister WMA.

Measures to mitigate impact on migratory birds include minimizing the impact on the vegetation that would be utilized by these birds for a habitat. Specifically, the vegetation that extends from the Wister WMA north onto the Bull Hill LAA, where there would be the greatest impact, would need to be left in place to the extent possible. Only the vegetation needed for coal mining activities should be taken from this area to maintain the potential migratory bird habitat. Though not as practical, another mitigation measure would be to adjust the proposed mine area to avoid any woody vegetation that might be used as a habitat by migratory birds. Though some coal may be left in place by this method, the impact on migratory birds would be lessened.

4.4.4 Noise

Noise associated with mining activities may impact residences. Effective noise abatement measures are unique for each situation. The physical techniques to mitigate noise vary in their noise-reduction capabilities. Potential noise mitigation evaluation factors include the amount of noise reduction desired and the situations where physical techniques would be most effective.

Noise barriers such as walls and earthen berms are used commonly to mitigate noise. The effectiveness of a barrier depends upon factors such as the distance from the barrier to the source and the relative height of the barrier above the line-of-sight between the source and receiver. To be effective, a barrier must block the line-of-sight from the source to the receiver. On-site equipment, structures, and displaced earth can be used as barriers when placed correctly. A properly designed barrier can provide up to approximately 20 dBA of noise reduction.

4.4.4.1 Blasting

Blasting in proximity and direct line-of sight of residences may result in complaints and possible damage to buildings. Blasting should be conducted in accordance with guidelines established by the Bureau of Mines or other governmental agency. A blasting noise model should be used prior to a blasting event to determine the resultant peak sound level at the closest receptors based on the parameters of the blast. The effects of weather conditions and intervening topography should be factored into the calculations. Blasting should not be conducted if the projected level exceeds 133 dBA at any residence.

5.0 Consultation and Coordination

5.0 CONSULTATION AND COORDINATION

5.1 INTRODUCTION

During the planning process for this Resource Management Plan Amendment (RMPA) and Environmental Assessment (EA), efforts were made by the Bureau of Land Management (BLM) to involve other Federal agencies, State and local governments, and the public. BLM initiated the planning process in April 2003 by requesting comments to determine the scope of issues and concerns that need to be addressed during the studies and in the document. As part of the resource inventory, members of the interdisciplinary team contacted cooperating agencies to request data to supplement BLM's existing resource database.

The sections of this chapter describe these efforts including the formal consultation required, how this RMPA/EA is consistent with other finalized plans, and public participation activities throughout the process.

5.2 AGENCY CONSULTATION

BLM is required to prepare EAs in coordination with any studies or analyses required by the Fish and Wildlife Coordination Act (16 USC Sec. 661 et seq.), Endangered Species Act of 1973 (16 USC Sec 1531 et seq.), National Historic Preservation Act of 1966 (16 USC Sec. 470 et seq.), and other environmental review laws and executive orders. A description of the formal consultation relevant to this RMPA/EA follows.

Consultation with the U.S. Fish and Wildlife Service (USFWS) is required prior to initiation of any project by BLM that may affect any Federally listed special status species or its habitat in accordance with Section 7 of the Endangered Species Act of 1973. This RMPA/EA is considered a major planning effort, and consultation has been initiated. On July 9, 2003, the USFWS provided a list of Federally listed species that may occur in Haskell, Latimer, and LeFlore Counties, Oklahoma. An informal consultation through phone calls has been ongoing between the BLM and USFWS since that time to address Federally listed, proposed, and candidate species. A Biological Assessment has been prepared and provided to the USFWS for review and concurrence (Appendix B). Coordination and consultation will continue throughout the planning process and implementation of the RMPA.

The Oklahoma Department of Wildlife Conservation also has been contacted in regard to State-listed threatened and endangered plant and animal species. This is consistent with legislation protecting State-listed species. Coordination and consultation with the State will continue throughout the planning process and during implementation of the RMPA.

In addition, the BLM cultural resource management program operates in accordance with 36 CFR 800, which provides specific procedures for consultation between the BLM and State Historic Preservation Office (SHPO). The SHPO and Oklahoma Archeological Survey (OAS) have been consulted during the development of the RMPA concerning cultural resources. A copy of the Proposed RMPA/EA and Finding of No Significant Impact (FONSI) will be sent to the SHPO and OAS for review and comment. However, formal consultation with the SHPO or OAS is not required since no ground-disturbing activities would result from this RMPA/EA for coal leasing.

In accordance with the National Historic Preservation Act, efforts were made to identify and consider traditional cultural places. Letters were sent to 51 American Indian tribes to initiate discussions and solicit

comments to determine the scope of issues and concerns that needed to be addressed during the studies and in the RMPA/EA. The tribes included those listed in Table 5-1.

To date, comments have only been received from the Pawnee and Choctaw Tribes. Both of these provided comments that no burial grounds for their tribes were known to exist on the Lease Application Areas (LAAs).

5.3 CONSISTENCY WITH OTHER PLANS

Section 202 of the Federal Land Policy and Management Act (FLPMA) of 1976 and the BLM planning regulations require that management plans be "consistent with officially approved or adopted resource-related plans, and the policies and procedures contained therein …"

FLPMA also requires BLM to ensure that consideration is given to non-BLM plans that are pertinent to the development of the plan under consideration, assist in resolving inconsistencies between Federal and non-Federal plans, and to provide for meaningful public involvement (43 CFR 1610.3-2). In order to ensure such consistency, these agencies (listed in Table 5-1) will receive copies of the Proposed RMPA/EA for review and comment.

There are no known inconsistencies among any of the alternatives in this RMPA and any officially approved and adopted resource-related plans of other Federal agency, State and local government, or Indian tribes. Coordination and consultation will continue throughout the planning process and implementation of this RMPA.

5.4 PUBLIC PARTICIPATION

The public participation process for the RMPA/EA has been ongoing throughout the development of the RMPA/EA and will continue to the Decision Record. In addition to formal public participation activities, informal contacts occur frequently with public land users, industry, and interested persons through meetings, field trips, telephone calls, or letters. All public participation applicable to the RMPA/EA has been documented and analyzed as part of the planning process and kept on file in the Oklahoma Field Office.

TABLE 5-1
PARTIAL LIST OF DOCUMENT RECIPIENTS

In May 2004, the BLM Oklahoma Field Office sent a postcard to everyone on the mailing list below announcing that the Proposed RMPA/EA and FONSI would be available in June 2004. To save time and costs for reproduction, BLM indicated that the document would not be sent to everyone on the mailing but, rather, would be posted on its website, which can be accessed at www.nm.blm.gov, and a limited number of documents in hard copy or compact disk are available upon request.

Federal Agencies

- U.S. Army Corps of Engineers
  - Planning Branch
  - Regulatory Branch
- U.S. Air Force
- U.S. Environmental Protection Agency
- U.S. Department of Agriculture
- U.S. Department of the Interior
  - Office of Surface Mining, Reclamation and Enforcement

State-wide Entities

- Commissioners of the Land Office
- Oklahoma Conservation Commission
- Oklahoma Corporation Commission
- Oklahoma Department of Agriculture
- Oklahoma Department of Health
- Oklahoma Department of Mines
- Oklahoma Department of Environmental Quality
- Oklahoma Department of Tourism and Recreation
- Oklahoma Department of Transportation
- Oklahoma Department of Wildlife Conservation
- Oklahoma Historical Society
- Oklahoma House of Representatives
- Oklahoma State Senate
- Oklahoma Secretary of the Environment
- Oklahoma Water Resources Board
- Oklahoma Farm Bureau
- Oklahoma State University
- University of Oklahoma
- Eastern Oklahoma State College
- Oklahoma Scenic Rivers Commission
- Oklahoma Wildlife Federation

County Entities

- Roger Mills County Commissioners
- Guymon Chamber of Commerce
- Latimer County Commissioners
- Latimer County Tax Assessor
- LeFlore County Commissioner
- Haskell County Commissioner

Local Entities

- Wilburton Chamber of Commerce
- Red Oak Public Schools
- City of Red Oak
- McCurtain Public Schools
- Keota Public Schools
- Stigler Public Schools
- City of Stigler
- Stigler Chamber of Commerce

Cooperating Agencies

- Archeological Survey, Dr. Robert Brooks
- State Historical Preservation Office, Mr. Charles Wallace
- Oklahoma Conservation Commission, Mr. Mike Thralls, Executive Director
- Abandoned Mine Lands Program, Oklahoma Conservation Commission, Mr. Mike Kastl, Program Director
- U.S. Fish and Wildlife Service, Mr. Ken Frazier
- Oklahoma Department of Mines, Ms. Mary Ann Pritchard, Director
- Native American Tribes
- Fort Sill Apache Tribe of Oklahoma
- Iowa Tribe of Oklahoma
- Kaw Tribe of Oklahoma
- Kialegee Tribal Town
- Kickapoo Tribe of Oklahoma
- Kiowa, Comanche, and Apache Tribes
- Kiowa Tribe of Oklahoma
- Miami Nation
- Modoc Tribe of Oklahoma
- Muskogee Creek Nation
- Osage Tribe of Indians
- Otoe-Missouri Tribe of Oklahoma
- Ottawa Tribe of Oklahoma
- Pawnee Tribe of Oklahoma
- Peoria Tribe of Oklahoma
- Ponca Tribe of Oklahoma
- Quapaw Tribal Business Committee
- Sac & Fox Nation of Oklahoma
- Seminole Nation of Oklahoma
- Seneca-Cayuga Tribe of Oklahoma
- State Trust and Public Lands
- Thlopthlocco Tribal Town
- Tonkawa Tribe of Oklahoma
- United Keetoowah Band of Cherokee Indians
- Wichita and Affiliated Tribes
- Wyandotte Tribe of Oklahoma
- Absentee-Shawnee Tribe of Oklahoma
- Alabama-Quassarte Tribal Town
- Apache Tribe of Oklahoma
- Caddo Tribe of Oklahoma
- Cherokee-Shawnee Business Committee
- Cherokee Nation of Oklahoma
- Cheyenne-Arapaho Business Committee
- Cheyenne-Arapaho Tribal Office
- Cheyenne-Arapaho Tribe of Oklahoma
- Chickasaw Nation of Oklahoma
- Choctaw Nation of Oklahoma
- Citizen Band Potawatomie Tribe of Oklahoma
- Comanche Tribe of Oklahoma
- Creek Nation of Oklahoma
- Delaware Tribe of Western Oklahoma
- Eastern Shawnee Tribe of Oklahoma
- Alabama-Coushatta Tribe of Texas
- Delaware Tribe of Eastern Oklahoma
- Delaware Indian Business Center
- Kickapoo Tribe of Kansas
- Traditional Kickapoo Tribe of Texas
- Pawnee Business Council
- Prairie Band Potawatomie Tribe of Kansas
- Sac & Fox Nation of Kansas and Missouri
- Tigua Tribe

TABLE 5-1 (continued)

Landowners

- Liberty West LAA
  - Jerry and Reba Holt
  - Roye 1992 Revocable Family Trust
  - James Roye
  - Richard and Carol Liebiendorfer
  - Alumbaugh Business Trust
- McCurtain LAA
  - Donna Bell Condo Kennedy
  - Brooks and Tammy Shaw
  - Henry and Lillie Moschner
  - Ernest and Deborah Spradley
  - Violet Hensley
  - Lillie Moschner and Anna Ethridge
  - Thomas Christy
  - Jimmy and Violet Hensley
  - Larry and Carol Shaw
  - Betty Shaw
  - Willard Caroletta Cooper
  - Gerald and Linda Lovell
  - Edward and Norla Pierce
  - Ray Porter
  - Ray and Margarete Porter
  - John and Luvena Labor
  - Harold and Delores Easley
  - Nancy Powell
  - David and Sheila Falconer
  - J.W. and Genevieve Hopson
  - Jerry and Carol Lovell
  - Betty Shaw Revocable Living Trust
  - John Gee
  - Barbara Akins and LaDonna Bush
  - Larry and Carol Shaw
  - Michael and Sheila Paul
  - Steve Paul
  - Eddie and Delores Hanson
  - Bob Byrum, Revocable Living Trust
- Bull Hill LAA
  - Jerelene Rana
  - Howard and Janet Raines
  - Russell Railes
  - Lloyd and Wyona Brannon
  - Dennis and Mary Vosburg
  - James and Donna Duncan
  - Rodney Duncan
  - Bobby Brannon
  - Scott Buttrill
  - Blackfork Properties, LLC
  - Laredo Solid Fuels
  - Mart Gwin
  - Teresa Martin
  - Frank and Nadine Carpenter
  - Roy Reed, LLC
  - Macy and Jesse McBee
  - Donald and Roberta Holt
  - Frank Carpenter Living Trust and Nadine Carpenter Living Trust
  - Mike Locke and Betty Burden
  - Ignacio Linares and Corbett Marler
  - John and Sandra Galetka
  - Lois Morris
  - Anita Byrd
  - Samuel and Janice Bennett
  - Christine and Marvin Pierce
  - David and Patricia Broadwater
  - John Ralph Broadwater, Sr. Insurance Trust
  - Lessie and Agnes Mitchell
  - Victor Mitchell
  - Martha Bynum
  - Virginia Fry, Marie Fry, and Margaret Matthews
  - Thomas Pate
  - Aeel Barnard
  - Allen and Gayla Taylor
  - James and Anita Walker
  - Billie Colvard
  - Calvin Evans
  - Trudy Black and Linda Irvin
  - Herb and Jane Brinkley
  - Panola Ranch Corporation
  - The Mazar Family Living Trust
  - Karl Stephan
  - Rural Water District No. 1
  - Michael Barrett
  - Carolyne Teeter
  - John and Judith Hulsey
  - William Cubbins
  - Ronald Garner and Roger Garner
  - Bill Albin
  - Ellen McKown
  - Thelma Rafalowski
  - Edith Rodriquez
  - Carol and Jimmy Green
  - Orville and Jenita Sutmiller
  - Allen and Reba Hunnicutt
  - Albert Kruger, Jr.
  - Lamiter State Bank

5.4.1 Identification of Issues

The RMPA/EA and scoping process officially began on April 17, 2003, with the publication in the *Federal Register* of BLM's Notice of Intent to amend the 1994 RMP, prepare an EA, and conduct public scoping meetings. This notice invited the general public as well as Federal, State, and local government agencies to identify issues and submit comments regarding the RMPA/EA.

In addition to the Notice of Intent, the BLM prepared a scoping notice to send to interested parties. The scoping notice included a brief letter from the Oklahoma Field Manager, a newsletter, and a comment form. The notice provided background information about the plan amendment process and descriptions of the proposed coal mineral leases. The scoping notice was distributed to approximately 1,800 agencies, interested organizations, and individuals in late April 2003. The mailing list has been and will continue to be reviewed and updated throughout the RMPA/EA process.

Also, a media release introducing the project and announcing the scoping meetings was prepared for the local and regional newspapers and radio and issued on April 17, 2003 by the BLM.

Two public scoping meetings were held in early May 2003 to obtain input on issues and planning criteria, and determine the scope of the RMPA/EA. Several displays illustrating or explaining components of the RMPA/EA were stationed around the meeting room for those in attendance to review. Each meeting began with a presentation by BLM representatives after which comments and questions were received from the public. Table 5-2 summarizes the public meeting attendance and number of oral comments.

In addition to the comments received during the meetings, comment forms and letters were mailed to BLM. Scoping ended on May 23, 2003; however, additional comments were accepted after that date. A Summary Scoping Report was issued in June 2003 that described the scoping process and summarized the public comments and issues obtained.

TABLE 5-2
PUBLIC SCOPING MEETING ATTENDANCE AND COMMENTS

Meeting Date	Meeting Location	Number in Attendance	Number of Oral Comments Received at Meetings
Monday, May 5, 2003	McCurtain, Oklahoma	23	52
Tuesday, May 6, 2003	Wilburton, Oklahoma	13	33
	Total	**36**	**85**

5.5 REVIEW OF DRAFT RMPA, PRELIMINARY DRAFT FONSI, AND SUPPORTING EA

Although not required, BLM decided to make available a draft RMPA, preliminary draft FONSI, and supporting EA for a 30-day period for the public to review and comment on the adequacy of the document. BLM sent a postcard to every entity on the project mailing list (approximately 320 names) to announce the availability of the document for review. The document was posted for public access on the BLM web site at www.nm.blm.gov or made available by request in hard copy or electronic copy on compact disk.

BLM received six letters (included in Appendix C) offering comments from the following reviewers:

- Foster Johnson and Lee Teasely
- Ernest R. Achterberg
- Larry Emmons, Office of Surface Mining, Reclamation and Enforcement
- Tekleab Tsegay, Chief, Technical Services, Oklahoma Department of Mines
- Jerelene Rana
- Robert Rana *[need from Doug Cook, BLM Tulsa]*

While the comments are acknowledged and incorporated as appropriate in this Proposed RMPA/EA and FONSI, the comments will be addressed more appropriately when (1) BLM consults with qualified surface owners to determine whether they are for or against surface mining of property they own or (2) the Office of Surface Mining and Oklahoma Department of Mines prepares the more detailed permitting documentation prior to mining (refer to sections 1.1 and 2.3.4).

5.6 DOCUMENT PREPARATION

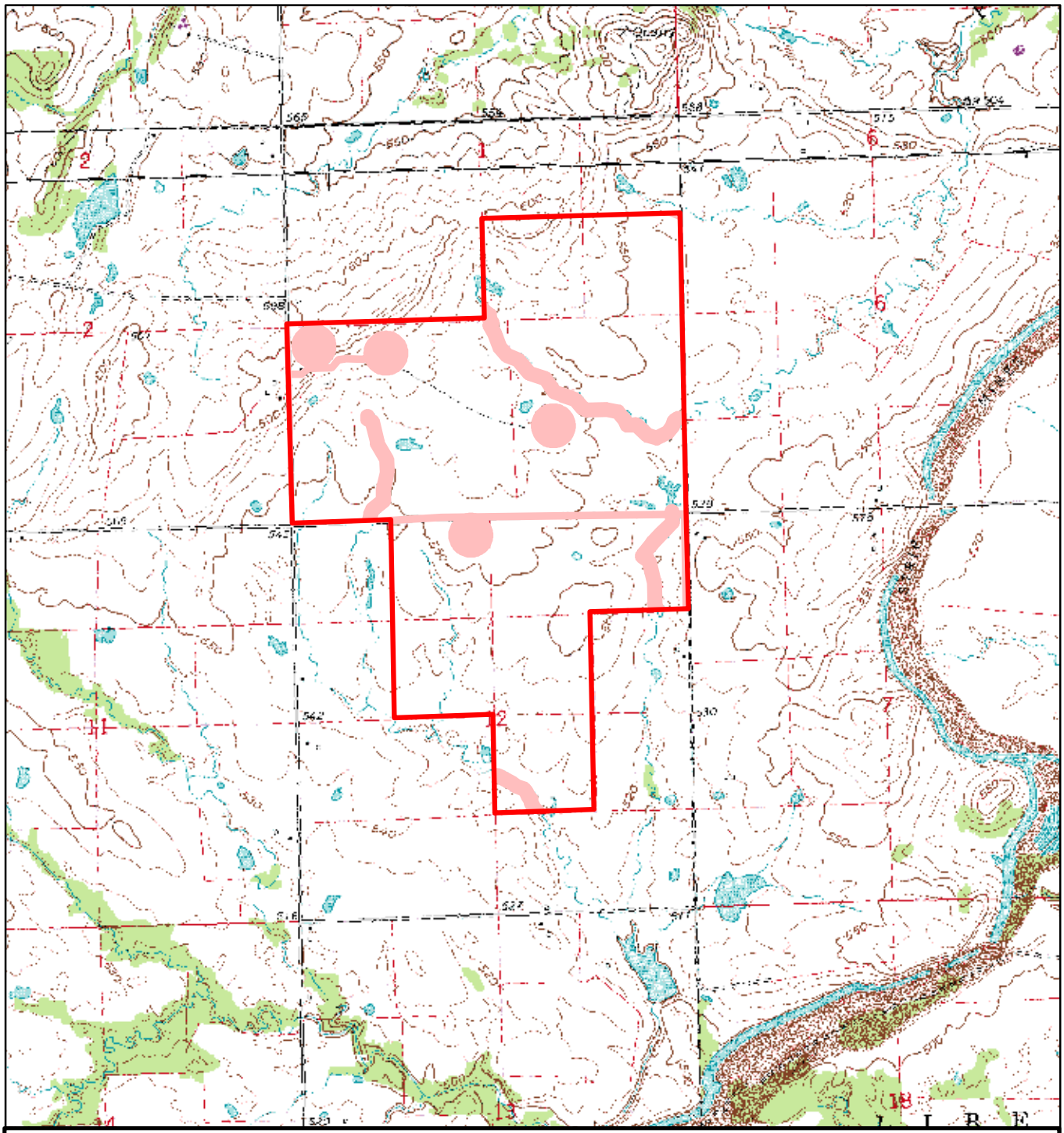
An interdisciplinary team of resource specialists prepared this RMPA/EA. TABLE 5-3 lists the team members, job titles, and responsibility associated with the RMPA.

TABLE 5-3
LIST OF PREPARERS AND REVIEWERS

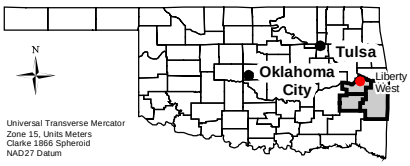
Name/Title	RMPA/EA Responsibility
Bureau of Land Management	
John Mehlhoff Field Manager	Management Oversight
Doug Cook Geologist	Team Co-Leader, Technical
Keith Tyler Environmental Protection Specialist/Hazardous Materials Coordinator	Team Co-Leader, NEPA
J.W. Whitney Program Analyst/ Planning	New Mexico State Office Planning and Environmental Coordinator
Christine Tincher Public Affairs	Public Affairs
Pat Strong GIS Specialist	GIS
Rick Wymer Assistant Field Manager	Management Oversight
Phil Keasling Wildlife Biologist	Reviewer
John Northcutt Archaeologist	Reviewer, Cultural Resources/Archaeology
Abdalla Elias Mining Engineer	

Name/Title	RMPA/EA Responsibility
URS	
Cindy Smith Manager, Environmental Planning	Project Director
Michelle Barnett Environmental Engineer	Project Manager Water Resources, Land Use, Access, Transportation
Terry Cochran Project Geologist	Geology, Coal Minerals, Energy Minerals, Soils
Carol Wirth Environmental Planner	Socioeconomics, Environmental Justice
Jennifer Pyne Environmental Planner	Socioeconomics, Environmental Justice
A.E. Rogge, Director, Southwest Cultural Resource Services	Cultural Resources
Gordon Tucker Project Archaeologist	Cultural Resources
Heather Tittjung Environmental Scientist	Air Quality
Jeff Fuller Senior Acoustician	Noise
Steven Fiedler Project Acoustician	Noise
Charlie F. Andrews Project Biologist	Biological Resources, Special Status Species
David Jones Environmental Planner	Visual Resources
Jennifer Wennerlund GIS Coordinator	GIS
Rick Cook GIS Analyst	GIS
Lana Sparks Technical Editor	Editor/Document Production
Shirley Wiley Document Production Manager	Editor/Document Production
John Qoyawayma Graphic Designer	Graphics
Mitch Meek Graphic Designer	Graphics

Maps



Liberty West Tract (OKNM 104763)
Haskell County



Universal Transverse Mercator
Zone 15, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

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Legend

Lease Application Area Boundary

Unsuitable for Leasing (Coal Screen Unsuitability Criteria) Before Stipulations
- Rights-of-Way and Easements (Criterion Number 2)
  - Residences 300-foot buffer
- Buffer Zones for Rights-of-Way, Communities, and Buildings (Criterion Number 3)
  - Interstate 100-foot buffer
  - Other Roads 50-foot buffer
- Floodplains (Criterion Number 16)
  - Streams100-foot buffer

0 0.25 0.5 1 Miles

BLM Oklahoma Field Office
RMPA/EA for Federal Coal Leasing

Alternative B: Maximum Resource Production

URS

Map 2-1

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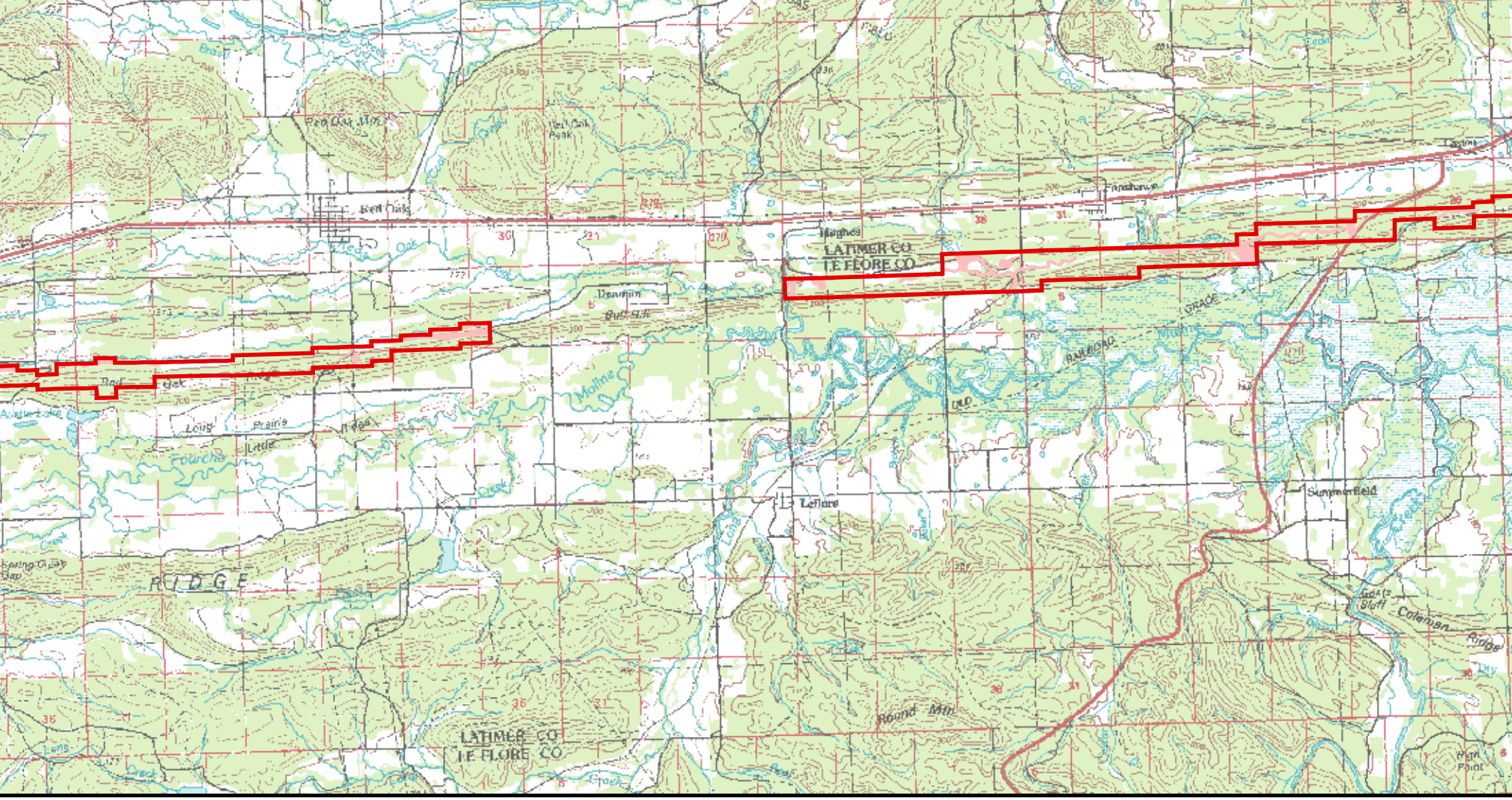
Lease Application Area Boundary

Unsuitable for Leasing (Coal Screen Unsuitability Criteria) Before Stipulations
- Rights-of-Way and Easements (Criterion Number 2)
  - Residences 300-foot buffer
- Buffer Zones for Rights-of-Way, Communities, and Buildings (Criterion Number 3)
  - Interstate 100-foot buffer
  - Other Roads 50-foot buffer
- Floodplains (Criterion Number 16)
  - Streams100-foot buffer

Alternative B: Maximum



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Lease Application Area Boundary

Unsuitable for Leasing (Coal Screen Unsuitability Criteria) Before Stipulations
Rights-of-Way and Easements (Criterion Number 2)
Residences 300-foot buffer
Buffer Zones for Rights-of-Way, Communities, and Buildings (Criterion Number 3)
Interstate 100-foot buffer
Other Roads 50-foot buffer
Floodplains (Criterion Number 16)

Unavailable for Leasing After Stipulations
Public Park (State Park) 300-foot buffer

Note: Municipal Watersheds Criterion 17 encompasses most of mapped area & is not shown for clarity.

Bull
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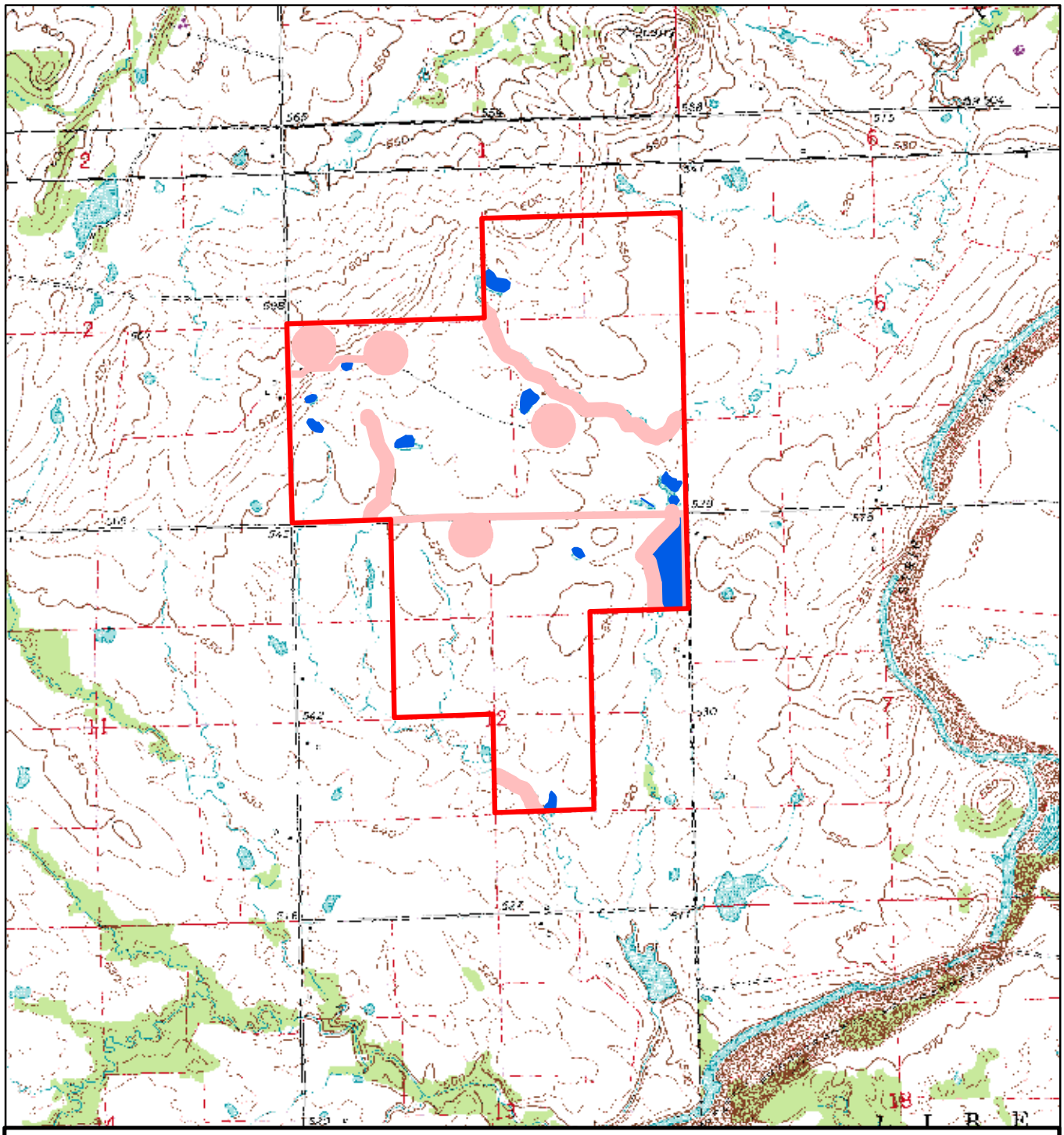
Alternative B: Maximum



Legend

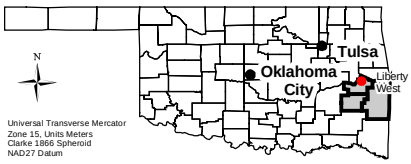
Lease Application Area Boundary

Unsuitable for Leasing (Coal Screen Unsuitability Criteria) Before Stipulations
- Rights-of-Way and Easements (Criterion Number 2)
  - Residences 300-foot buffer
- Buffer Zones for Rights-of-Way, Communities, and Buildings (Criterion Number 3)
  - Interstate 100-foot buffer
  - Other Roads 50-foot buffer
- Floodplains (Criterion Number 16)
  - Streams100-foot buffer

Unsuitable for Leasing (Multiple Use Screen) Before Stipulations
- Wetlands and Riparian Areas
- Priority Streams

Note: Cultural resources are described in text, locations are not provided.

0 0.25 0.5 1 Miles



Universal Transverse Mercator
Zone 15, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

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Liberty West Tract (OKNM 104763)
Haskell County

BLM Oklahoma Field Office
RMPA/EA for Federal Coal Leasing

Alternative C: Balanced Production and Resource Protection

URS

Map 2-4

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0.25 0.5 1 Miles

Legend

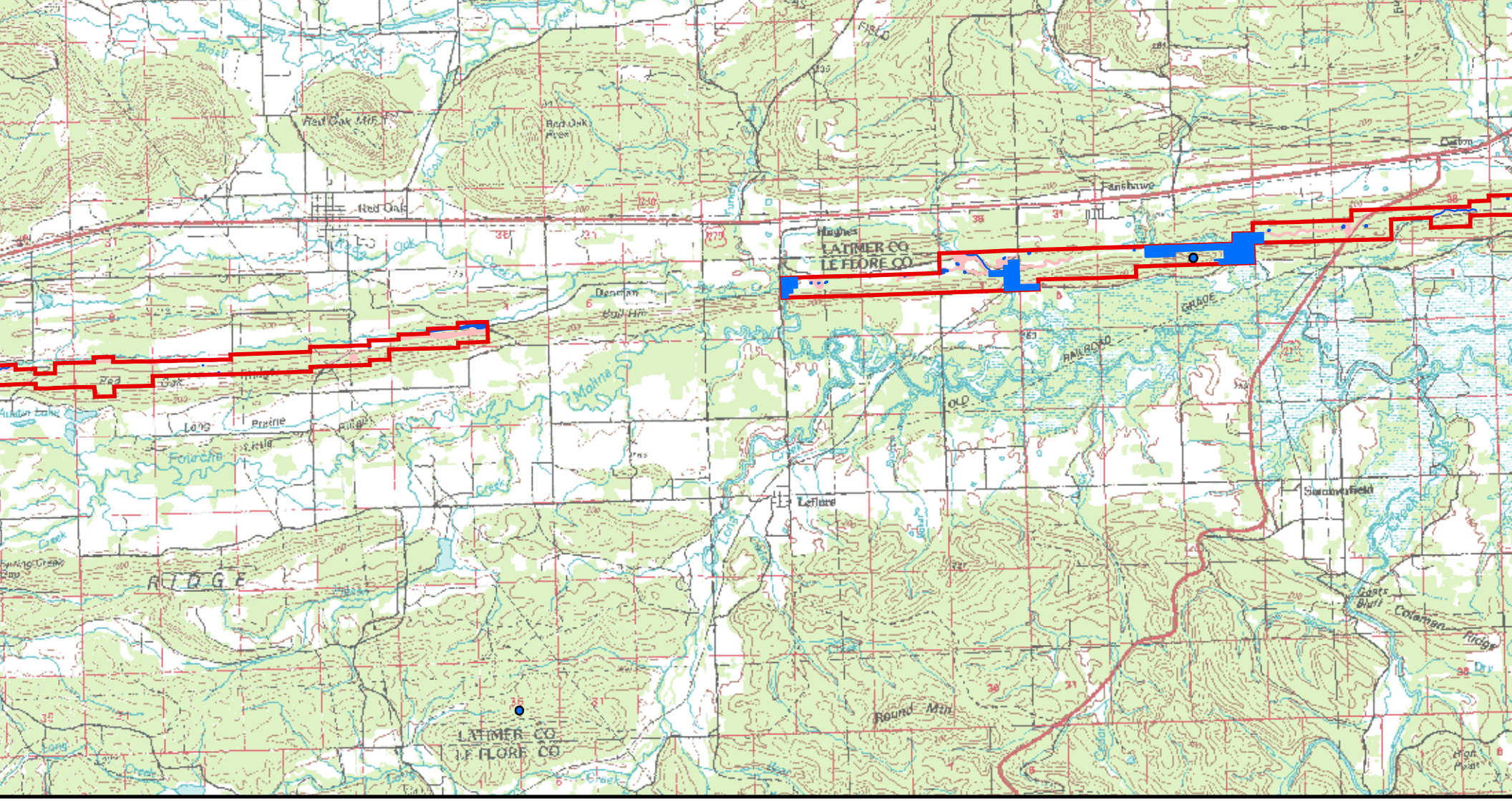
Lease Application Area Boundary

Unsuitable for Leasing (Coal Screen Unsuitability Criteria) Before Stipulations
- Rights-of-Way and Easements (Criterion Number 2)
  - Residences 300-foot buffer
- Buffer Zones for Rights-of-Way, Communities, and Buildings (Criterion Number 3)
  - Interstate 100-foot buffer
  - Other Roads 50-foot buffer
- Floodplains (Criterion Number 16)
  - Streams100-foot buffer

Unsuitable for Leasing (Multiple Use Screen) Before Stipulations
- Wetlands and Riparian Areas
- Priority Streams

Note: Cultural resources are described

Bal



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Lease Application Area Boundary

Unavailable for Leasing After Stipulations
Public Park (State Park) 300-foot buffer

Unsuitable for Leasing (Coal Screen Unsuitability Criteria) Before Stipulations
Rights-of-Way and Easements (Criterion Number 2)
Residences 300-foot buffer
Buffer Zones for Rights-of-Way, Communities, and Buildings (Criterion Number 3)
Interstate 100-foot buffer
Other Roads 50-foot buffer
Floodplains (Criterion Number 16)

Unsuitable for Leasing (Multiple Use Screen) Before Stipulations
Wetlands and Riparian Areas
Priority Streams
Wister Wildlife Management Area

Notes: Cultural resources are described in text, locations are not provided.

Municipal Watersheds Criterion 17 encompasses most of mapped area & is not shown for clarity.

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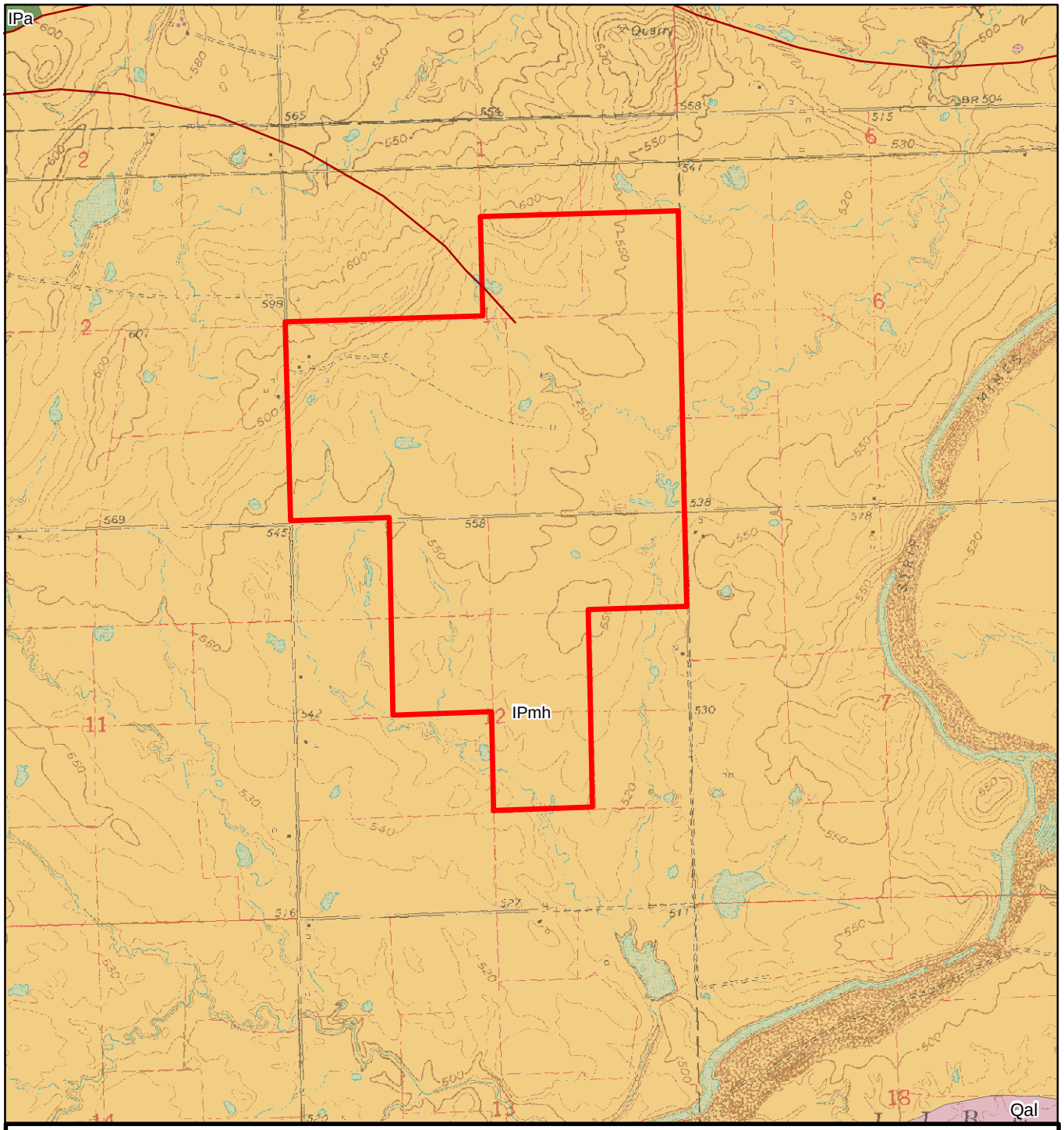
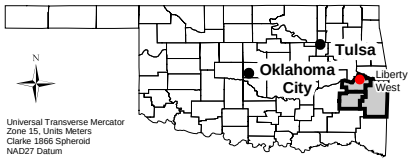


Liberty West Tract (OKNM 104763)
Haskell County

BLM Oklahoma Field Office
RMPA/EA for Federal Coal Leasing

Geology



Universal Transverse Mercator
Zone 15, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

No warranty is made by the Bureau of Land Management as to the accuracy, reliability, or completeness of these data for individual use or aggregate use with other data, or for purposes not intended by BLM. Spatial information may not meet National Map Accuracy Standards. This information may be updated without notification.

Legend

- Lease Application Area Boundary

Stratigraphic Type

- IPa - PENNSYLVANIAN Atoka, Bloyd, and Hale Formations
- IPmh - PENNSYLVANIAN Savanna, Mcalester, and Hartshorne Formations
- Qal - QUATERNARY Alluvium
- Fault Line

Source: Digitized geology of Fort Smith quadrangle, east-central Oklahoma, Open-File Report 96375 , U.S. Geological Survey 1996

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Map 3-1

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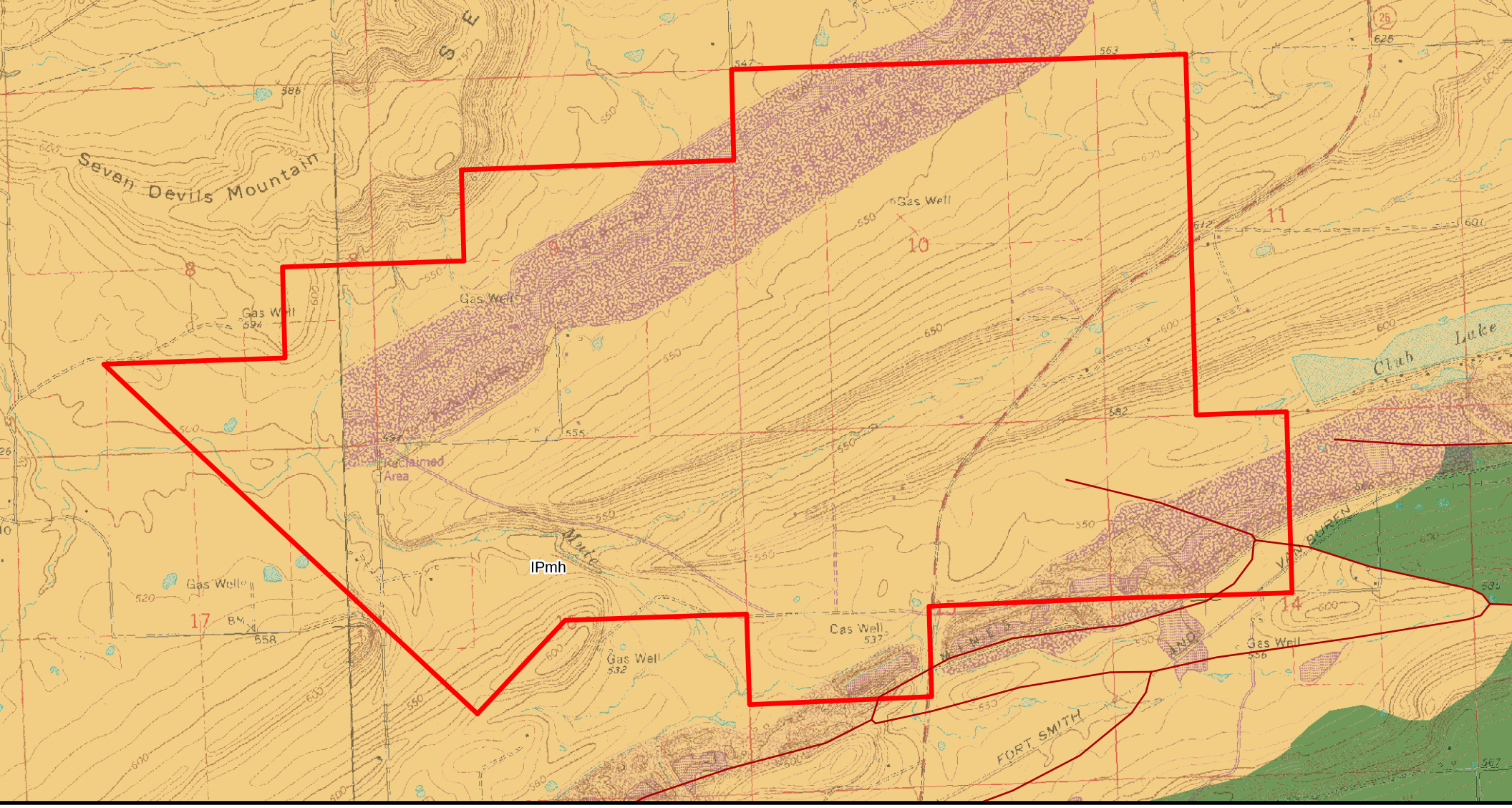

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Lease Application Area Boundary

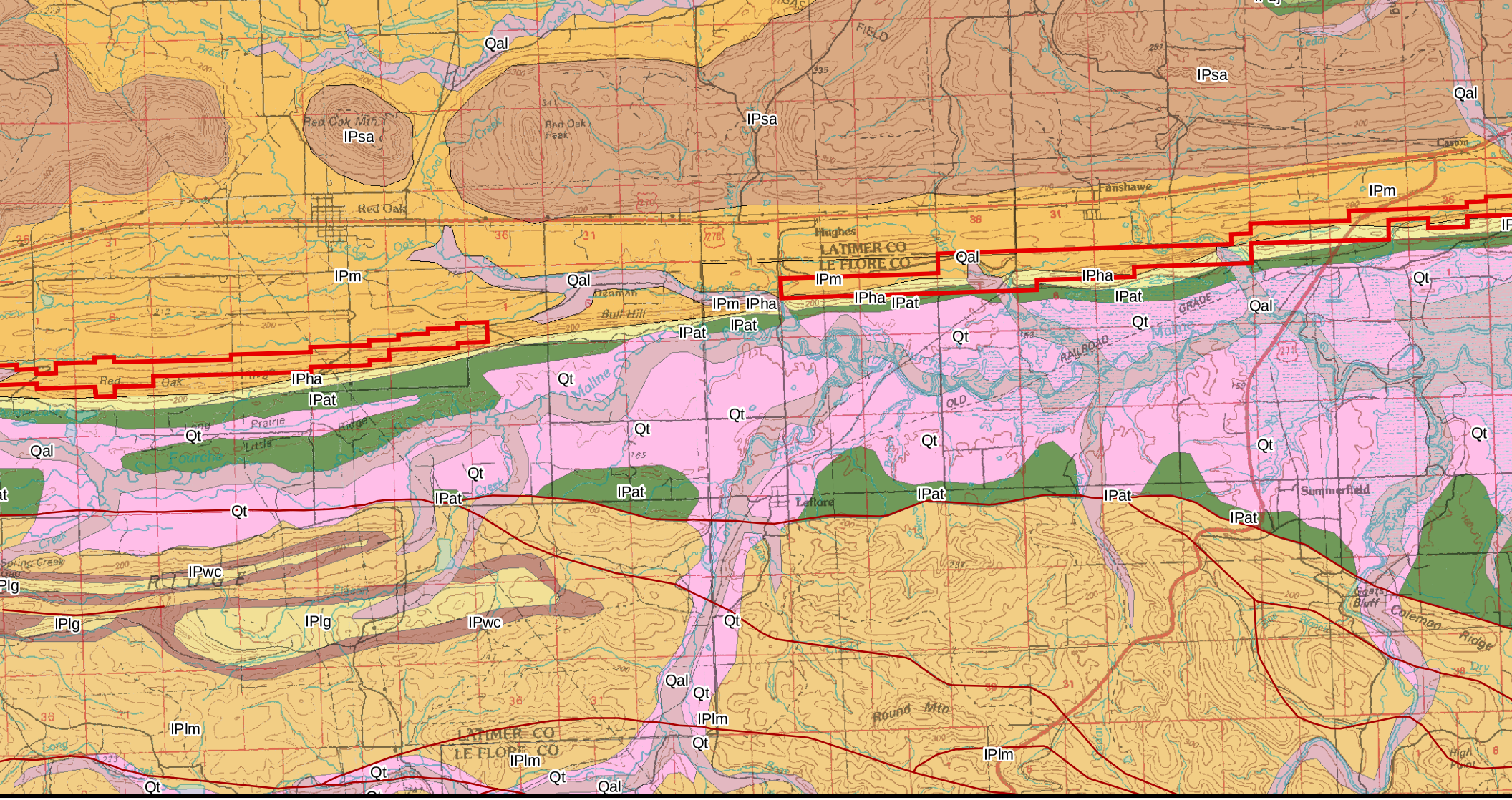
Stratigraphic Type

IPa - PENNSYLVANIAN Atoka, Bloyd, and Hale Formation

IPmh - PENNSYLVANIAN Savanna, McAlester, and Hartshorne Formation

Fault Line

Source: Digitized geology of Fort Smith quadrangle, east-central Oklahoma, Open-File Report 96375, U.S. Geological Survey 1996


Qal
IPsa
Red Oak Mtn.
Red Oak Peak
Red Oak
IPm
Qal
Bull Hill
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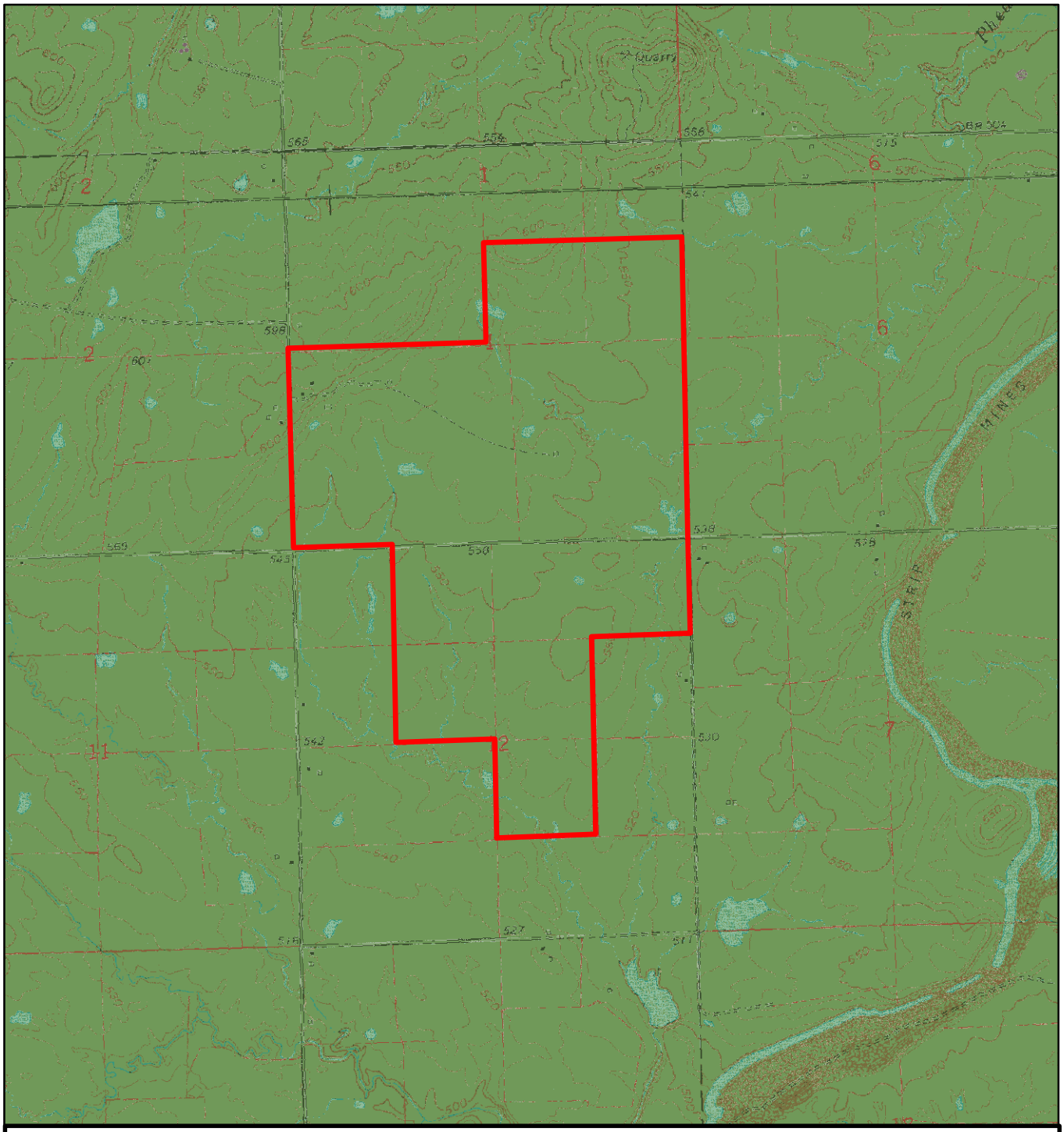
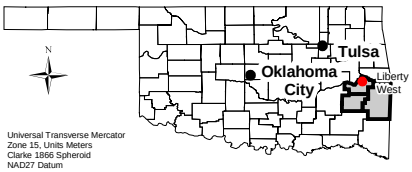


Liberty West Tract (OKNM 104763)
Haskell County

BLM Oklahoma Field Office
RMPA/EA for Federal Coal Leasing

Soils



Universal Transverse Mercator
Zone 15, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

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Legend

Lease Application Area Boundary

Soil Association

Stigler-Shermore-Neff-Bolivar

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Counts-Dela
Liberal
Collinsville
Spiro

Source: okmaps.onenet.net 2003

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Map 3-4

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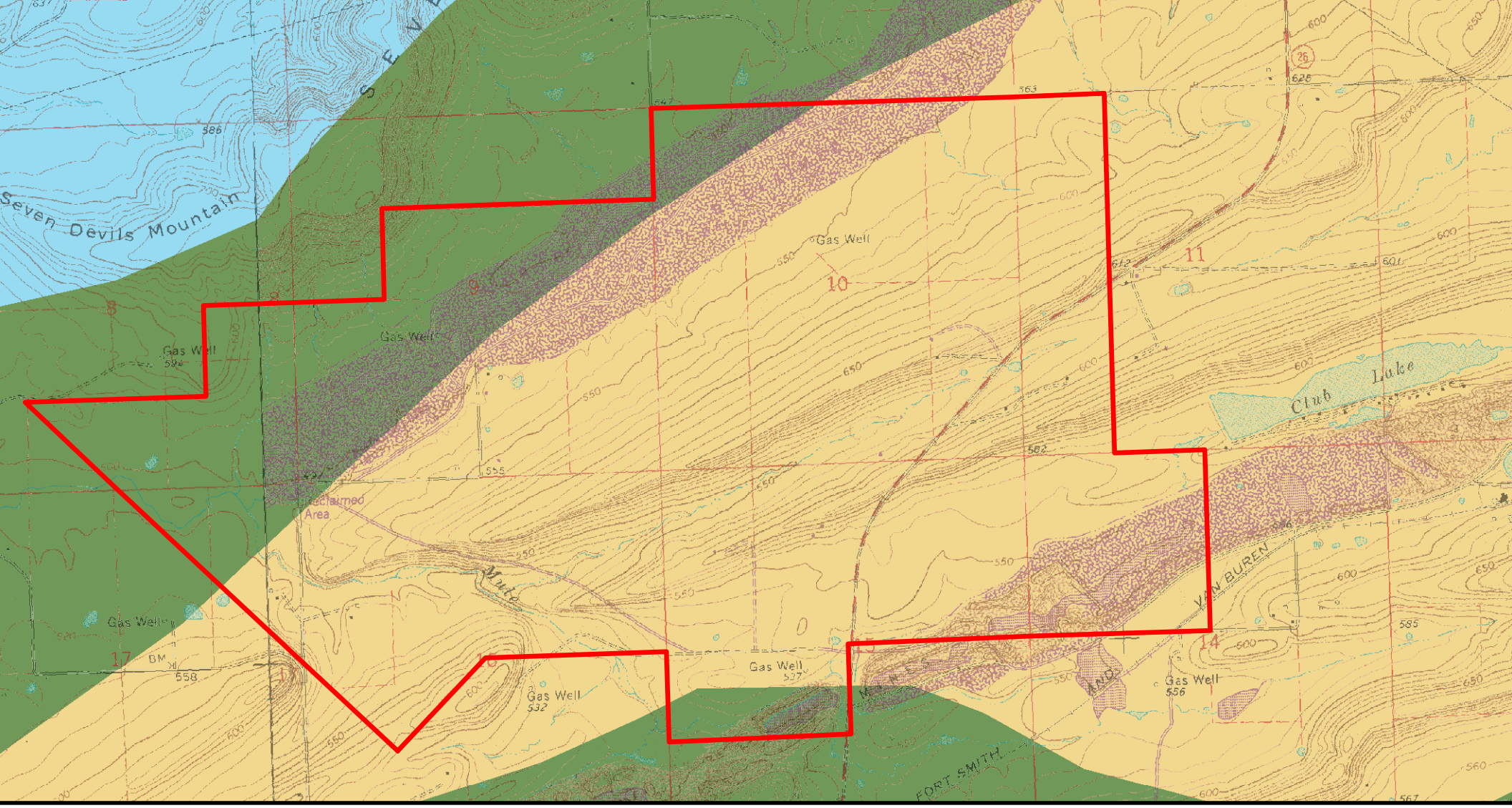

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Legend

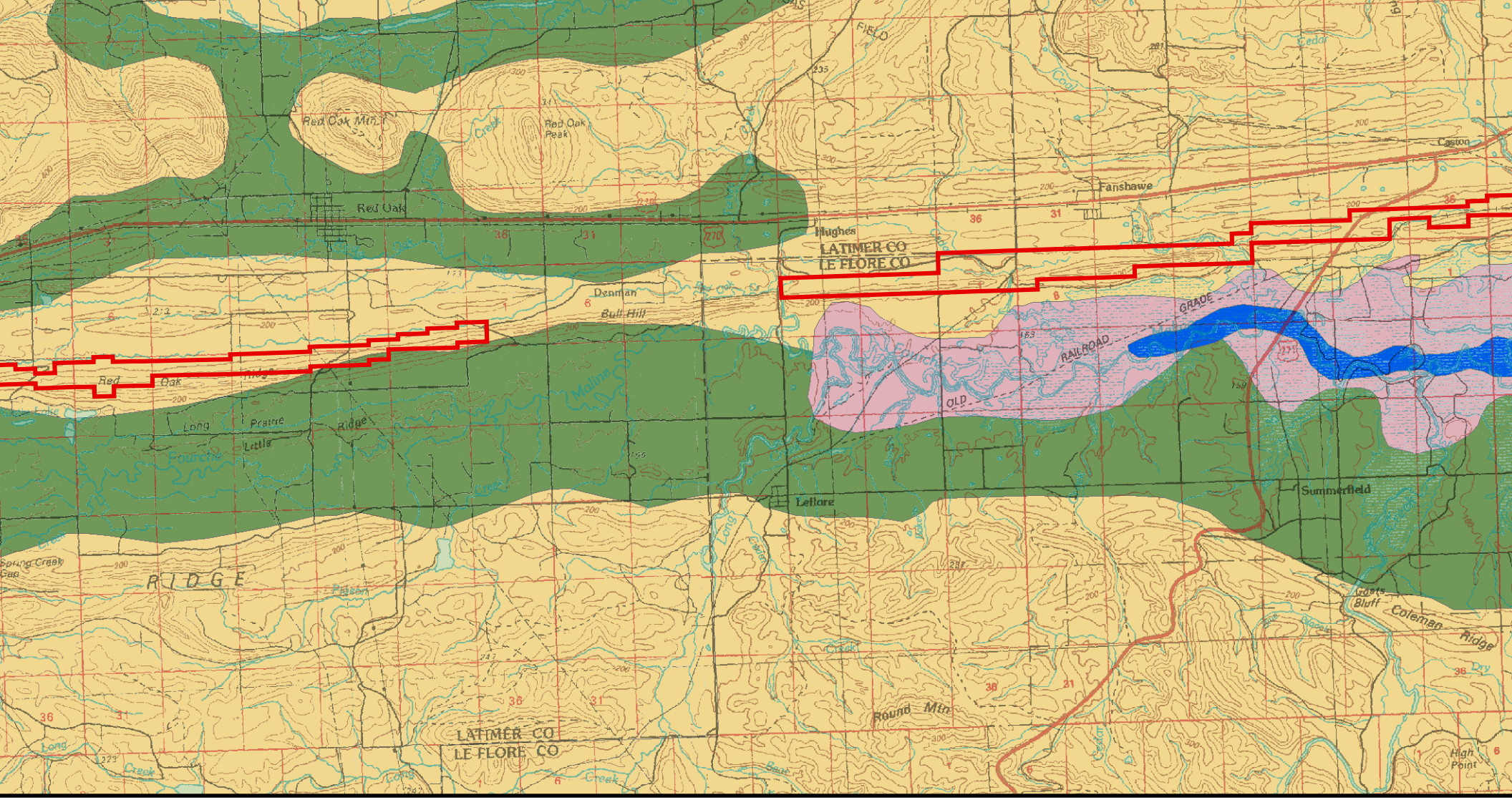
Lease Application Area Boundary

Soil Association

Carnasaw-Clebit-Pirum
Hector
Hector-Linker
Kanima

Stigler-Shermore-Neff-Bolivar
Stigler
Tamaha

Hector-Endsaw



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Lease Application Area Boundary

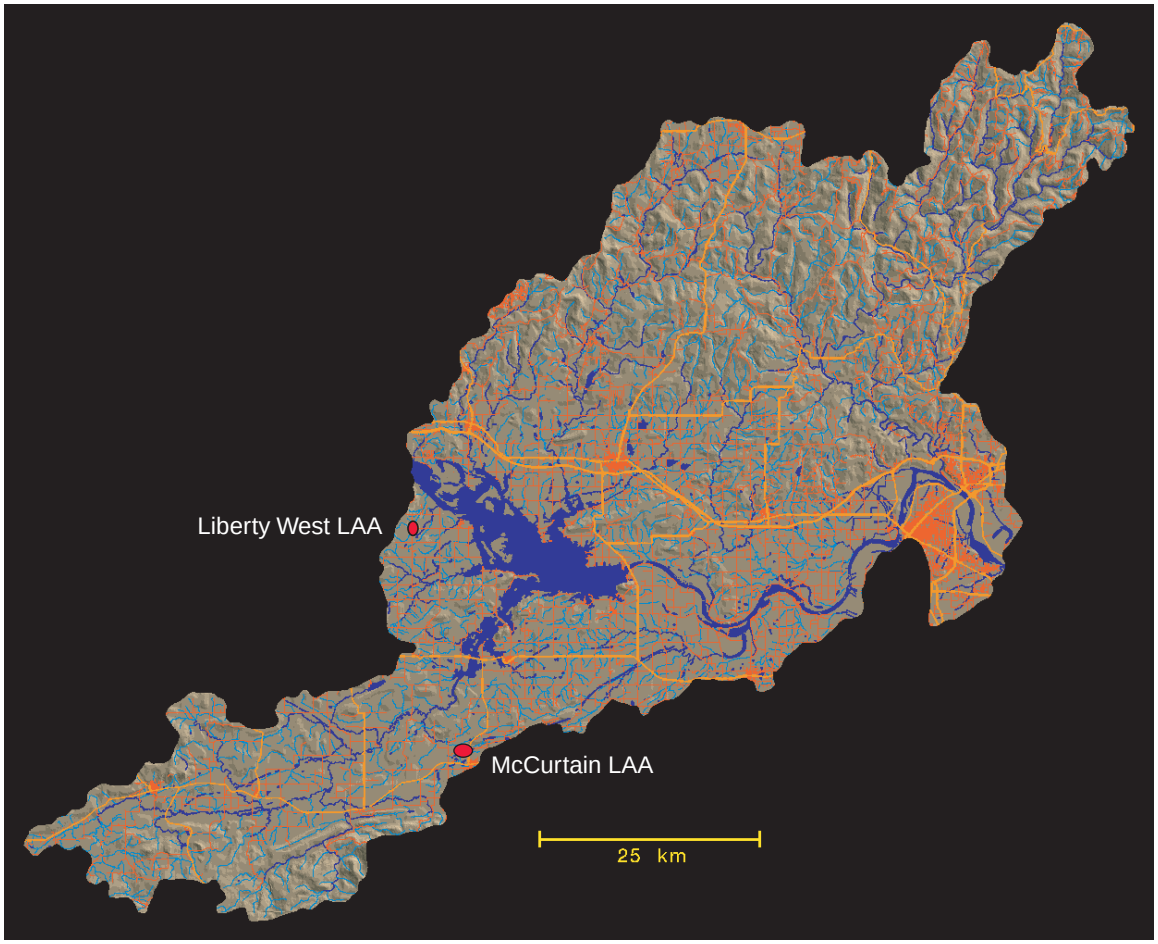
Soil Associations

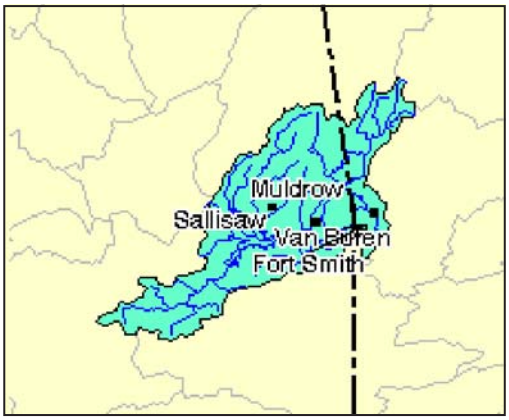
Carnasaw-Clebit-Pirum
Bengal Stony Fine Sandy Loam
Bengal-Clebit
Carnasaw-Clebit
Neff
Rexor
Shermore

Kiomatia

Stigler-Shermore-Neff-Bolivar

Reservoirs and Lakes



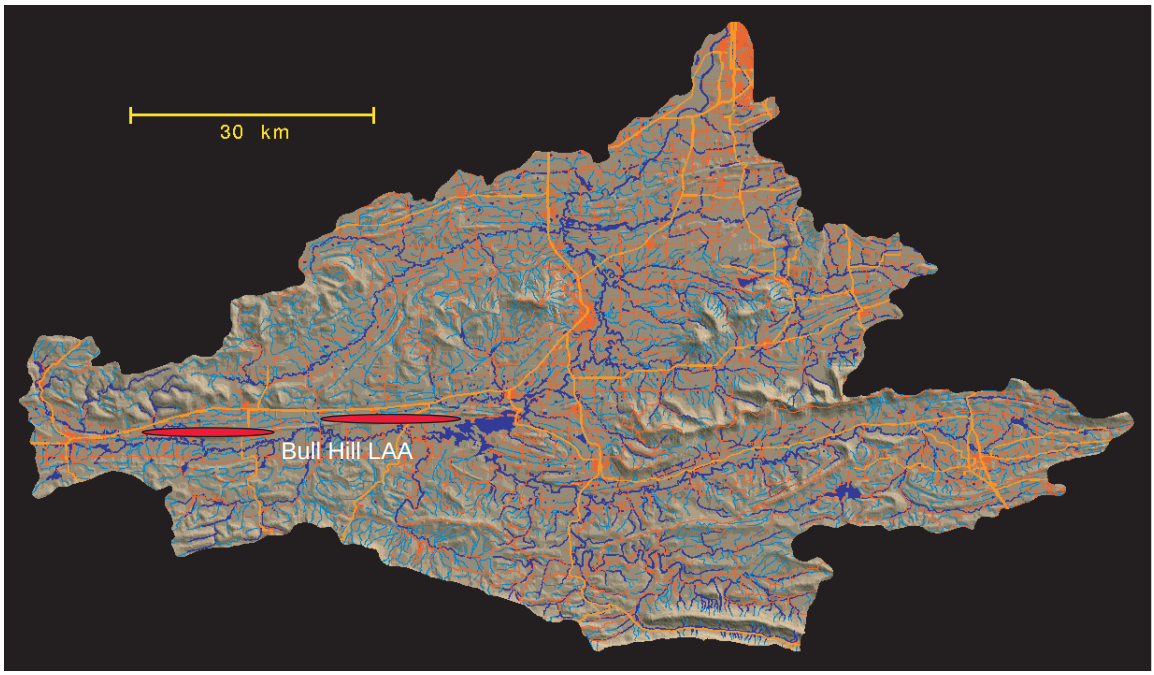


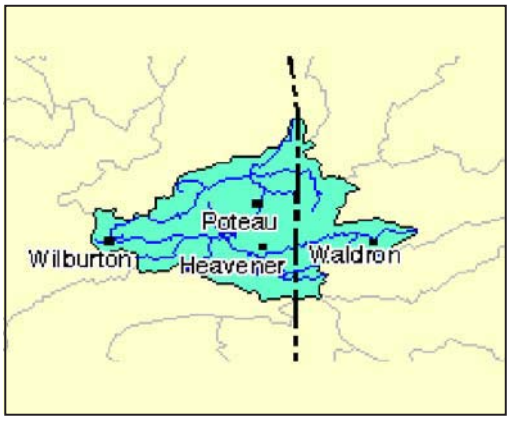
Robert S. Kerr Watershed

BLM Oklahoma Field Office
RMPA/EA for Federal Coal Leasing

URS

Map 3-7





Poteau Watershed

BLM Oklahoma Field Office
RMPA/EA for Federal Coal Leasing

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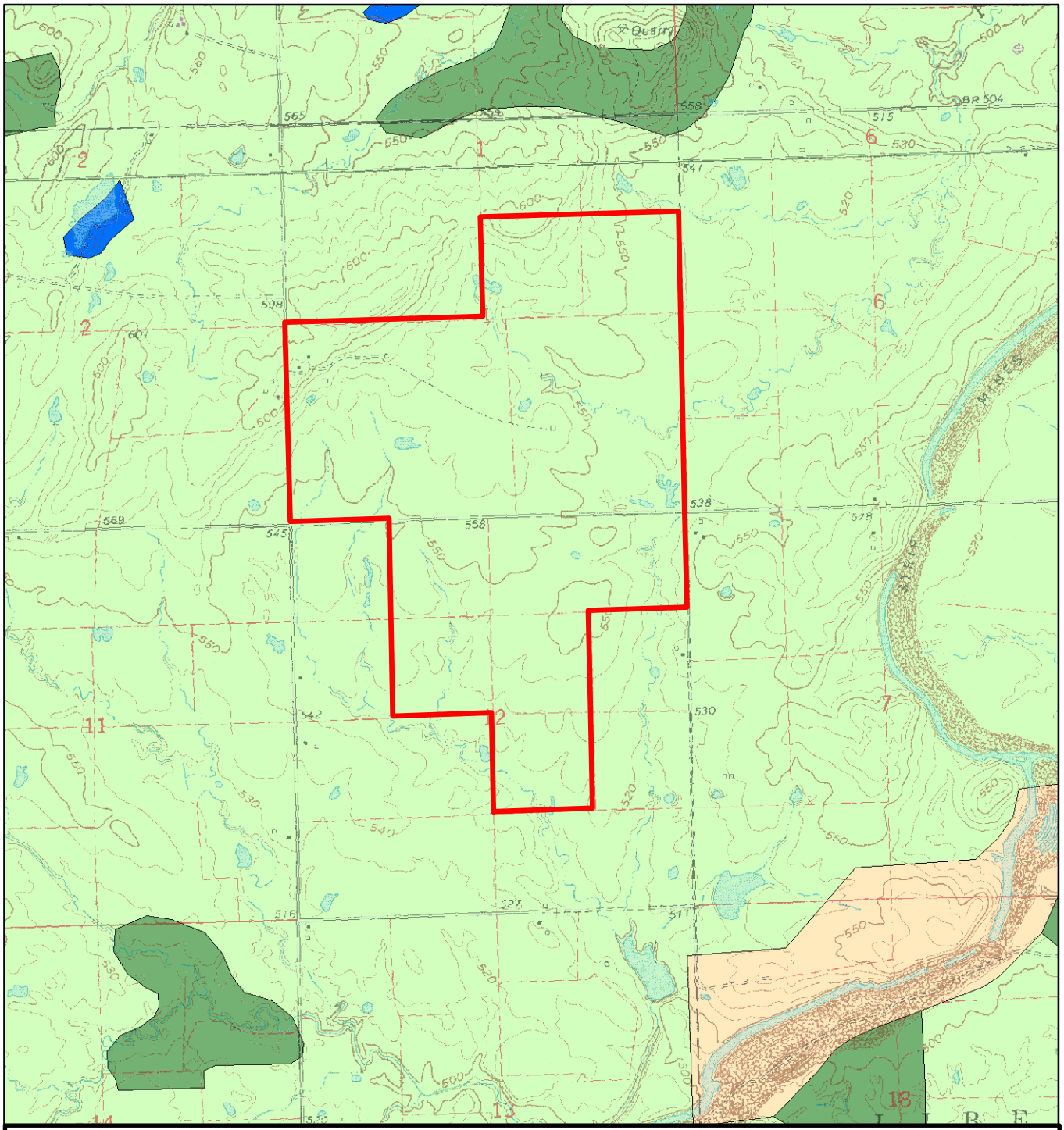
Map 3-8



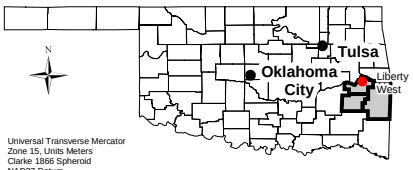
Liberty West Tract (OKNM 104763)
Haskell County

BLM Oklahoma Field Office
RMPA/EA for Federal Coal Leasing

Land Cover

Legend

- Lease Application Area Boundary
- Agricultural Land
- Forest Land (Woodland)
- Water
- Barren Land



Universal Transverse Mercator
Zone 15, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

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Source:A Land Use and Land Cover Classification System for Use with Remote Sensor Data
James R. Anderson, Ernest E. Hardy, John T. Roach, and Richard E. Witmer,
U.S. Geological Survey 1976

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Map 3-9

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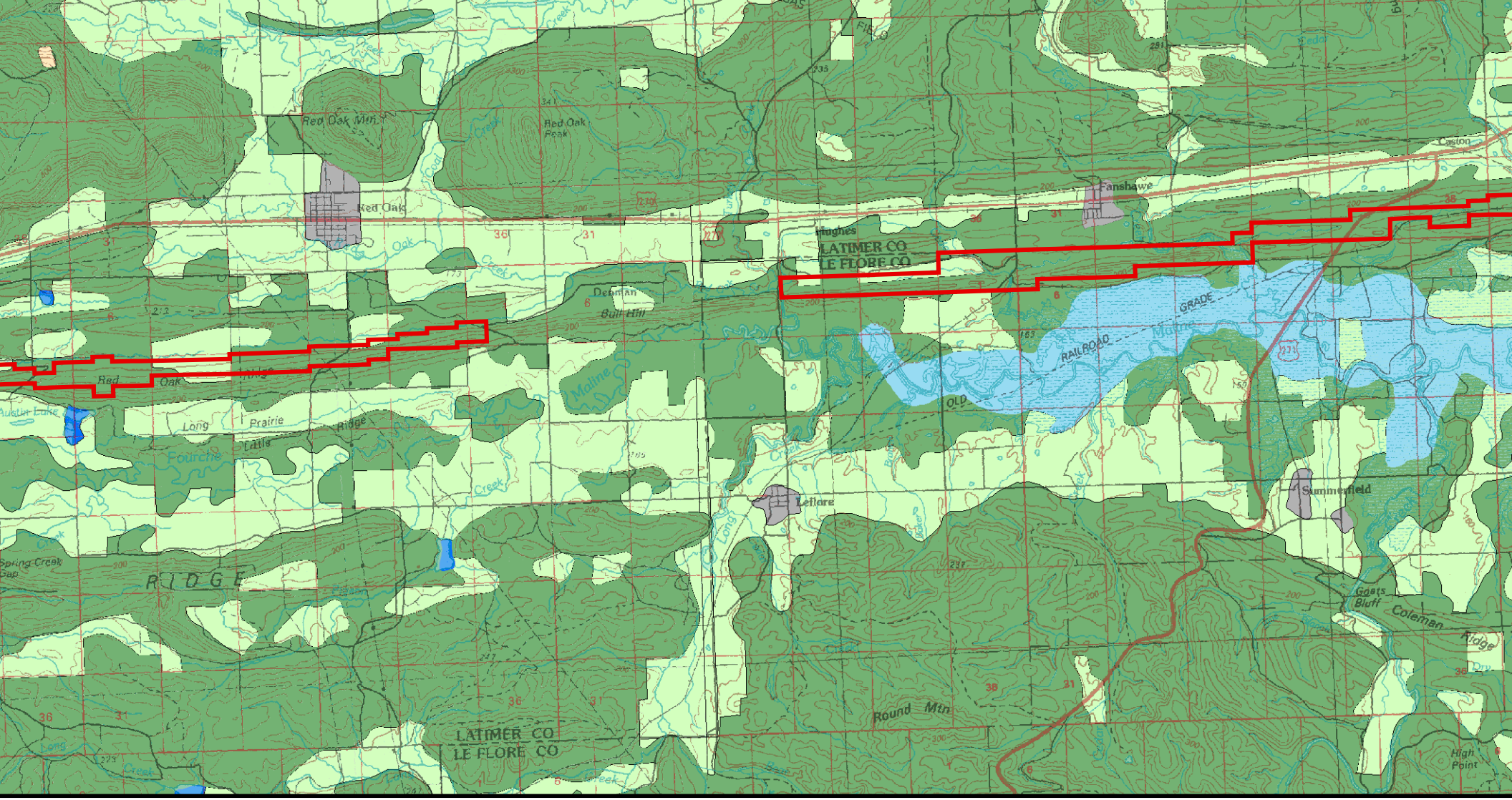
Legend

- Lease Application Area Boundary
- Agricultural Land
- Forest Land (Woodland)
- Water
- Barren Land

Source:A Land Use and Land Cover Classification System for Use with Remote Sensor Data
James R. Anderson, Ernest E. Hardy, John T. Roach, and Richard E. Witmer,
U.S. Geological Survey 1976



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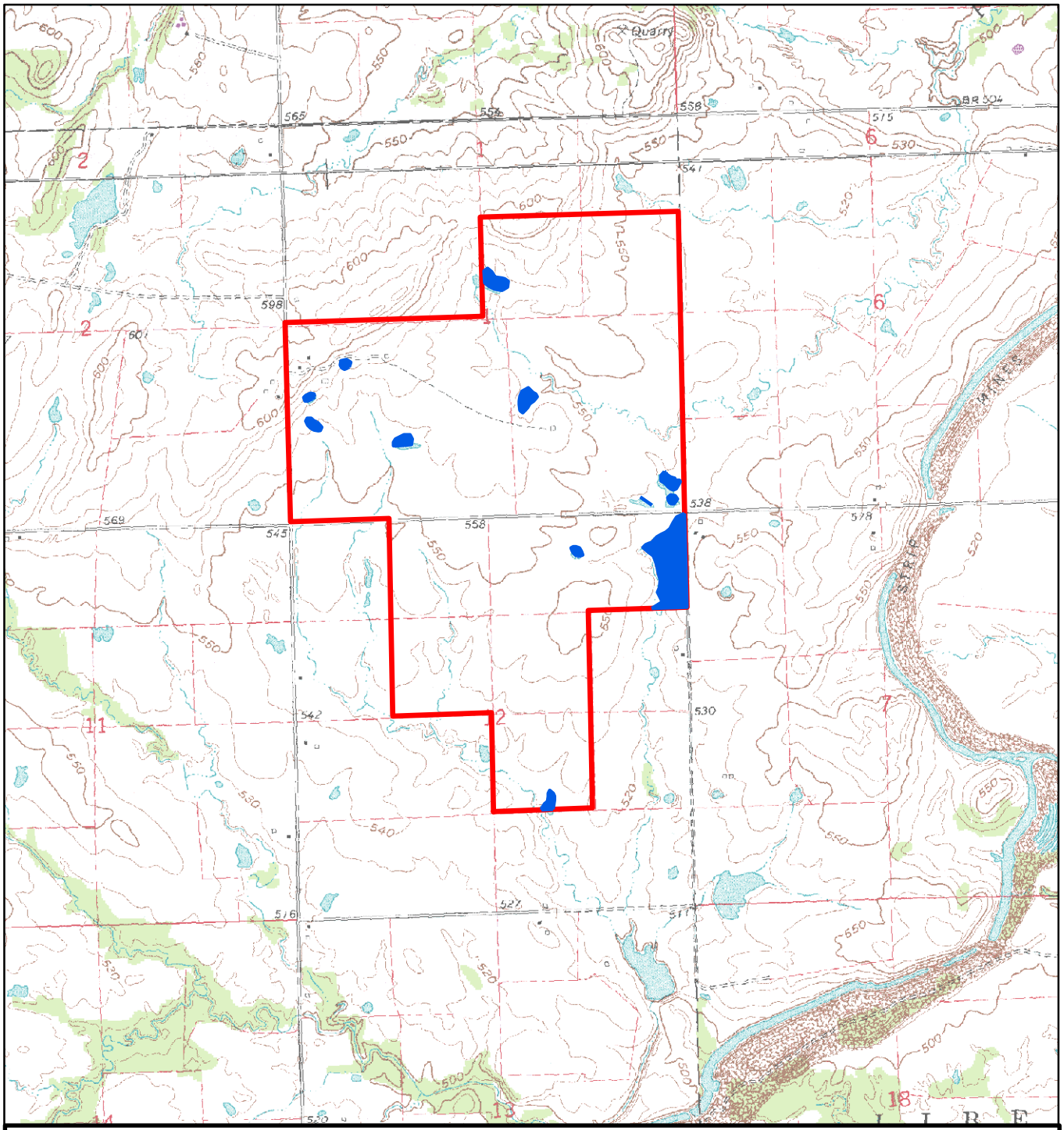
- Lease Application Area Boundary
- Urban or Built Up Land
- Agricultural Land
- Forest Land (Woodland)
- Water
- Wetland
- Barren Land

Source:A Land Use and Land Cover Classification System for Use with Remote Sensor Data
James R. Anderson, Ernest E. Hardy, John T. Roach, and Richard E. Witmer,
U.S. Geological Survey 1976



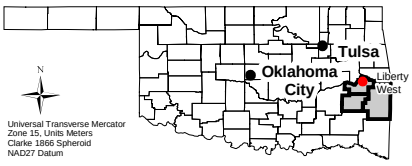
Liberty West Tract (OKNM 104763)
Haskell County

BLM Tulsa Field Office
Oklahoma RMPA/EA
for Federal Coal Leasing

Wetlands

Legend

- LAA Boundary
- Wetlands and Deepwater Habitats



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Universal Transverse Mercator
Zone 15, Units Meters
Clarke 1866 Spheroid
NAD27 Datum

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Source:
Classification of Wetlands and Deepwater Habitats of the United States
Cowardin et al. 1997, as modified for the National Wetlands Inventory.

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Map 3-12

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LAA Boundary

Wetlands and Deepwater Habitats

Source:
Classification of Wetlands and Deepwater Habitats of the United States
Cowardin et al. 1997, as modified for the National Wetlands Inventory.

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- LAA Boundary
- National Wetlands Inventory

Source:
Classification of Wetlands and Deepwater Habitats of the United States
Cowardin et al. 1997, as modified for the National Wetlands Inventory.

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Glossary

GLOSSARY

Adaptive Management—A systematic process for continually improving management policies and practices by learning from the outcomes of actions over time.

Advisory Council on Historic Preservation—A Federal council that reviews the actions taken by agency officials, which affect historic properties (cultural resources).

Affected Environment—Surface or subsurface resources (including social and economic elements) within or adjacent to a geographic area that potentially could be affected by development. The environment of the area to be affected or created by the alternatives under consideration (40 CFR 1502.15).

A-weighted—Weighting function applied to the noise spectrum, which approximates the response of the human ear.

Alkalinity—Quantity and type of compounds in water that collectively cause a pH shift to alkalinity.

Alluvial Plains—Floodplains produced by the filling of a valley bottom and consisting of fine mud, sand, or gravel.

Alternative—The different ways of addressing the planning issues and management activities considered in a planning process. These provide the decision maker and the public a clear basis for choices among options. Every planning effort involves the development of several complete, reasonable alternatives for resolving the issues. One of the alternatives offered is the continuation of present management (no change) while the other alternatives provide a range of choices for resolution of the issues. One of the alternatives is selected at the end of the planning process and approved as the plan.

Ambient (air)—The surrounding atmospheric conditions to which the general public has access.

Application—A written request, petition, or offer to lease lands for the purpose of minerals exploration and/or right-of-extraction.

Aquifer—A water-bearing layer of permeable rock, sand, or gravel. A formation, group of formations, or part of a formation that contains sufficient saturated permeable material to conduct groundwater and yield large quantities of water to wells and springs.

Aspect—The direction in which a slope faces.

Authorized Officer—Any person authorized by the Secretary of the Interior, or his representative, to administer regulations.

Basin—A depressed area having no surface outlet (*topographic basin*); a physiographic feature or subsurface structure that is capable of collecting, storing, or discharging water by reason of its shape and the characteristics of its confining material (*water*); a depression in the earth's surface, the lowest part often filled by a lake or pond (*lake basin*); a part of a river or canal widened (*drainage*, *river, stream basin*).

Big Game—Large species of wildlife that are hunted, such as elk and deer.

Biodiversity—The diversity of living organisms considered at all levels of organization including genetics, species, and higher taxonomic levels, and the variety of habitats and ecosystems, as well as the processes occurring therein.

Bureau of Land Management—An agency of the U.S. Department of the Interior responsible for managing most Federal government subsurface minerals. It has surface management responsibility for Federal lands designated under the Federal Land Policy and Management Act of 1976.

Cambrian—The oldest of the periods of the Paleozoic Era; also the system of strata deposited during that period.

Candidate Species—Category I: Plant and animal species for which the USFWS currently has on file substantial information to support a proposal to list as threatened or endangered. Category II: Plant and animal species for which current information indicates that a proposal to list as threatened or endangered is possibly appropriate, but for which more information is needed to support a listing proposal.

Carbonaceous—Coaly; pertaining to, or composed largely of, carbon.

Casual Use—Activities that ordinarily lead to no significant disturbance of Federal lands, resources, or improvements.

Clean Air Act—Federal legislation governing air pollution. Prevention of Significant Deterioration classifications define the allowable increased levels of air quality deterioration above legally established levels include the following:

Class I – minimal additional deterioration in air quality (certain national parks and wilderness areas)

Class II – moderate additional deterioration in air quality (most lands)

Class III – greater deterioration for planned maximum growth (industrial areas)

Coal—A readily combustible rock containing more than 50 percent weight and more than 70 percent by volume of carbonaceous material including inherent moisture, formed from compaction and induration of variously altered plant remains similar to those in peat. Differences in the kinds of plant materials (type), in degree of metamorphism (rank), and in the range of impurity (grade) are characteristic of coal and are used in classification.

Colluvium—A general term applied to loose and incoherent deposits, usually at the foot of a slope or cliff and brought there chiefly by gravity. Talus and cliff debris are included in such deposits.

Corridor—For purposes of this environmental assessment, a wide strip of land within which a proposed linear facility (e.g., pipeline, transmission line, road) could be located.

Council on Environmental Quality—An advisory council to the President of the United States established by the National Environmental Policy Act of 1969. It reviews Federal programs for their effect on the environment, conducts environmental studies, and advises the president on environmental matters.

Critical Habitat—An area occupied by a threatened or endangered species "on which are found those physical and biological features (1) essential to the conservation of the species, and (2) which may require special management considerations or protection" (16 USC 1532 (5)(A)(I)1988). Unoccupied by suitable habitat for the threatened or endangered species is not automatically included unless such areas are essential for the conservation of the species (50 CFR 424.12(e)).

Crucial Habitat—An area that is essential to the survival of a wildlife species sometime during its life cycle.

Cultural Resource Inventory Classes:

Class I – a review of previously conducted inventory results

Class II – a sampling field inventory (all sample units inventoried to a Class III level)

Class III – an intensive field inventory (covers 100 percent of the area on foot)

Cultural Resources—Any cultural, archeological, historical, or architectural site, building, structure, District, or object. Also any location or object that is sacred or ceremonial to any modern Indian tribe, including any unmarked graves and grave goods.

Cumulative Impact—The impact on the environment that results from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

Depth of Burial—The depth below the ground surface and/or thickness of overlying stratum over a particular rock unit of geologic interest.

Depth to Coal Pay—The depth below the ground surface of a potential economic coal unit.

Desiccation—The removal of moisture; to become dried up.

Dewatering—The act of removing water.

Distribution Line—An electric power line operating at a voltage of less than 69 kilovolts.

Diversity—The relative abundance of wildlife species, plant species, communities, habitats, or habitat features per unit of area.

Easement—A right afforded a person or agency to make limited use of another's real property for access or other purposes.

Emission—Air pollutant discharge into the atmosphere, usually specified by mass per unit time.

Endangered Species—An animal or plant whose prospects of survival and reproduction are in immediate jeopardy, and as further defined by the Endangered Species Act of 1973, as amended.

Endangered Species Act of 1973—(as amended): Federal law to ensure that no federal action will jeopardize federally listed or proposed threatened or endangered species of plants or animals.

Enhanced Recovery—The use of artificial means to increase the amount of hydrocarbons that can be recovered from a reservoir. A reservoir depleted by normal extraction usually can be restored by secondary or tertiary methods of enhanced recovery.

Erosion—The group of processes whereby earthy or rocky material is worn away by natural means such as wind, water, or ice and removed from any part of the earth's surface.

Ephemeral Stream—A stream that flows only in direct response to precipitation.

Evapotranspiration—Loss of water from a land area through transpiration of plants and evaporation from the soil.

Eyrie—The nest of birds of prey.

Fan—An accumulation of debris brought down by a stream descending through a steep ravine and debouching in the plain beneath, where the detrital material spreads out in the shape of a fan, forming a section of a very low cone.

Federal Candidate Species—Sensitive wildlife species currently under consideration for inclusion on the list of Federal threatened or endangered species.

Federal Land Policy and Management Act of 1976 (FLPMA)—Public Law 94-570 signed by the President of the United States on October 21, 1976. Established public land policy for management of lands administered by BLM. FLPMA specifies several key directions for the BLM, notably (1) management on the basis of multiple use and sustained yield; (2) land plans prepared to guide management actions; (3) public land management for the protection, development, and enhancement of resources; (4) public land retention in Federal ownership; and (5) public participation in reaching management decisions.

Federal Listed Species—Animal or plant species listed by the U.S. Fish and Wildlife Service as threatened or endangered.

Fiduciary—Held in trust.

Floodplain—The nearly level alluvial plain that borders a stream or river and is subject to inundation during high water periods; the relatively flat area or lowland adjoining a body of standing or flowing water which has been or might be covered by floodwater.

Forage—All browse and herbaceous foods available to grazing animals, which may be grazed or harvested for feeding.

Foreground View—The landscape area visible to an observer within a mile.

Formation—A body of rock identified by lithic characteristics and stratigraphic position; it is prevailingly, but not necessarily tabular, and is mappable at the earth's surface or traceable in the subsurface (NACSN, 2984, Art. 24).

Fossil—Any remains, trace, or imprint of a plant or animal that has been preserved by natural processes in the earth's crust since some past geologic time.

Fragile Soil—A soil that is especially vulnerable to erosion or deterioration due to its physical characteristics and/or location. Disturbance to the surface or the vegetative cover can initiate a rapid cycle of loss and destruction of soil material, structure, and ability to sustain a biotic community.

Fragmentation—See Habitat Fragmentation.

Free Market—An economic market operating by free competition.

Fugitive Dust—Airborne particulate matter emitted from any source other than through a stack or vent.

Geophysics—Study of the earth by quantitative physical methods.

Graben—Fault block valley; elongated, depressed crustal block bounded by faults on its long side.

Habitat—A specific set of physical conditions that surround a single species, a group of species, or a large community. In wildlife management, the major components of habitat are considered to be food, water, cover, and living space.

Habitat Fragmentation—The disruption (by division) of extensive habitats into smaller habitat patches. The effects of habitat fragmentation include loss of habitat area and the creation of smaller, more isolated patches of remaining habitat.

Habitat Management Plan—A written and officially approved plan for a specific geographical area of public land that identifies wildlife habitat and related objectives, establishes the sequence of actions for achieving objectives, and outlines procedures for evaluating accomplishments.

Habitat Type—An aggregation of all land areas potentially capable of producing similar plant communities at climax.

Herpetofauna—Reptiles and amphibians.

Highest and Best Use—Use of a resource (i.e., property) that maximizes its potential.

Historic—Archaeological and archivally known sites related to the activities of non-native peoples, whether they be of Euro-American, Afro-American or Asian-American origin, in the period after the European discovery of the New World (circa A.D. 1492).

Historic Property—Any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. This term includes artifacts, records, and remains that are related to and located within such properties. The term includes properties of traditional religious and cultural importance to an Indian tribe or Native Hawaiian organization and that meet the National Register criteria.

Historic Site—The specific location of any cultural resource created after the time of first contact between European explorers and native Indians in each local area.

Hummocky—Like a hummock, full of hummocks (a low, rounded hill, knoll, hillock; a tract of wooded land higher than a nearby swamp or marsh).

Hydric Soils—Saturated soils.

Hydrophytic—Water-loving; ability to grow in water or saturated soils.

Immigrant—Individual who moves into the project area from another part of the country.

Impact—A modification of the existing environment caused by an action (such as construction or operation of facilities).

Incised Channels—Deeply and sharply cut stream channels.

Increments (air quality)—Maximum allowable increases over legally established baseline concentrations of pollutants covered by the Prevention of Significant Deterioration provisions designated as Class I, II, or III areas.

Indian Mineral Estate—A mineral estate owned by the Federal government and held in trust for the American Indian people. The Bureau of Indian Affairs and BLM, as agents of the Secretary of the Interior, have the responsibility for administering the leasing and development of mineral resources in such a case. However, under the auspices of the Indian Self Determination Act of 1968 and the Indian Mineral Development Act of 1982, American Indian people may take a leadership role in the management of their mineral resources.

Indian Tribe—The governing body of any Indian tribe, band, nation, or other group that is recognized by the Secretary of Interior and for which the United States holds land in trust or restricted status for that entity or its members.

Indicator Species—A species of animal or plant whose presence is a fairly certain indication of a particular set of environmental conditions. Indicator species serve to show the effects of development actions on the environment.

Indirect Impacts—Secondary effects that occur in locations other than the initial action or later in time.

Indurated—Said of a compact rock or soil hardened by the action of pressure, cementation, and especially heat.

Infrastructure—The facilities, services, and equipment needed for a community to function including roads, sewers, water lines, police and fire protection, and schools.

Insignificant or Nonsignificant Impacts—Impacts that are perceptible or measurable relative to those occurring naturally or due to other actions, but would not exceed significance criteria.

Interest—The most general term that can be employed to denote a property in lands or chattels. In its application to lands or things real, it is frequently used in connection with the term "estate," "right," and "title," and includes them all. The terms "interest" and "title" are not synonymous. "Interest" more particularly means a right to have the advantage accruing from something; a partial or undivided right, but less than title.

Intermittent Stream—A stream or reach of a stream that is below the local water table for at least some part of the year.

Invertebrate—An animal lacking a backbone or spinal column.

Issue—A matter of controversy over resource management activities that is typically discrete and provides alternatives for a decision. Typically the causal relationship between the activity and undesirable results is documentable and the level of controversy is high enough to merit further analysis.

Joint Patterns—The patterns made by fractures in rock, generally vertical or transverse to bedding, along which no appreciable movement has occurred.

Jurisdiction—The legal right to control or regulate and the areal extent of that right. Jurisdiction requires authority, but not necessarily ownership.

K-factor—Soil erodibility factor.

Lacustrine—Of or pertaining to a lake.

Landscape—An area composed of interacting ecosystems that are repeated because of geology, landform, soils, climate, biota, and human influences throughout the area. Landscapes are generally of a size, shape, and pattern, which is determined by interacting ecosystems.

Landscape Character—Particular attributes, qualities, and traits of a landscape that give it an image and make it identifiable or unique.

Landscape Setting—The context and environment in which a landscape is set; a landscape backdrop.

Leasable Minerals—Those minerals or materials designated as leasable under the Mineral Leasing Act of 1920. They include coal, phosphate, asphalt, sulphur, potassium, sodium minerals, oil, gas, and geothermal resources.

Lease—(1) A legal document that conveys the right to use or occupy a property for a specific length of time; (2) the tract of land, on which a lease has been obtained.

Lease Stipulations—Additional specific terms and conditions that change the manner in which operation may he conducted on a lease, or that modify the lease rights granted.

Liquefaction—A change in the phase of a substance to the liquid state; usually a change from the gaseous to the liquid state, especially of a substance that is a gas at normal pressure and temperature.

Lithic Scatter—A scatter of chipped stone materials, which may include fragments, flakes, or stone tools.

Lithology—The physical characteristics of a rock, generally as determined megascopically or with the aid of a low-power magnifier.

Management Indicator Species—Those species that are commonly hunted or whose habitat requirements and population changes are believed to indicate effects of management activities on a broader group of wildlife species in the ecological community.

Management Situation Analysis (MSA)—A step in the BLM planning process that identifies existing management, physical resources, and opportunities to meet the needs, concerns, and issues identified through resource management planning. The MSA results in a reference document, which is kept in the field office. The MSA document is open for public inspection but is not distributed to the public.

Memorandum of Understanding (MOU)—Signed pact between two entities agreeing to some course of action or inaction.

Middleground View—One of the distance zones of a landscape being viewed. This zone extends from the limit of the foreground to 3 to 5 miles from the observer.

Mineral Estate (Mineral Rights)—The ownership of minerals, including rights necessary for access, exploration, development, mining, ore dressing, and transportation operations.

Mineral Reserves—Known mineral deposits that are recoverable under present conditions but are as yet undeveloped.

Mineral Rights—Mineral rights outstanding are third-party rights, an interest in minerals not owned by the person or party conveying the land. It is an exception in a deed that is the result of prior conveyance separating title of certain minerals from the surface estate.

Mitigation—The abatement or reduction of an impact on the environment by (1) avoiding a certain action or parts of an action, (2) employing certain construction measures to limit the degree of impact, (3) restoring an area to preconstruction conditions, (4) preserving or maintaining an area throughout the life of a project, (5) replacing or providing substitute resources to the environment or (6) gathering archaeological and paleontological data before disturbance.

Mineral Estate—Mineral and/or subsurface ownership.

Mitigation Measures—Methods or procedures committed to by BLM for the purpose of reducing or lessening the impacts of an action.

Modification—A fundamental change in the provisions of a lease stipulation, either temporarily or for the term of the lease. A modification may, therefore, include an exemption from or alteration to a stipulated requirement. Depending on the specific modification, the stipulation may or may not apply to all other sites within the leasehold to which restrictive stipulation applies.

Multiple Use— The Federal Land Policy and Management Act (FLPMA) of 1976 (Public Law 94-579; the BLM's founding organization act) provides that the Secretary shall manage the public lands under principles of multiple use and sustained yield, in accordance with the land use plans developed by him under section of this title when they are available, except that where a tract of such public land has been dedicated to specific uses according to any other provisions of law it shall be managed in accordance with such law.

National Ambient Air Quality Standards—The allowable concentrations of air pollutants in the air specified by the Federal government. The air quality standards are divided into primary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public health) and secondary standards (based on the air quality criteria and allowing an adequate margin of safety and requisite to protect the public welfare) from any unknown or expected adverse effects of air pollutants.

National Environmental Policy Act of 1969 (NEPA)—Public Law 91-190. Establishes environmental policy for the nation. Among other items, NEPA requires Federal agencies to consider environmental values in decision-making processes.

National Historic Preservation Act—The primary federal law providing for the protection and preservation of our cultural resources. Making it a national policy to preserve our cultural heritage, the National Historic Preservation Act established the National Register of Historic Places, the Advisory Council on Historic Preservation and State Historic Preservation Officers.

National Natural Landmarks—Sites designated by the Secretary of the Interior as containing the best representative examples of geologic features and natural communities composing the nation's natural history. The purpose of the designation is to encourage preservation of such sites through well-informed management and use, and consideration of these sites in public and private land use planning. Designation has no legal effect on land ownership, use, or management.

National Register of Historic Places (NRHP)—The Nation's official list of cultural resources worthy of preservation. Authorized under the National Historic Preservation Act of 1966, the National Register is

part of a national program to coordinate and support public and private efforts to identify, evaluate, and protect our historic and archeological resources. Properties listed in the National Register include districts, sites, buildings, structures and objects significant in American history, architecture, archaeology and culture. The National Register is administered by the National Park Service, which is an agency of the U.S. Department of the Interior.

National Register Quality Site—A cultural resource site determined to be eligible for nomination to the *National Register of Historic Places* by virtue of its local, state or national significance.

Negligible Impact—Impact that is small in magnitude and importance and is difficult or impossible to quantify relative to those occurring naturally or due to other actions.

Notice of Review Species—A species that is being considered as a candidate for listing as either endangered or threatened under the Endangered Species Act of 1973, as amended.

Notice to Lessees—A written notice issued by the BLM to implement regulations and operating orders, and serve as instructions on a specific item of importance within a state, district, or area.

Noxious Weed—An undesirable plant species that can crowd out more desirable species.

Off-Highway Vehicle—A vehicle (including four-wheel drive, trail bikes, all-terrain vehicles, and snowmobiles but excluding helicopters, fixed-wing aircraft, and boats) capable of traveling off road over land, water, ice, snow, sand, marshes, and other terrain.

Off-Road Vehicle—Any motorized vehicle capable of, or designed for, travel on or immediately over land, water, or other natural terrain.

One-Hundred-Year Flood—A hydrologic event with a magnitude that has a recurrence interval of 100 years.

Operating Rights (working interest)—Any interest held in a lease with the right to explore for, develop, and produce leased substances.

Operator—Any person who has taken formal responsibility for the operations conducted on the leased lands.

Paleontological Resource—Any impressions, footprints, trackways, fossilized, or preserved organic remains not associated with a cultural resource.

Paleontology—A science dealing with the life of past geological periods as known from fossil remains.

Palustrine—A system of wetlands that includes all nontidal wetlands dominated by trees, shrubs, persistent emergents, emergent mosses, or lichens.

Particulate Matter—Particulate matter less than 10 microns in effective diameter (also called Fine Particulate Matter).

Peidmont—Lying or formed at the base of mountains.

Perennial Stream—A stream receiving water from both surfaces and underground sources that flows throughout the entire year.

pH—A numeric value that gives the relative acidity or alkalinity of a substance on a 0 to 14 scale with the neutral point at 7. Values lower than 7 show the presence of acids, and values greater than 7 show the presence of alkalis.

Physiognomic Physiographic Province—A region, all parts of which are similar in geologic structure and climate and which has consequently had a unified geomorphic history; a region whose pattern of relief features or landforms differs significantly from that of adjacent regions.

Prehistoric—Archaeological sites resulting from the activities of aboriginal peoples native to this region, and because dating is often difficult, extending up to the reservation era (ca. A.D. 1868).

Prehistoric Site—(opposite of historic site) the specific location of a cultural resource created before the time of the first contact between European explorers and the native tribes of that area.

Prevention of Significant Deterioration—A regulatory program based not on the absolute levels of pollution allowable in the atmosphere but on the amount by which a legally defined baseline condition will be allowed to deteriorate in a given area. Under this program, geographic areas are divided into three classes, each allowing different increases in nitrogen dioxide, particulate matter, and sulfur dioxide concentrations.

Prime Farmland—Land that is best suited for producing food, feed, forage, fiber, and oilseed crops. The inventory of prime agricultural land is maintained by the USDA Natural Resources Conservation Service (formerly the Soil Conservation Service).

Proposed Action—Construction activities, alignments, and other activities proposed by the applicant.

Public Land—Any land or interest in land (outside Alaska) owned by the United States and administered by the Secretary of the Interior through the BLM.

Public Participation—Part of the BLM's planning system that provides the opportunity for citizens individuals or groups to express local, regional and national perspectives and concerns. This includes public meetings, hearings or advisory boards or panels that may review resource management proposals and offer suggestions or criticisms for the various alternatives considered.

Quaternary—The younger of the two geologic periods or systems in the Cenozoic Era.

Rangeland—Land used for grazing by livestock and big game animals on which vegetation is dominated by grasses, grass-like plants, forbs, or shrubs.

Raptor—Bird of prey with sharp talons and strongly curved beak; e.g., hawk, owl, vulture, eagle.

Rare or Sensitive Species—Species that have no specific legal protection under the Endangered Species Act as threatened or endangered species, but are of special concern to agencies and the professional biologic community due to low populations, limited distributions, ongoing population decline, and/or human or natural threats to their continued existence.

Reasonable Foreseeable Development Scenario—The prediction of the type and amount of activity that would occur in a given area.

Reclamation—Returning disturbed lands to a form and productivity that will be ecologically balanced and in conformity with a predetermined land management plan.

Resource Management Plan (RMP)—A land use plan that establishes land use allocations, multiple-use guidelines, and management objectives for a given planning area. The RMP planning system has been used by the BLM since 1980.

Record of Decision—A document separate from, but associated with, a management plan that publicly and officially discloses the responsible official's decision on the proposed action.

Riparian—Situated on or pertaining to the bank of a river, stream, or other body of water. Normally used to refer to the plants of all types that grow along, around, or in wet areas.

Riparian Habitat (Areas)—Areas of land directly influenced by permanent water and having visible characteristics, e.g., vegetation, reflective of the presence of permanent water, i.e., surface and/or subsurface.

Riverine—A system of wetlands that includes all wetland and deep-water habitats contained within a channel that lacks trees, shrubs, persistent emergents, and emergent mosses or lichens.

Roads—Vehicle routes that are improved and maintained by mechanical means to ensure relatively regular and continuous use.

Salinity—A measure of the amount of dissolved salts in water.

Saline Water—Water containing high concentrations of salt (see also brine).

Scoping—A term used to identify the process for determining the scope or range of issues related to a proposed action and for identifying significant issues to be addressed in a management plan.

Secondary Succession—The process by which ecosystems recover toward pre-existing conditions after removal of a disturbance, such as the recovery process of a forest after a fire.

Sediment—Soil or mineral transported by moving water, wind, gravity, or glaciers, and deposited in streams or other bodies of water, or on land.

Sediment Yield—The amount of sediment produced in a watershed, expressed in tons, acre feet, or cubic yards, of sediment per unit of drainage area per year.

Sedimentary Rock—Rock resulting from consolidation of loose sediment that has accumulated in layers.

Sensitive Plant Species—Those plant or animal species susceptible or vulnerable to activity impacts or habitat alterations.

Sensitivity Levels (visual resources)—A measure of people's concern for scenic quality.

Significant—An effect that is analyzed in the context of the proposed action to determine the degree or magnitude of importance of the effect, either beneficial or adverse. The degree of significance can be related to other actions with individually insignificant but cumulatively significant impacts.

Significance Criteria—Criteria identified for specific resources used to determine whether or not impacts would be significant.

Slope—The degree of deviation of a surface from the horizontal.

Soil Horizon—A distinct layer of soil, approximately parallel to the land surface, and different from adjacent, genetically related layers in physical, chemical, and biological properties or characteristics.

Soil Productivity—The capacity of a soil to produce a plant or sequence of plants under a system of management.

Soil Series—A group of soils having genetic horizons (layers) that, except for texture of the surface layer, have similar characteristics and arrangement in profile.

Soil Texture—The relative proportions of sand, silt, and clay particles in a mass of soil. Basic textural classes, in order of increasing proportions of fine particles, are sand, loamy sand, sandy loam, loam, silt loam, silt, sandy clay loam, clay loam, silty clay loam, sandy clay, and clay.

Special Status Species—Wildlife and plant species either Federally listed or proposed for listing as endangered or threatened, state-listed or BLM-determined priority species.

Split Estate—Refers to land where the mineral rights and the surface rights are owned by different parties. Owners of the mineral rights generally have a superior right. The most common split estate is Federal ownership of mineral rights and other interest ownership of the surface.

State Historic Preservation Officer (SHPO)—Officials appointed by the Governor of each state or territory to administer the national historic preservation program at the state level, review National Register of Historic Places nominations, maintain data on historic properties that have been identified but not yet nominated, and consult with Federal agencies during Section 106 review.

Stipulations—Requirements that are part of the terms of a mineral lease. Some stipulations are standard on all Federal leases. Other stipulations may be applied to the lease at the discretion of the surface management agency or owner to protect valuable surface resources and uses.

Stratigraphy—The arrangement of strata, especially as to geographic position and chronological order of sequence.

Surface Management Agency—Any agency, other than the BLM, with jurisdiction over the surface overlying Federal minerals.

Sustainability—The ability of an ecosystem to maintain ecological processes and functions, biological diversity, and productivity over time.

Sustained Yield—The achievement and maintenance, in perpetuity, of a high-level annual or regular periodic output of the various renewable resources on public lands consistent with multiple use.

Tertiary—The older of the two geologic periods comprising the Cenozoic Era; also the system of strata deposited during that period.

Threatened Species—Any plant or animal species that is likely to become an endangered species throughout all or a significant portion of its range, as defined by the U.S. Fish and Wildlife Service under the authority of the *Endangered Species Act of 1973*.

Toe-slope—The most distant part of a landslide; the downslope edge of a landslide or slump.

Total Dissolved Solids—A term that describes the quantity of dissolved material in a sample of material.

Total Suspended Particulates—All particulate matter, typically less than 70 microns in effective diameter.

Total Suspended Solids—A term that describes the quantity of solid material in a sample of material.

Transmissivity—The rate at which water is transmitted through a unit width of aquifer under a hydraulic gradient.

Valid Existing Rights—Legal interests attached to a land or mineral estate that cannot be divested from the estate until those interests expire or are relinquished.

Vandalism—Willful or malicious destruction or defacement of public property; e.g., cultural or paleontological resources.

Vegetation—Plants in general or the sum total of the plant life above and below ground in an area.

Vegetation Manipulation—Planned alteration of vegetation communities through use of prescribed fire, plowing, herbicide spraying, or other means to gain desired changes in forage availability or wildlife cover.

Vegetation Type—A plant community with distinguishable characteristics described by the dominant vegetation present.

Vertebrate—An animal having a backbone or spinal column.

Visual Resources—The visible physical features of a landscape (topography, water, vegetation, animals, structures, and other features) that constitute the scenery of an area.

Visual Resource Management (VRM)—The inventory and planning actions taken to identify visual resource values and to establish objectives for managing those values. Also, management actions taken to achieve the established objectives.

Visual Resource Management Classes—VRM classes identify the degree of acceptable visual change within a particular landscape. A classification is assigned to public lands based on guidelines established for scenic quality, visual sensitivity, and visibility.

VRM Class I – This classification preserves the existing characteristic landscape and allows for natural ecological changes only. Includes Congressionally authorized areas (wilderness) and areas approved through an RMP where landscape modification activities should be restricted.

VRM Class II – This classification retains the existing characteristic landscape. The level of change in any of the basic landscape elements (form, line, color, texture) due to management activities should be low and not evident.

VRM Class III – This classification partially retains the existing characteristic landscape. The level of change in any of the basic landscape elements due to management activities may be moderate and evident.

VRM Class IV – This classification applies to areas where the characteristic landscape has been so disturbed that rehabilitation is needed. Generally considered an interim short-term classification until rehabilitation or enhancement is completed.

Visual Sensitivity—Visual sensitivity levels are a measure of public concern for scenic quality and existing or proposed visual change.

Waiver—Permanent exemption from a lease stipulation. The stipulation no longer applies anywhere within the leasehold.

Water Table—The surface in a groundwater body where the water pressure is atmospheric. It is the level at which water stands in a well that penetrates the water body just far enough to hold standing water.

Wetland—Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. BLM Manual 1737, *Riparian-Wetland Area Management*, includes marshes, shallow swamps, lakeshores, bogs, muskegs, wet meadows, estuaries, and riparian areas as wetlands.

Work Force—The total number of workers on a specific project or group of projects. The work force also is referred to as direct employment and primary employment.

Appendix A

Agency Letters

Oklahoma Historical Society *Founded May 27, 1893*

State Historic Preservation Office • 2704 Villa Prom • Shepherd Mall • Oklahoma City, OK 73107-2441
Telephone 405/521-6249 • Fax 405/947-2918

May 15, 2003

Mr. Doug Cook
BLM RMPA/EA Co-Team Leader
7906 East 33rd St., Suite #101
Tulsa, OK 74145-1352

RE: File #1407-03; BLM Amendment to RMP (Three Coal Leases in Haskell, Latimer and LeFlore Counties)

Dear Mr. Cook:

We have reviewed the documentation relating to the referenced project. We have no objection to your continued program planning. However, when specific properties are selected, we request that documentation and photographs, for any structures in excess of 45 years of age, be submitted on Historic Preservation Resource Identification Forms. Structures less than 45 years of age do not require forms; however, documentation submitted must provide the addresses of the properties and their date of construction. If there are no structures in the project area, a letter to that effect should be forwarded to this office.

Similar documentation should be furnished for earlier historic properties or remains relating to 20th century mining operations stated to be within the project areas. These locations should be evaluated as potential archeological sites.

When this documentation is received and reviewed, we will issue an opinion on the effect of the program on Oklahoma's cultural and historical resources. We appreciate your cooperation in the effort to identify and preserve the cultural heritage of Oklahoma.

If you have any questions, please contact Charles Wallis, RPA, Historical Archaeologist, at 405/521-6381.

Please reference the above underlined file number when responding. Thank you.

Sincerely,

Melvena Heisch

Melvena Heisch
Deputy State Historic
Preservation Officer

MH:pm

United States Department of the Interior

FISH AND WILDLIFE SERVICE

Ecological Services
222 S. Houston, Suite A
Tulsa, Oklahoma 74127

IN REPLY REFER TO:
FWS/R2/OKES/02-14-03-I-0918

July 9, 2003

Charles F. Andrews
URS Corporation
3010 LBJ Freeway, Suite 1320
Dallas, Texas 75234

Dear Mr. Andrews:

The U. S. Fish and Wildlife Service (Service) has reviewed your May 8, 2003, letter requesting information concerning federally-listed endangered and threatened species and their habitats for three proposed projects in southeastern Oklahoma. Our comments are submitted in accordance with section 7 of the Endangered Species Act, as amended (Act). In addition, the Service is providing comments with respect to other important fish and wildlife resources.

The Bureau of Land Management (BLM) has proposed to amend their 1994 Oklahoma Resource Management Plan (RMP) to include three competitive coal lease sales submitted by Farrell-Cooper Mining Company in February and June of 2002. The RMP amendment would incorporate the Lease Application Areas (LAA), which total approximately 6,883 acres of previously unleased coal into the existing RMP. The first proposed lease site is northeast of Stigler, the second is north of McCurtain, and the third is broken into three units north and northwest of Wister Reservoir.

Federally-listed Species and Sensitive Areas

Our data indicate that the following species occur in or near all three sites: American burying beetle *Nicrophorus americanus* (ABB), bald eagle *Haliaeetus leucocephalus*, and interior least tern *Sterna antillarum*. In addition, the scaleshell mussel *Leptodea leptodon* occurs in the Poteau River north and south of Wister Reservoir.

The ABB is considered a habitat generalist and may be found in a multitude of locations throughout eastern Oklahoma year round. The bald eagle roosts and nests around large bodies of water and can occur year round. The interior least tern uses islands and sandy beaches along rivers in Oklahoma from May to September.

Sensitive areas in or near the Stigler site include: the Little Sans Bois Creek which drains into Robert S. Kerr Reservoir. Further, the Robert S. Kerr Reservoir is surrounded by the Sequoyah National Wildlife Refuge (NWR), and the McClellan-Kerr Wildlife Management Area (WMA).

Sensitive areas in or near the McCurtain site include: the Sans Bois Creek and the Robert S. Kerr Reservoir (which the San Bois Creek drains into).

The Sensitive areas in or near the Wister Reservoir site include: the Fourche Maline River which drains into Wister Reservoir; Wister WMA and Lake Wister State Park which both surround Wister Reservoir; a Mussel Sanctuary about 5 miles downstream of Wister Reservoir; the Poteau River; and Wister Reservoir.

Enclosed are selected maps from the Oklahoma Atlas and Gazetteer ™ depicting the proposed project sites, and sensitive rivers and management areas. Map #1 includes the project sites near Stigler and McCurtain. Map #2 is the project site north of Wister Reservoir. Highlighted in yellow are the project sites, highlighted in orange are the sensitive management areas, and highlighted in green are the sensitive creeks and rivers.

Wetlands

All three proposed lease sites would most likely disturb wetlands to some extent. Wetlands and riparian areas are high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife (U.S. Department of Agriculture 2000). Waterfowl and other migratory birds use wetlands and riparian corridors as stopover, feeding, and nesting areas. Migratory birds tend to concentrate in or near wetlands and riparian areas and use these areas as migratory flyways or corridors. The Service recommends avoiding impacts to these areas. If wetlands will be impacted by the project, we recommend that you contact the U. S. Army Corps of Engineers concerning any permit requirements. Enclosed are the Service's National Wetland Inventory (NWI) Maps for the proposed project sites. National Wetland Inventory maps 1a, 1b, and 1c are of the Wister Reservoir project; 2a and 2b are of the McCurtain project site; and 3 is of the Stigler project site.

Migratory Birds

The above-mentioned WMAs, SPs, and the NWRs manage, to varying extents, habitat specifically for migratory birds. The population levels of many of North America's migratory birds have declined dramatically throughout the latter half of the 20th century, causing grave concern among land managers and biologists. These declines are thought to be due mainly to human-induced factors, such as habitat destruction, habitat fragmentation, pesticide use, and shooting. While some of these factors, such as pesticide use and uncontrolled shooting have decreased in the past few decades, other negative factors have been on the rise. All native migratory birds (*e.g.*, waterfowl, shorebirds, birds of prey, song birds, etc.) are afforded protection under the Migratory Bird Treaty Act (MBTA).

The Service believes that the ABB could be adversely affected by all three projects. Therefore the Service recommends the following measures be implemented prior to mining.

Projects to be implemented during the Summer

1. Surveys should be conducted prior to construction to determine presence or absence of the ABB in the project area. If survey results are negative, your project can proceed. If survey results are positive then baiting away or trapping and relocating must be implemented to avoid significant adverse impacts to the ABB. The Service will need to review the survey results before section 7 consultation is concluded.

Projects to be Implemented during the Winter

1. Construction activities should be postponed until the ABB is active (late April to mid-September). Surveys can then be conducted prior to construction to determine presence or absence of the ABB in

the project area. If survey results are negative, your project can proceed. If survey results are positive then baiting away or trapping and relocating must be implemented to avoid significant adverse impacts to the ABB. The Service will need to review the survey results before section 7 consultation can be concluded.

2. Where summertime construction is not possible, but the project can be planned during summer months - The project can proceed the following winter by conducting surveys during the ABB's active period. If survey results are negative, your project can proceed. If survey results are positive then baiting away or trapping and relocating must be implemented at the site immediately before the onset of the ABB's dormant season to avoid significant adverse impacts to the ABB. The Service will need to review the survey results before section 7 consultation is concluded.

3. If project implementation cannot be postponed until the ABB's active period, formal consultation in accordance with section 7 should be initiated. Section 7(a)(2) of the Act requires federal agencies to ensure that any action they authorize, fund, or carry out is not likely to jeopardize the continued existence of any federally-listed threatened or endangered species or result in adverse modification or destruction of designated critical habitat. When the federal action agency determines that its action "may affect" a federally-listed threatened or endangered species or designated critical habitat, the agency is required to enter into formal consultation with the Service. A request from the federal action agency initiating formal consultation must be made in writing to this office. The federal agency or their designated non-federal representative will need to prepare a biological assessment including a detailed project description; date of project initiation; implementation methods; disturbance type, amount, and duration; and current habitat and land use of the site to the Service.

Surveys must be conducted by a biologist with a section 10 permit from the Service. All survey results, positive or negative, must be submitted to this office in writing before section 7 consultation can be completed. Trapping and relocating also must be conducted by a biologist with a section 10 permit from the Service. Although baiting away currently does not require a section 10 permit from the Service one may be required in the future. A list of permittees and the Service's approved survey protocol can be downloaded from our website at http://ifw2es.fws.gov /oklahoma/beetle1.htm. Please contact the Service for baiting away and/or trapping and relocating guidelines.

Some impacts from surface coal mining that could be potential problems and should be evaluated during your environmental review process include acid mine drainage, fugitive dust, and disposal of overburden and waste rock (EPA 2003, U.S. Geological Survey[1]-year unknown, World Bank Group 1998). In underground mines impacts could potentially include methane generation and release, groundwater pollution from highly saline or acidic water and these impacts may continue long after mining ceases (EPA 2003, World Bank Group 1998). U.S. Geological Services[2] (year unknown) indicates that both numbers of fish and number of fish species were greater in unmined basins compared to mined basins in the Appalachian Plateau and aquatic invertebrates showed decreased diversity. Groundwater from wells located down gradient from surface coal mines that completed reclamation efforts exceeded water quality standards for sulfate, iron, manganese, and aluminum much more frequently than ground water in unmined areas (U.S. Geological Survey[3], year unknown).

Impacts to the water quality of Robert S. Kerr Reservoir, Wister Reservoir, Poteau River, Fourche Maline River, and Arkansas River from past and future mining operations should be researched and evaluated. Water quality degradation or further water quality degradation of these water bodies could

adversely affect the above listed aquatic species by loss of nesting and roosting habitat, degradation of feeding habitat, and disturbing nests or roosting sites. These water bodies should be monitored before, during, and after the mining operations to ensure water quality is not degraded.

If the water quality of Wister Reservoir is degraded then the water quality of the Poteau River would most likely be degraded. Consequently, the scaleshell mussel would likely be adversely affected. To avoid adverse effects to the scaleshell the Service recommends surveying in the Poteau River downstream of Wister Reservoir to determine density of the scaleshell and therefore the degree of potential impacts. In addition, the water quality of the Poteau River and Wister Reservoir should be monitored before, during, and after the mining operations to ensure water quality is not degraded.

A mussel sanctuary is located along the Poteau River approximately 5 miles downstream of Wister Reservoir (see attached Oklahoma Atlas and Gazetteer #2). One of the purposes of this sanctuary is to provide a breeding ground for mussels to sustain populations along this stretch of the Poteau River. Any degradation in water quality could adversely affect this mussel sanctuary and its reproductive potential. This further stresses the need to monitor the water quality in the Poteau River and Wister Reservoir.

The removal of the riparian area from Wister Reservoir and the Fourche Maline River at the project sites north of Wister Reservoir could also contribute to the degradation of habitat for migratory birds and water quality. Not only are these riparian areas high priority fish and wildlife habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife, they also serve as a buffer. Riparian buffers slow water runoff, trap sediment, and enhance water infiltrations in the buffer itself. They also trap fertilizers, pesticides, bacteria, pathogens, and heavy metals, lessening the chance these pollutants will reach surface or ground water sources (U.S. Department of Agriculture 2000). The destruction or alteration of these habitat types could potentially exacerbate the loss of migratory birds by further reducing habitat, serving as important sources of food, cover, and shelter for numerous species of resident and migratory wildlife and degradate the water quality of the Fourche Maline River, Wister Reservoir, and Poteau River.

All the above federally-listed species, migratory birds, and sensitive areas should be addressed in your environmental review process. We appreciate the opportunity to provide comments. If you have any questions or need further assistance with this project, please contact Hayley Dikeman of this office at 918-581-7458, extension 239.

Sincerely,

Jerry J. Brabander
Field Supervisor

Enclosures
cc: Oklahoma Dept of Wildlife Conservation, Natural Resources Section, Oklahoma City, OK
Phil Keasling, Bureau of Land Management, Moore, OK

References

U.S. Department of Agriculture. 2000. Conservation Buffers Work...Economically and Environmentally. Program Aid 1615.

U.S. Geological Survey[1]. Year unknown. Water quality in the coal mining areas of the Appalachian Plateau. *http://appalachianregionscience.usgs.gov/appa;/pub*

U.S. Geological Survey[2]. Year unknown. Geologic setting and water quality of selected basins in the active coal-mining areas of Ohio, 1989-91, with a summary of water quality for 1985-91. Water-Resources Investigations Report 93-4094.

U.S. Geological Survey[3]. Year unknown. Long-term effects of surface coal mining on group-water levels and quality in two small watersheds in eastern Ohio. Water-Resources Investigations Report 90-4136.

World Bank Group. 1998. Coal mining and production. Pollution prevention and abatement handbook, pages 282-285.

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Oklahoma Biological Survey

Oklahoma Natural Heritage Inventory

OKLAHOMA BIOLOGICAL SURVEY
111 E. Chesapeake Street
Norman, Oklahoma 73019-0575, USA
(405) 325-1985
FAX: (405) 325-7702

Charles Andrews
URS Corp.
3010 LBJ Freeway
Suite 1300
Dallas, TX 75234

Sunday, May 11, 2003

OBS Ref.: 2003-221-BUS-AND

Re: Lease Application Areas for BLM

Dear Mr. Andrews,

This letter is in response to your request for information on the presence of endangered species or other elements of biological significance at the referenced site. We have reviewed the information currently in the Natural Heritage Inventory database and have found one or more records of elements at or near the location you describe.

We have one record of federal/state status species located in the Summerfield search area in our database. See attached handout for more info.

Because the database is only as complete as the information that has been collected, we cannot say with certainty whether or not a given site harbors rare species or ecological communities. In addition, the Oklahoma Biological Survey has no regulatory authority for endangered species and cannot say whether a project is or is not compliant with state or federal laws. Endangered species regulatory authorities in Oklahoma are the U.S. Fish and Wildlife Service office in Tulsa (918-581-7458) and the Oklahoma Department of Wildlife Conservation in Oklahoma City (405-521-4619). These offices also may have site specific information of which we are unaware.

Sincerely,

FOR Ian Butler
Biological Data Coordinator

OKLAHOMA NATURAL HERITAGE INVENTORY

Sunday, May 11, 2003

SITE:

Table of Proximal Element Occurrences for Request Number: 2003-221-bus-and

SEC	ORGTYPE	LASTSEEN	SCIENTIFIC NAME	COMMON NAME	PRN	FED	STATE
			TOWNRANGE:	05N25E			
06	FISH	1949	MOXOSTOMA MACROLEPIDOTUM	SHORTHEAD REDHORSE	M		SS2

End of Report

For more information about species status, please see our online 'Guide to Rare Species Status and Rarity Ranking Codes': http://www.biosurvey.ou.edu/heritage/publicat.html

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Oklahoma Archeological Survey

THE UNIVERSITY OF OKLAHOMA

July 22, 2003

Michelle Barnett
URS Corporation
1437 South Boulder, Ste. 660
Tulsa, Oklahoma 74119

RE: URS / McCurtain tract coal mine; OKNM 108097. Legal Description: 2380 acres within parts of Sections 8-11, 14-17, T8N R22E, Haskell County, Oklahoma.

Dear Ms. Robins:

The above referenced project has been reviewed by the Community Assistance Program staff of this agency to identify potential areas that may contain prehistoric or historic archaeological materials (historic properties). The location of your project has been cross-checked with the state site files containing approximately 18,000 archaeological sites which are currently recorded for the state of Oklahoma. **Site(s) are listed in your project area (34HS116, 34HS117, 34HS199, 34HS200, 34HS201),** and based on the topographic and hydrologic setting of your project, archeological materials are likely to be encountered. **An archaeological field inspection is therefore considered necessary prior to project construction in order to identify significant archaeological resources that may exist in your area.** Please contact this office at (405) 325-7211 if you require additional information on this project.

This environmental review and evaluation is performed in order to locate, record, and preserve Oklahoma's prehistoric and historic cultural heritage in cooperation with the State Historic Preservation Office, Oklahoma Historical Society. If you have not done so, you should also be simultaneously submitting this application to their office. In addition to these review comments, under 36CFR Part 800.3 you are reminded of your responsibility to consult with the appropriate Native American tribe/groups to identify any concerns they may have pertaining to this undertaking and potential impacts to properties of traditional and/or ceremonial value. Thank you for your cooperation.

Sincerely,

Amy Spears
Staff Archaeologist

Robert L. Brooks
State Archaeologist

:ls

cc: SHPO
BLM, Tulsa

111 E. Chesapeake, Room 102, Norman, Oklahoma 73019-5111 PHONE: (405) 325-7211 FAX: (405) 325-7604
A UNIT OF ARTS AND SCIENCES SERVING THE PEOPLE OF OKLAHOMA

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Oklahoma Archeological Survey

THE UNIVERSITY OF OKLAHOMA

July 22, 2003

Michelle Barnett
URS Corporation
1437 South Boulder, Ste. 660
Tulsa, Oklahoma 74119

RE: URS/Liberty West Tract Coal Mine; OKNM104763. Legal Description: Parts of Sections 1 and 12 T10N R21E, Haskell County, Oklahoma.

Dear Ms. Barnett:

The Community Assistance Program staff of the Oklahoma Archeological Survey has reviewed the above referenced project in order to identify potential areas that may contain prehistoric or historic archaeological materials (historic properties). The location of your project has been crosschecked with the state site files containing approximately 18,000 archaeological sites that are currently recorded for the state of Oklahoma. No sites are listed as occurring within your project area, and based on the topographic and hydrologic setting; no archaeological materials are likely to be encountered. Thus an archaeological field inspection is not considered necessary. However, should construction activities expose buried archaeological materials such as chipped stone tools, pottery, bone, historic crockery, glass, metal items or building materials, this agency should be contacted immediately at (405) 325-7211. A member of our staff will be sent to evaluate the significance of these remains.

This environmental review and evaluation is performed in order to locate, record, and preserve Oklahoma's prehistoric and historic cultural heritage in cooperation with the State Historic Preservation Office, Oklahoma Historical Society. If you have not done so, you should also be simultaneously submitting this application to their office. In addition to these review comments, under 36CFR Part 800.3 you are reminded of your responsibility to consult with the appropriate Native American tribe/groups to identify any concerns they may have pertaining to this undertaking and potential impacts to properties of traditional and/or ceremonial value. Thank you.

Sincerely,

amy spears for
Marjy Duncan
Staff Archaeologist

Robert L. Brooks
Robert L. Brooks
State Archaeologist

:ls

cc: SHPO

111 E. Chesapeake, Room 102, Norman, Oklahoma 73019-5111 PHONE: (405) 325-7211 FAX: (405) 325-7604
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Oklahoma Archeological Survey

THE UNIVERSITY OF OKLAHOMA

July 31, 2003

Ms. Michelle Barnett
Project Engineer
URS Corporation
1437 South Boulder, Suite 660
Tulsa, Oklahoma 74119

Re: OKNM107920
Legal Description: 3863.17 acres within Sections 9-12, T5N R20E; Sections 1-3 and 7-10, T5N R21E, Latimer County, Oklahoma; and within Sections 31-34, T6N R24E; Sections 33-36, T6N R23E; Sections 4-6, T5N R23E; and Sections 1-3, T5N R22E, LeFlore County, Oklahoma.

Dear Ms. Barnett:

The Community Assistance Program staff of the Oklahoma State Archeological Survey has reviewed the above referenced project in order to identify potential areas that may contain prehistoric or historic archaeological materials (historic properties). The location of your project has been cross-checked with the state site files containing approximately 18,000 archaeological sites which are currently recorded for the state of Oklahoma. **The following sites are located in your project area (34LT139, 34LT110, 34LF293, 34LF297, 34LF161, and 3 1898 GLO structures)** and based on the topographic and hydrologic setting of your project, archaeological materials are likely to be encountered. **An archaeological field inspection is therefore considered necessary prior to project construction in order to identify significant archaeological resources that may exist in your area.** Please contact this office at (405) 325-7211 if you require additional information on this project.

This environmental review and evaluation is performed in order to locate, record, and preserve Oklahoma's prehistoric and historic cultural heritage in cooperation with the State Historic Preservation Office, Oklahoma Historical Society. If you have not done so, you should also be simultaneously submitting this application to their office. In addition to these review comments, under 36CFR Part 800.3 you are reminded of your responsibility to consult with the appropriate Native American tribe/groups to identify any concerns they may have pertaining to this undertaking and potential impacts to properties of traditional and/or ceremonial value. Thank you for your cooperation.

Sincerely,

Marjy Duncan
Staff Archaeologist

Robert L. Brooks
State Archaeologist

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cc: SHPO
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111 E. Chesapeake, Room 102, Norman, Oklahoma 73019-5111 PHONE: (405) 325-7211 FAX: (405) 325-7604
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MIKE THRALLS
EXECUTIVE DIRECTOR

BEN POLLARD
ASSISTANT DIRECTOR

STATE OF OKLAHOMA

OKLAHOMA CONSERVATION COMMISSION

BLM-OKFO-TULSA
2003 MAY -8 A 9:04

5-7-03

Mr. John Mehlhoff, Field Manager
USDOI-BLM
7906 E. 33rd Street, Suite 101
Tulsa, OK 74145

Re: **Club Lake**

Dear Mr. Mehlhoff:

We found your meetings in McCurtain and Wilburton very informative, and we appreciate you affording us the opportunity to have input.

As per our conversation and your personal visit onsite in January; one mile north of McCurtain, OK, there is a large trash dump scattered over 150-170 acres of Brownfield mine-scarred land. It is heavily loaded with commercial and household trash scattered throughout the area. This acreage needs to be cleaned up now to protect the health and well being of the people, prevent water and ground pollution, protect two fresh water streams, and to rehabilitate the watersheds, establish wildlife habitat, and prevent recurrence of the trash dumping. (see attachment)

Mr. Bob Cooper of Farrell-Cooper Mining Corporation has ask, and verbally agreed, that if we will remove 20 acres from our plan in order for them to install an underground mining Portal and coal pad - staging area; then they will clean up and reclaim that 20 acres in their initial Portal development phase of their operation.

The OCC-AML division normally would address this problem alone; however Congress refuses to fund the AML program adequately. Therefore we are forming a Coalition of agencies (list attached) to fund this $2.0 million dollar project.

BLM is a major Stakeholder on this Site; we cordially ask for your help, support, and partial funding.

We look forward to meeting with you again to discuss this project. Please feel free to call anytime.

Thank you very much.

Sincerely,
Henry Roye
Henry Roye,
OCC-AML

attch: List.
Photo Sheet.

pc: V. Kidd

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FRESH WATER STREAM →

FRESH WATER STREAM →

4 WHEELER HAZARD AREA →

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OKLAHOMA

BRAD HENRY, GOVERNOR

GREG D. DUFFY, DIRECTOR

DEPARTMENT OF WILDLIFE CONSERVATION

1801 N. Lincoln P.O. Box 53465 Oklahoma City, OK 73152 PH. 521-3851

July 15, 2003

Charles Andrews
URS Corporation
Graystone Centre
3010 LBJ Freeway, Suite 1300
Dallas, TX 75234

Subject: Request for Biological Information - Five Proposed Federal Coal Leases

Dear Mr. Andrews,

This responds to your letter of May 7, 2003 requesting information regarding endangered and threatened species with regard to five proposed federal coal leases. I apologize that Tom Heuer did not respond to your letter before he left our agency. We do not anticipate that his vacancy will be fill before October 2003, therefore yours and other letters have be left without a response for longer than normal. I have reviewed the locations in you letter against our current records for endangered and threatened species. Based upon this review, we have found the information listed below. Please understand that the Oklahoma Department of Wildlife Conservation has not conducted actual field surveys within the proposed boundaries of these sites, therefore we can not provide site-specific information regarding wetlands and other habitat types on each area. Additionally, our records for the American Burying Beetle are not as complete as those of the U.S. Fish and Wildlife Service, therefore we recommend that you contact their Tulsa Office at the address below, as well as the Oklahoma Natural Heritage Inventory to see if either agency has additional information.

Liberty West Tract: Federally endangered American Burying Beetle likely to occur on or in the vicinity of this tract. Federally threatened Bald Eagle likely to occur in the vicinity of this tract near either the Canadian or Arkansas Rivers. Sequoyah National Wildlife Refuge lies within approximately five miles of this tract.

McCurtain Tract: Federally endangered American Burying Beetle likely to occur on or in the vicinity of this tract. Federally threatened Bald Eagle likely to occur on San Bois Creek and nearby Robert S. Kerr Reservoir.

AnEqualOpportunityEmployer

Bull Hill Tract, Summerfield: Federally endangered American Burying Beetle likely to occur on or in the vicinity of this tract. Federally threatened Bald Eagle likely to occur in the vicinity of this tract on and near Wister Reservoir. Property is adjacent to U.S. Army Corps of Engineers project land on Wister Reservoir ; this federal property serves as flood storage for Wister Reservoir and is leased to the Oklahoma Department of Wildlife Conservation for a state wildlife management area and to the Oklahoma Department of Tourism for a state park.

Bull Hill Tract, LeFlore: Federally endangered American Burying Beetle likely to occur on or in the vicinity of this tract. Federally threatened Bald Eagle likely to occur in the vicinity of this tract on and near Wister Reservoir. Property is adjacent to U.S. Army Corps of Engineers project land on Wister Reservoir; this federal property serves as flood storage for Wister Reservoir and is leased to the Oklahoma Department of Wildlife Conservation for a state wildlife management area and to the Oklahoma Department of Tourism for a state park.

Bull Hill Tract, Red Oak: Federally endangered American Burying Beetle likely to occur on or in the vicinity of this tract. Federally threatened Bald Eagle likely to occur in the vicinity of this tract on nearby Wister Reservoir and Fourche Maline Creek. Property lies within four miles of U.S. Army Corps of Engineers project land on Wister Reservoir; this federal property serves as flood storage for Wister Reservoir and is leased to the Oklahoma Department of Wildlife Conservation for a state wildlife management area.

With regard to the effects of surface mining on local wildlife populations, we would like to make the following suggestions and recommendations.

1) Where mining permit boundaries lie adjacent to property owned by the U.S. Army Corps of Engineers, we recommend that a vegetated buffer zone be maintained between the active mine and this property (usually either the flood or conservation pool of a reservoir) in order to protect water quality and ecologically valuable shoreline habitat.

2) Undisturbed buffer zones of at least 75 feet should be maintained between active mining areas and intermittent streams. This buffer zone should be increased to at least 100 feet from perennial streams. Haul roads and related structures associated with mining should not be constructed within these buffer zones, and erosion control measures should be installed between the active mine and the buffer zone to prevent the off-site movement of sediment. If a decision is made to mine through this intermittent stream, then any loss of wetlands must be mitigated in accordance with a CWA Section 404 permit.

3) If the surface owner wishes to reclaim the property to pasture, we recommend reestablishment to native grasses and forbs. Within the areas reclaimed to grassland/pasture, the planting of scattered groupings of shrubs (approximately 50ft x 50ft) will provide additional cover and food sources for wildlife. Recommended shrub species for wildlife enhancement include Mexican plum (Prunus mexicana), sand plum (Prunus angustifolia), deciduous holly (Ilex decidua), roughleaf dogwood (Cornus drummondii), hawthorns (Crataegus sp.), blackhaw viburnum (Viburnum rufidulum), shrub lespedeza (Lespedeza thunbergii) and chokecherry (Prunus virginiana).

4) Hackberry (Celtis leavigata and C. occidentalis), bur oak Quercus macrocarpa), shumard oak (Q. shumardii), black cherry Prunus serotina), blackgum (Nyssa sylvatica), sassafras Sassafras albidum) and green ash (Fraxinus pennsylvanica) can be planted along the margins of post-mining impoundments and drainage ditches to provide cover, food and travel corridors for wildlife. All tree plantings should be fenced to control cattle until the plants become established.

5) We do not recommend the use of fescue or seracia lespedeza in mining reclamation because of their invasive growth habits and their poor value as wildlife food plants. The use of black locust (Robinia psuedo-acacia), Russian olive (Elaeagnus angustifolia), autumn olive (Elaeagnus umbellatus) and Osage orange (Maclura pomifera) also should be avoided in tree and shrub plantings because they tend to be invasive and can displace more beneficial vegetation.

For information regarding the federally listed Bald Eagle, please contact the U.S. Fish and Wildlife Service, Ecological Services, 222 South Houston, Suite A. Tulsa, OK 74127. For additional information regarding rare and endangered species, please contact the Oklahoma Natural Heritage Inventory at 111 East Chesapeake Street, Norman, OK 7019.

We appreciate the opportunity to review and provide comments regarding this project. If we can be of further assistance, please contact our Natural Resources Section at 405/521-4616.

Sincerely,

Mark D Howery

Mark D. Howery
Natural Resources Biologist

BRAD HENRY
GOVERNOR

MARY FALLIN
LIEUTENANT GOVERNOR

STATE OF OKLAHOMA
OKLAHOMA CONSERVATION COMMISSION

MIKE THRALLS
EXECUTIVE DIRECTOR

BEN POLLARD
ASSISTANT DIRECTOR

BLM-OKFO-TULSA
2003 MAY -2 A 8:59

April 29, 2003

Mr. Doug Cook
RMPA/EA Co-Team Leader
Bureau of Land Management, Oklahoma Field Office
7906 East 33rd Street, Suite 101
Tulsa, Oklahoma 74145-1352

Dear Mr. Cook,

Resource Management Plan Amendment and Environmental Assessment Haskell, Latimer, and Leflore Counties, Oklahoma

Thank you for the information concerning the Bureau of Land Management's (BLM) amendment to the Oklahoma Resource Management Plan (RMP) and completion of an Environmental Assessment on the amendment for three coal lease sales in Haskell, Latimer, and LeFlore Counties, Oklahoma.

On January 9, 2003, you attended a meeting at the Office of Surface Mining's (OSM) Tulsa Field Office. Others in attendance were U.S. Fish and Wildlife, OSM, U.S. Army Corps of Engineers, and Michelle Barnett with the URS Corporation. The Oklahoma Conservation Commission (OCC) called the meeting to discuss an Abandoned Mine Land (AML) Reclamation project that has been budgeted for reclamation. The project is known as the Club Lake West - 191 AML Project, located in the W½ of Section 14 and the E½ of Section 15, T8N, R22E in Haskell County (McCurtain USGSQuadrangle). This AML project is in one of BLM's proposed coal leases near McCurtain. At the January 9 meeting we discussed the coal lease, wetlands and endangered species, 404 permit, etc.

I have enclosed the aerial photo (1999) with the outline of the area the OCC had flown for engineering and design purposes. The OCC is in the design phase and is very much interested in BLM's RMP and EA for this area. We are continuing to work with the U.S. Fish and Wildlife

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and OSM concerning wetlands, endangered species, and AML hazard abatement at the Club Lake West AML site. This will be Phase 1 of several AML projects in this area.

The OCC will continue the design of the Club Lake West (Phase 1) AML Project and would appreciate periodic updates from BLM as you carry out the RMP and EA process.

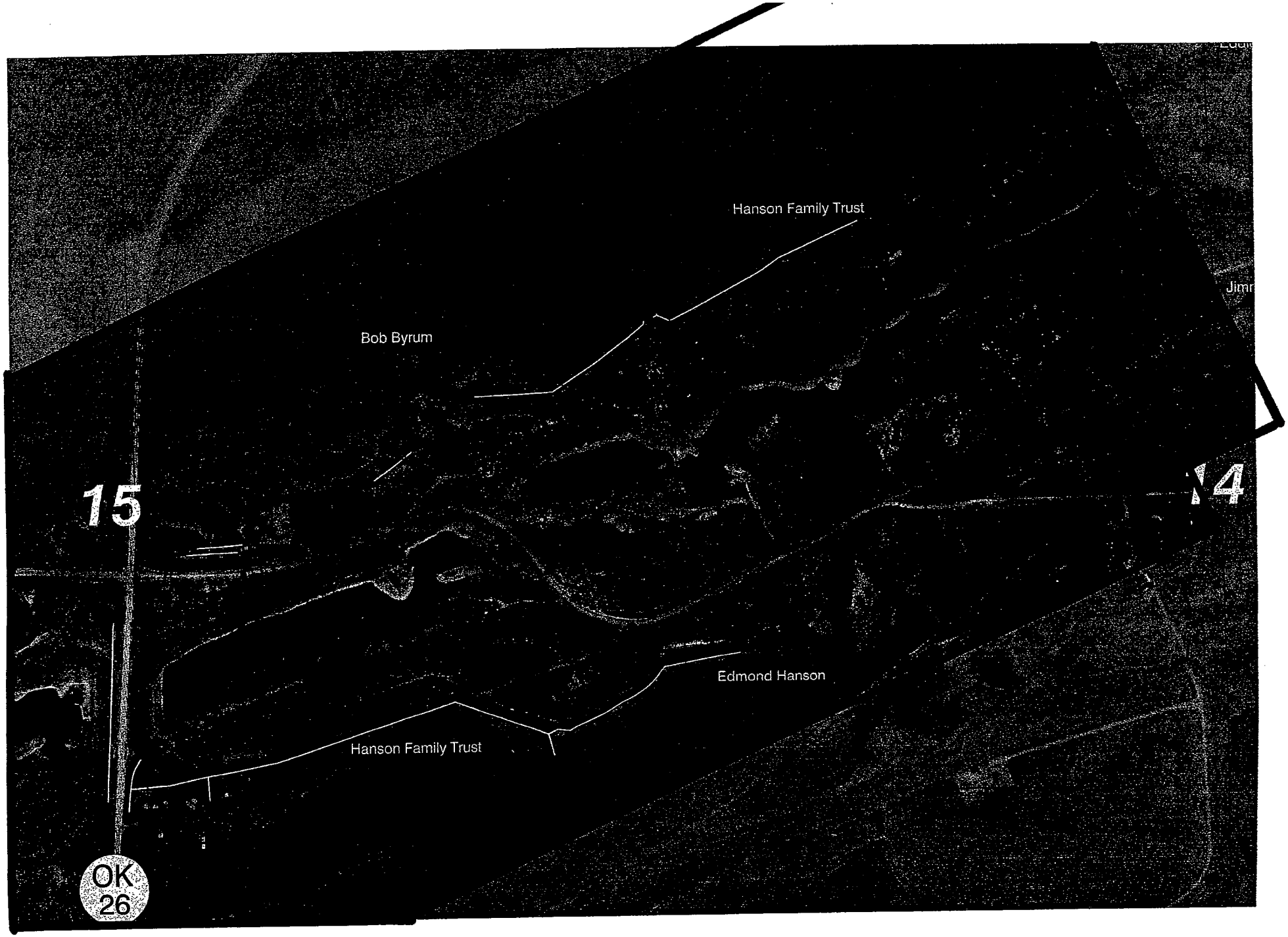
Sincerely,

Michael L. Kastl

MICHAEL L. KASTL
AML Program Director

Enclosure

c: Virginia Kidd, Vice Chair, Oklahoma Conservation Commission
Mike Thralls, Executive Director, Oklahoma Conservation Commission
Jerry Terrell, Chair, Haskell County Conservation District
Michael Wolfrom, Director, Office of Surface Mining, Tulsa Field Office
Ken Frazier, Assistant Field Supervisor, U.S. Fish and Wildlife Service



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United States Department of the Interior

BUREAU OF INDIAN AFFAIRS
Eastern Oklahoma Regional Office
P.O. Box 8002
Muskogee, OK 74402-8002

Doug Cook

IN REPLY REFER TO:

Natural Resources

MAY 1 3 2003

5/15

Mr. John Mehlhoff
U.S. Department of the Interior
Bureau of Land Management, Oklahoma Field Office
7906 E. 33rd Street
Tulsa, Oklahoma 74145-1352

Dear Mr. Mehlhoff:

On April 23, 2003, the Bureau of Land Management public notice was received by the Eastern Oklahoma Regional Office (EORO), Bureau of Indian Affairs (BIA), for review. In summary, the notice announces the planning process to amend the 1994 Resource Management Plan (RMP) and to prepare an environmental assessment (EA) to incorporate three competitive coal leases (in Latimer, Haskell, and Leflore Counties) into the existing RMP.

The proposed action is within the U.S. Treaty boundary of the Choctaw Nation and under the service area of the Talihina Field Station, BIA. The public notice will be submitted to the Talihina Field Station and forwarded to the Choctaw Nation for review and comment.

Comments for the EORO is as follows:

- Tribal cultural and/or environmental concerns should be addressed in coordination and/or solicitation with the Choctaw Nation,
- As applicable, potential impacts to trust and/or restricted properties contiguous to the mining sites should be identified, and
- If trust and/or restricted properties are identified, the EORO may be a Cooperating Agency in the preparation of the EA and additional consultation may be required.

Thank you for the opportunity to comment on the public notice. If additional information is needed, please contact Mr. Jimmy Gibson, Acting Branch Chief, Branch of Natural Resources, Eastern Oklahoma Regional Office, at (918) 781-4642.

BLM-OKFO-TULSA
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Respectfully,

Director

Appendix B

Biological Assessment

BIOLOGICAL ASSESSMENT

for

Proposed Coal Leases
in Haskell, Latimer, and LeFlore Counties, Oklahoma

Prepared for

Bureau of Land Management
Oklahoma Field Office

March 2004

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LIST OF ACRONYMS

BA	Biological Assessment
BLM	Bureau of Land Management
CLS	Coal Lease Stipulation
EA	Environmental Assessment
LAA	Lease Application Area
RMP	Resource Management Plan
RMPA	RMP Amendment
ODEQ	Oklahoma Department of Environmental Quality
ODM	Oklahoma Department of Mines
ODWC	Oklahoma Department of Wildlife Conservation
ONHI	Oklahoma Natural Heritage Inventory
USACE	U.S. Army Corps of Engineers
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geographic Service

1.0 INTRODUCTION

The Bureau of Land Management (BLM), Oklahoma Field Office, proposes to amend the Oklahoma Resource Management Plan (RMP), dated 1994, to include three competitive coal lease sales submitted in February and June 2002. The RMP Amendment (RMPA) would incorporate the Lease Application Areas (LAAs) located in Haskell, Latimer, and LeFlore Counties, Oklahoma, which total 6,883.17 acres of previously unleased coal, into the RMP. An Environmental Assessment (EA) has been completed to identify potential impacts of leasing.

Environmental review of coal mining activities is required during the process of leasing the Federal coal and the mine permit application process.

BLM is the Federal agency responsible for administration of the Federal mineral estate. As such, BLM is required to determine the areas acceptable for further consideration for coal leasing with standard or special protective stipulations, and areas unacceptable for further consideration for coal leasing. In addition, BLM is required to disclose the potential impacts resulting from its decision to lease and consider subsequent development.

During this land use planning and environmental process, BLM is conducting consultation with the U.S. Fish and Wildlife Service (USFWS) under Section 7 (a)(2) of the Endangered Species Act. USFWS requires the preparation of a Biological Assessment (BA) if species listed as threatened and endangered or critical habitat may be present in the area of major mining activities. This BA has been prepared with consideration of only the preferred alternative (Alternative C) as described in the RMPA/EA.

Once BLM has determined whether standard stipulations are adequate or special protective stipulations will be required, BLM then offers the tract for bid, and issues the lease to the successful bidder. At this stage of the process, site-specific details of the proposed mining activities are not known.

Once a lease is issued, lead-agency responsibility shifts and the lessee must submit a mine permit application, including mine operation and reclamation plans, to the Oklahoma Department of Mines (ODM). ODM is the State agency given the authority for review and approval of mining and reclamation in Oklahoma through designation by the U.S. Department of the Interior Office of Surface Mining Reclamation and Enforcement. Site-specific environmental evaluation and mitigation planning is required at the time the mine permit application is submitted and the Federal lead agency, or its designee, is required to consult with the USFWS to ensure that its actions would not jeopardize the continued existence of a listed species (USFWS 2003a). BLM participates in review of the mine plan to ensure that the lease stipulations are upheld and the economic recovery of the Federal coal is maximized.

2.0 PROJECT DESCRIPTION

2.1 PROJECT LOCATION

The three LAAs—Liberty West, McCurtain, and Bull Hill—are located in the southeastern portion of Oklahoma in Haskell, Latimer, and LeFlore Counties (Map 1 and Table 1). Surface land in the Liberty West and McCurtain LAAs is privately owned. The majority of the surface land in the Bull Hill LAA is privately owned; however, portions of the eastern part of the Bull Hill LAA are Federal lands under the jurisdiction of the U.S. Army Corps of Engineers (USACE) and some of which is managed by the State of Oklahoma as Wister Wildlife Management Area.[1] Although Wister Lake State Park does not intersect with the LAA, a 300-foot buffer area for Wister Lake State Park would intersect with approximately 1.6 acres at the eastern end of the Bull Hill LAA. The 6,883.17 surface acres overlie Federal mineral estate administered by the BLM Oklahoma Field Office. Photographs of sites in the LAAs are provided in Appendix A.

TABLE 1
DESCRIPTION OF THE LEASE APPLICATION AREAS

LAA	Number	Acres	Location	County
Liberty West	OKNM 104763	640.00	Sections 1 and 12, T10N, R21E Latitude: 35° 21’ 44” N, Longitude: -95° 02’ 02”W	Haskell
McCurtain	OKNM 108097	2,380.00	Sections 8-11, 14-17, T8N, R22E Latitude: 35° 10’ 38” N, Longitude: -94° 58’ 31”W	Haskell
Bull Hill	OKNM 107920	3,863.17	1) Sections 9-12, T5N, R20E; 1-3, 7-10, T5N, R21E Latitude: 34° 56’ 52” N, Longitude: -94° 47’ 29”W 2) Sections31-34, T6N, R24E; 33-36, T6N, R23E; 4-6, T5N, R23E; 1-3, T5N, R22E Latitude: 34° 55’ 32” N, Longitude: -95° 04’ 47”W	Latimer LeFlore

NOTE: Latitude and longitude are the approximate center point of the LAAs.

2.2 DESCRIPTION OF THE PROJECT AREA

Vegetation in the project area is influenced by the interaction of many factors including elevation, topography, soil type, temperature, precipitation, and human influence. Generally, the land use/land cover and approximate acres of each within the Liberty West, McCurtain, and Bull Hill LAAs include woodland (3,768 acres), agricultural/grazing vegetation (2,910 acres), barren land (34 acres), water bodies (46 acres), and wetland areas (98 acres). Within these broad land use/land cover categories, two major vegetation communities are present within the LAAs: (1) grasslands, which include bermuda grass and native grasses interspersed with bermuda grass (*Cynodon dactylon*); and (2) woodland/forest, which includes oak/pine woodland and oak/hickory woodland. A brief description of each LAA is provided in the following sections.

[1] Leasing within the Wister Wildlife Management Area must be coordinated with the U.S. Army Corps of Engineers and Oklahoma Department of Wildlife Conservation or authorized officer. If leasing agreements cannot be reached no surface mining would be allowed in the Wister Wildlife Management Area.

2.2.1 Liberty West

Bermuda grass is the dominant vegetation on the Liberty West LAA. The most common types of Bermuda grasses (*Cynodon dactylon*) in the area are coastal, midland, and greenfield Bermuda grasses. Bermuda grass most likely has invaded areas of native grasses or has been planted in areas that have been overgrazing. These invading species include greenbriers (*Smilax hispida*), western ragweed (*Ambrosia psilostachya*), crabgrass (*Digitaria* spp.), and foxtail (*Hordeum* spp.). overgrazed in the past. In some portions of the LAAs, weedy, undesirable vegetation has invaded due to Native grass mixed with Bermuda grass is the second most prevalent vegetation within the Liberty West LAA. The dominant native grasses are little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), tall fescue (*Festuca arundinacea*), and broomsedge bluestem (*Andropogon virginicus*).

2.2.2 McCurtain

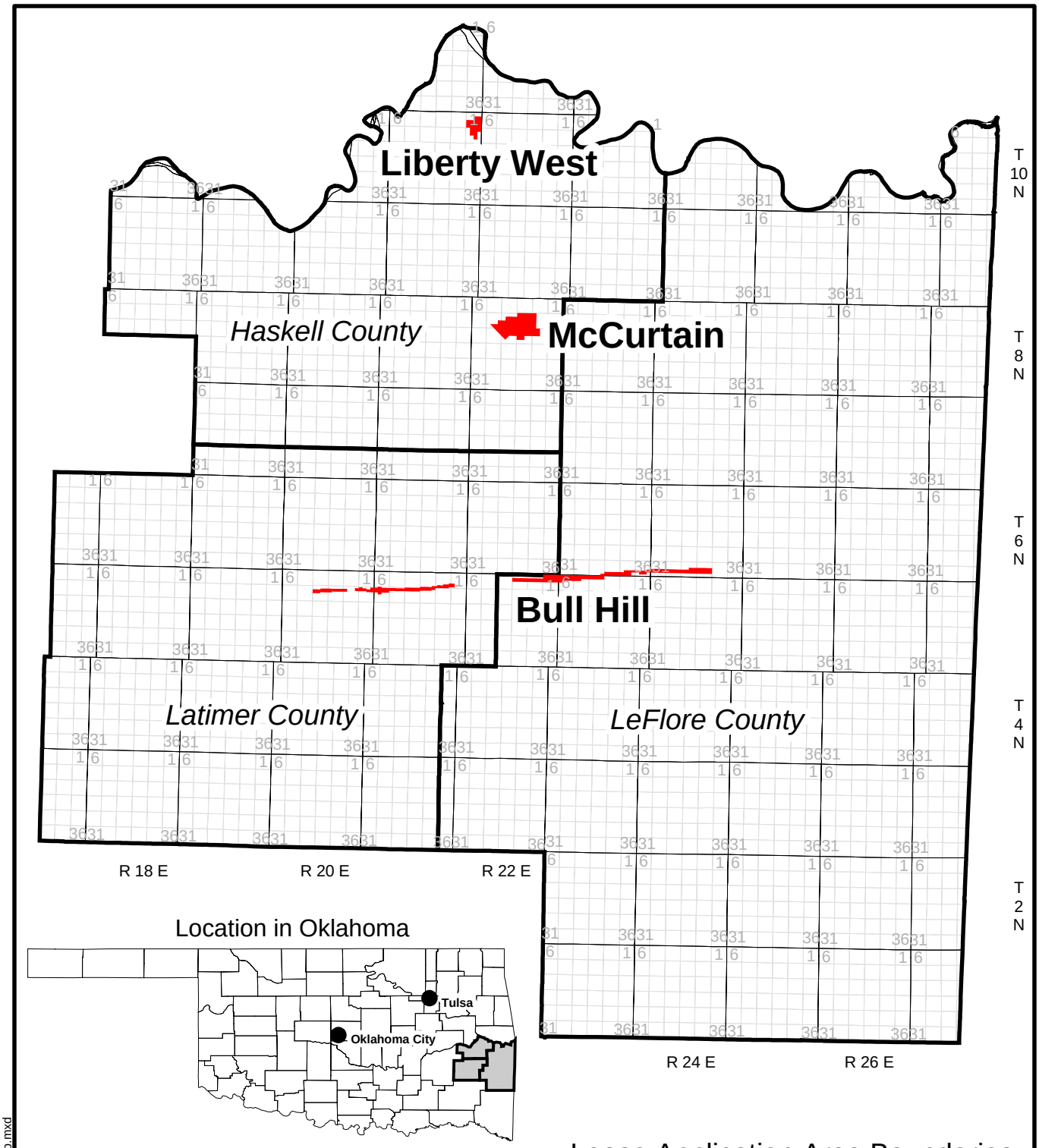
The McCurtain LAA primarily includes areas dominated by Bermuda and native grasses, similar to the Liberty West LAA. In addition, this LAA contains oak/hickory and postoak/blackjack oak woodland communities.

Approximately 683 acres of this LAA include a primarily undisturbed oak/hickory woodland vegetative community. Intermixed within the oak/hickory woodland are native grasses, which are dispersed throughout the woodlands but are not dominant. At present, the woodland is not used for grazing, though it may have been in the past. Common trees within this vegetative community include post oak (*Quercus stellata*), American elm (*Ulmus americana*), and hickory (*Carya* spp.). Smaller percentages of tree species found in the LAA include white oak (*Quercus alba*), hackberry (*Celtis occidentalis*), persimmon (*Dispyros virginiana*), sycamore (*Acer* spp.), winged elm (*Ulmus alata*), and red cedar (*Juniperus virginiana*). Common grasses are big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), purpletop (*Tridens flavus*), and silver bluestem (*Bothriochloa laguroides*) (Farrell-Cooper Mining Company 2001).

A post oak/blackjack oak woodland vegetative community occurs on a very small portion of this LAA, which is predominantly undisturbed. Intermixed within this vegetative community are the native grasses mentioned above, which are dispersed throughout the woodlands but are not dominant. Common trees of this vegetative community include post oak (*Quercus stellata*), blackjack oak (*Quercus marilandica*), and black hickory (*Carya texana*). The understory consists of little bluestem (*Schizachyrium scoparium*), big bluestem (*Andropogon gerardii*), and other species depending on the site (Duck and Fletcher 1945).

2.2.3 Bull Hill

The Bull Hill LAA is dominated by oak/pine woodland, which covers approximately 80 percent of this LAA. Intermixed within this vegetative community are the native grasses, which are dispersed throughout the woodlands but are not dominant. Common trees within this vegetative community include loblolly pine (*Pinus taeda*), shortleaf yellow pine (*Pinus echinata*), red oak (*Quercus rubra*), post oak (*Quercus stellata*), and blackjack oak (*Quercus marilandica*). Smaller percentages of tree species also are found in the LAAs including white oak (*Quercus alba*), hackberry (*Celtis occidentalis*), persimmon (*Diospyros virginiana*), and red cedar (*Juniperus virginiana*). Common shrubs include huckleberry (*Vaccinium pallidum*), azalea (*Rhododendron prinophyllum*), and spice bush (*Lindera benzoin*). Where the woodland community does not dominate, mixed native and Bermuda grasses are present.



Lease Application Area Boundaries
RMPA/EA for Federal Coal Leases in Haskell, Latimer, and LeFlore Counties, Oklahoma
BLM Oklahoma Field Office

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Map 1

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2.3 FACILITIES USED DURING CONSTRUCTION OPERATIONS

The major facilities to be used during the mining operation within all three of the LAAs include sediment ponds and other water impoundments, diversion berms and channels, topsoil stockpiles, permanent overburden fill areas, mine management area, and primary haul roads. Handling and storage areas would be constructed for use during the life of the permit.

2.4 OPERATION ACTIVITIES

Excavation of coal from the LAAs should begin sometime between 2005 and 2008, depending on the permit approval process. The applying mining company has a contract for the coal beginning in 2008. The actual footprint of disturbance for each LAA would not be established until the mines have been permitted and mining Plans of Operation have been developed. Operations at the LAAs are summarized in the following sections.

2.4.1 Liberty West Operations

Coal from the Stigler seam on the Liberty West LAA is to be recovered by surface mining methods. Mining would be a continuation of the adjacent permit, ODM Permit #4268 (which is on private land that overlies privately owned coal). Mining would progress from east to west as overburden from each pit is spoiled in the preceding open pit using the dragline. Mining would progress in a series of long, narrow pits away from the cropline of the Stigler horizon. The pits would be up to 150 feet wide at the bottom and may range from 60 to 120 feet in depth. The length would vary but would range from 2,000 to 4,000 feet. Excavation of the pits would progress at a rate of approximately 1 mile per two years.

The major equipment used in operation would be a dragline. Bulldozers, scrapers, and front-end loaders may move supplemental yardage.

Surface coal mining operations using a dragline and mobile equipment would be conducted in the permit area. Coal would be uncovered from a relatively flat-lying coal seam by removal of the predominantly shale and sandstone overburden material. Haul roads would be located between the active pits and the coal pad located on ODM Permit #4257. Pending the County Commissioner's approval, a portion of a county road may be used to support the pit haul operations.

The area disturbed by mining would be isolated from the surface water in the watershed. Diversion berms would be constructed to divert surface water flows around disturbed area. Additionally, diversion berms and sediment ponds would be constructed to control surface water discharges from within the disturbed area. Any surface or wastewater discharge from the site would be required to meet permit discharge limits to protect water quality.

Before the overburden excavation begins, the topsoil is removed and stockpiled in designated topsoil storage areas, or the topsoil is redistributed over replaced and graded overburden material. If conditions permit, there would be a contemporaneous topsoil removal ahead of the active pit and replacing the topsoil behind the active pit. After topsoil is removed, a part of a pit is drilled out in a blast hole pattern, the holes are loaded with explosives, and the pattern is detonated.

A bulldozer is used to push the blasted overburden material into the previously excavated pit and to prepare a bench for the dragline. The bulldozer pushes material away from the highwall into the open pit until the uphill grade becomes prohibitive to use the bulldozer. A dragline would work from the end of

the pit to the center, removing overburden from the coal seam in a side-cast method of operation. Fugitive dust emissions from mining activities would be suppressed in accordance with the air permit for the site.

In general, the excavation of the successive pits would backfill the previously excavated adjacent pits, and excess material, created by the swell factor of the overburden material, would be placed on top of the backfilled pits. The handling and subsequent swelling of the overburden material would create somewhat higher topography than what existed originally in the permit area.

After the pits are backfilled, topsoil would be redistributed and permanent vegetation would be re-established on the disturbed areas. Reclamation would be performed to standards established by the mining permit and in accordance with landowner agreements. Although it may vary, reclamation would take about seven years—the area would be considered disturbed for about two years (from mining and immediately following reclamation) and in transition for about 5 years.

The U.S. Geographic Service (USGS) Stigler East quadrangle topographic map for the Liberty West LAA is provided as Map 2 (USGS 1973).

2.4.2 McCurtain Operations

Coal from the Hartshorne seam is to be recovered by underground mining methods at the McCurtain LAA. After facing up the highwall with surface mining equipment, the mining company would install a portal in Section 14, T8N, R22E to access the coal reserve. The coal would be recovered using continuous miners, shuttle cars, and conveyors. Maintenance crews would be responsible for roof bolting and rehabilitation of access routes. The coal would be conveyed to the surface by belts where it would be crushed and loaded. The exact mix of equipment would be determined by production goals and be reflected in the mine Plan of Operations filed during the permitting phase of the mine. Haul roads would be located between the portal and the coal pad area. The portal would remain open for approximately 20 years.

At the completion of mining, structures would be removed from the permit area. The coal pad and haul roads would be reclaimed. Topsoil would be redistributed and permanent vegetation would be established on the disturbed areas. Reclamation would be performed to standards established by the mining permit and in accordance with landowner agreements. In addition, approximately 20 acres of abandoned mine lands would be reclaimed under the proposed lease.

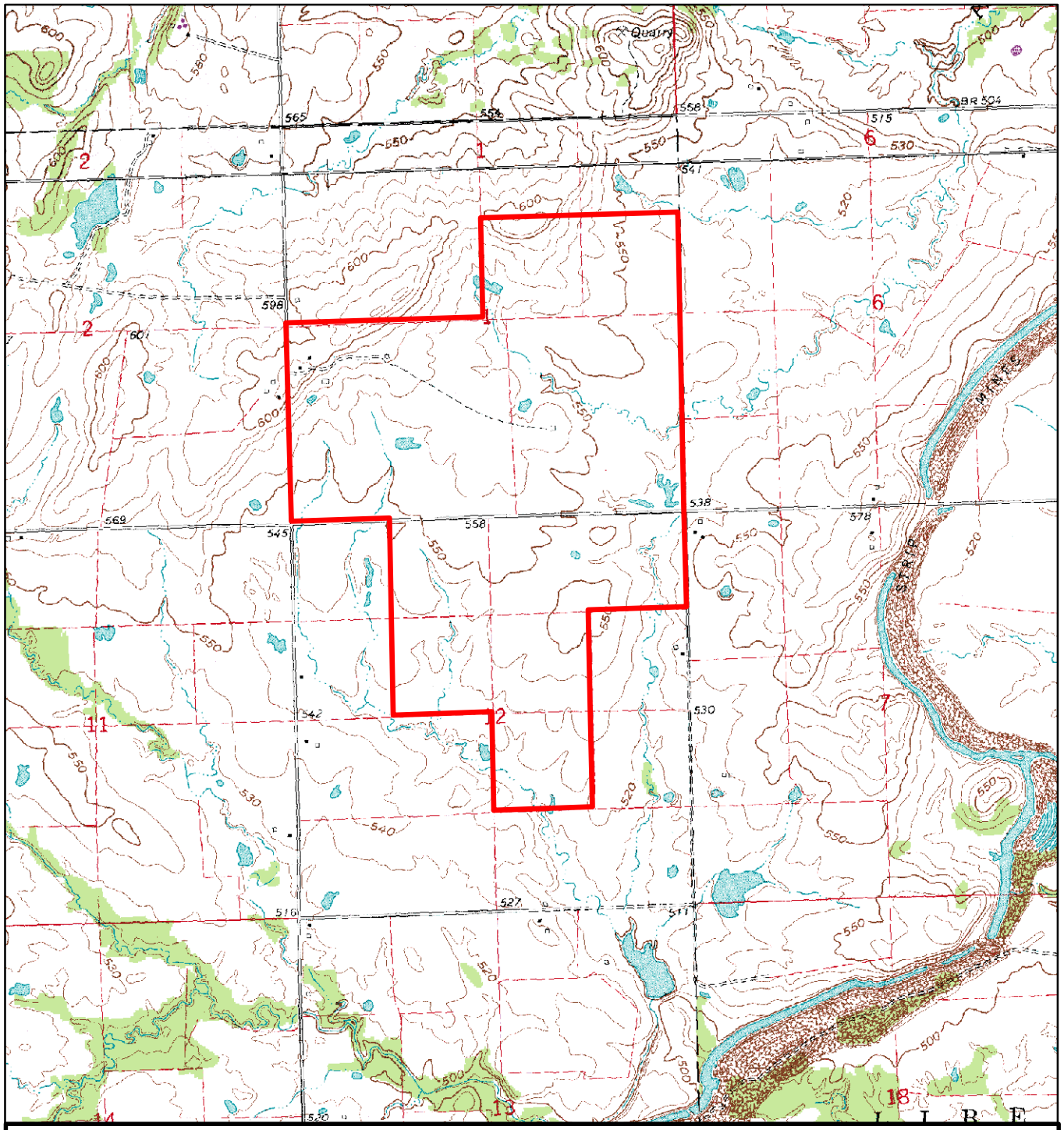
Surface water control would be performed as described for the Liberty West LAA. A topographic map for the McCurtain LAA is provided as Map 3 (USGS 1968, 1992).

2.4.3 Bull Hill Operations

Coal from the Lower and Upper Hartshorne coal seams would be recovered with a combination of conventional surface mining and auger mining. Mining equipment would include an auger miner, bulldozers, backhoe, front-end loaders, trucks, water wagons, scrapers, and motor graders.

Coal would be removed from two steeply dipping coal seams. One pit of coal would be stripped using conventional surface-mining methods. The stripping would advance the existing highwall down-dip to a depth of approximately 100 feet to provide additional pit area for the auger mining operations. Auger mining operations would follow the stripping operations and would recover coal 300 to 500 feet into the seam from the highwall. Surface mining operation and reclamation would be similar to the operations described for Liberty West above. The mining and reclamation sequence would advance as a continuous operation. Excavation of the pits would progress at a rate of approximately 1 mile per year. Haul roads

would be located between the active pits and the coal pad area. The area disturbed by mining would be isolated from the surface water in the watershed as described for the Liberty West LAA and discharges controlled by permit. A topographic map for the Bull Hill LAA is provided as Map 4 (USGS 1976a, 1979).



Liberty West Tract (OKNM 104763)
Haskell County

BLM Tulsa Field Office
Oklahoma RMPA/EA
for Federal Coal Leasing

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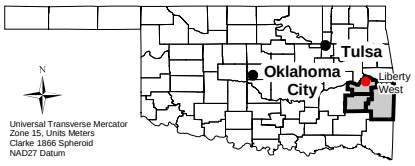
Liberty West Tract Boundary



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Map 2

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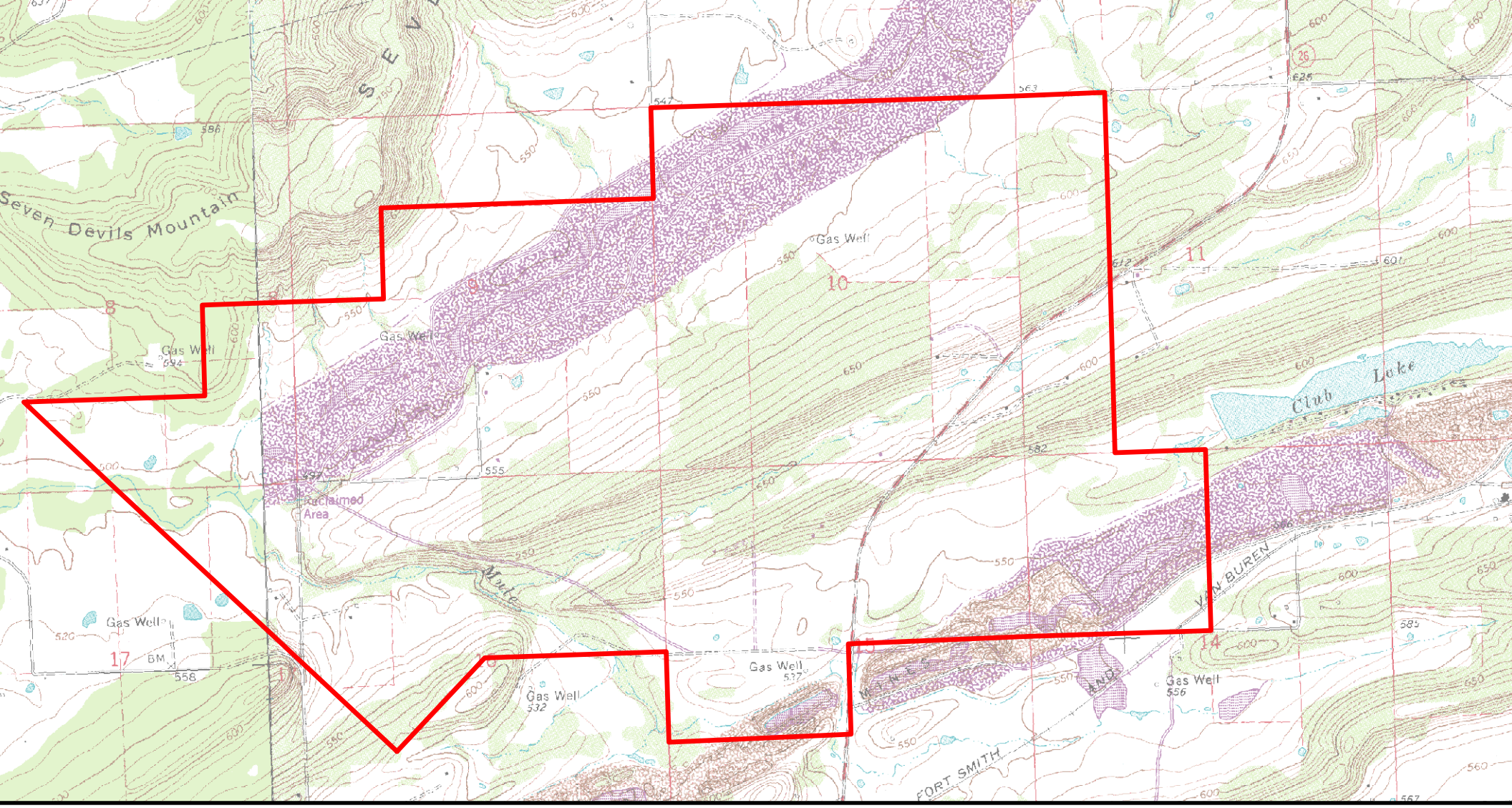

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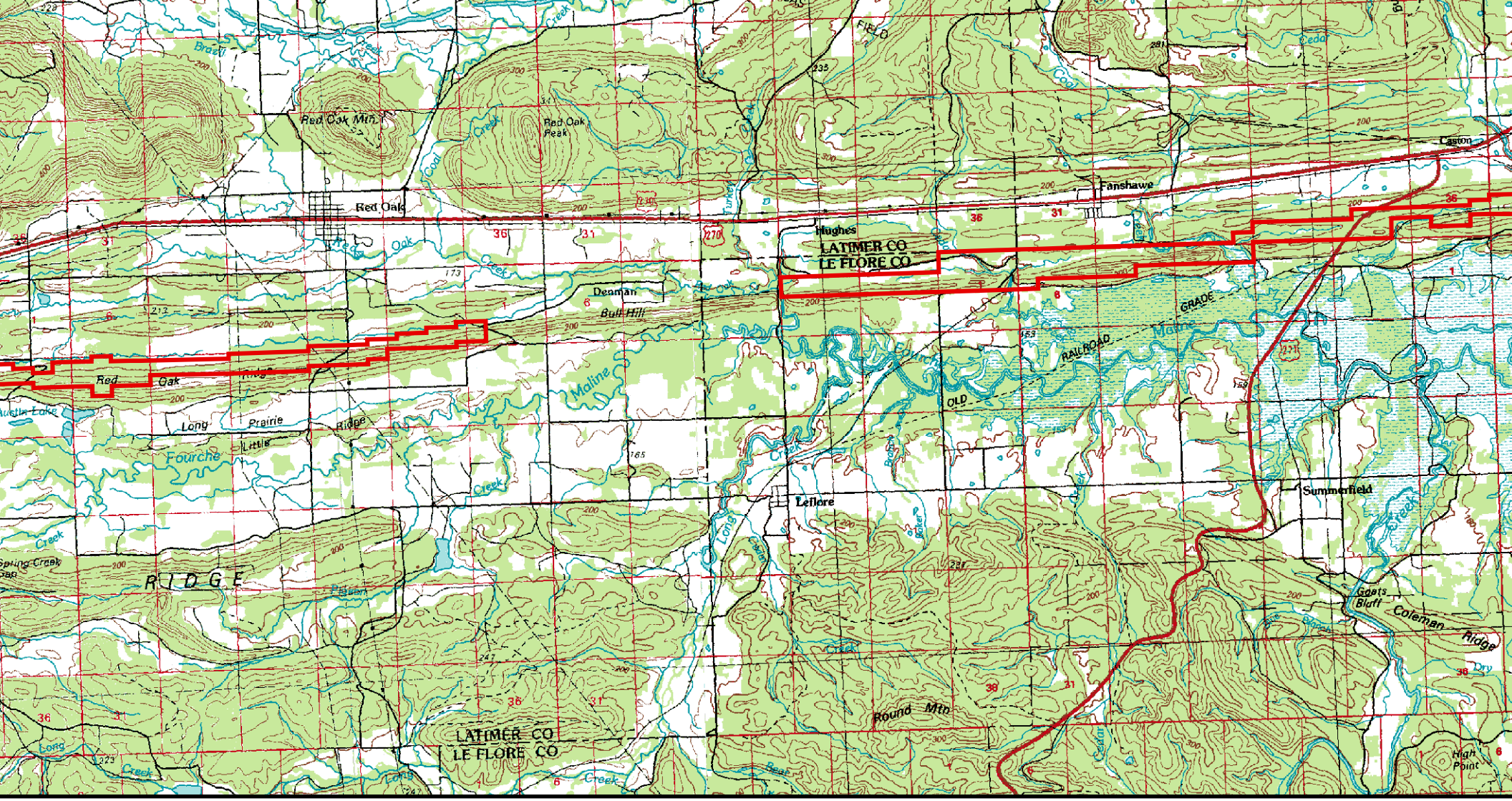

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3.0 SPECIES INFORMATION

A list of Federally listed threatened and endangered species was provided in a letter dated July 9, 2003 from the USFWS, Oklahoma Ecological Services Division (2003c). Additional information was obtained from the Oklahoma Department of Wildlife Conservation (ODWC), Natural Resources Section, the Oklahoma Natural Heritage Inventory (ONHI), and local qualified biologists. Information received from each respective agency has been included in this BA, as appropriate. Copies of agency correspondence is provided in Appendix B.

Four species potentially occurring in the LAAs or surrounding area are listed as threatened or endangered by the USFWS under the Endangered Species Act of 1973, as amended. These threatened and endangered species are presented in TABLE 2. No species proposed for listing or critical habitats occur within or near the LAAs. Each species is described in more detail in the following sections. The descriptions are based on information collected through literature review and consultation with local experts. No site-specific or species-specific surveys were conducted.

TABLE 2
FEDERALLY LISTED THREATENED AND ENDANGERED SPECIES WITHIN THE PROJECT VICINITY

Common Name	Scientific Name	Federal Status	Counties
American burying beetle	*Nicrophorus americanus*	Endangered	LeFlore, Haskell, Latimer
Bald eagle	*Haliaeetus leucocephalus*	Threatened	LeFlore, Haskell, Latimer
Interior least tern	*Sterna antillarum*	Endangered	LeFlore, Haskell, Latimer
Scaleshell mussel	*Leptodea leptondon*	Endangered	????

SOURCE: U.S. Fish and Wildlife Service 2003c.

3.1 AMERICAN BURYING BEETLE

3.1.1 Life History Information

According to information provided by the USFWS, Ecological Services Division, the American burying beetle is considered a habitat generalist and is found in a multitude of locations throughout eastern Oklahoma year-round including oak/pine woodlands, open fields, oak/hickory forest, open grassland, and edge habitats. However, the beetle requires a habitat, from the post-oak savannah to grassland/scrub areas, which would allow this beetle the maneuverability to be active at night.

This Federally endangered insect is a large, approximately 1.5-inch-long black beetle with orange spots in its adult stage. The American burying beetle reproduces by burying a small vertebrate carcass, laying eggs nearby. The larva then feed on the carcass. These beetles are active on warm nights and feed on carrion. The decline of this species is unknown, but is thought to be a result of habitat fragmentation, habitat loss, carcass limitation, pesticides, disease, light pollution, or a combination of these factors. Critical habitat has not been designated for the American burying beetle (USFWS 2003b).

3.1.2 Habitat Evaluation and Suitability

Oak/pine woodland vegetation covers approximately 80 percent of the Bull Hill LAA, the largest LAA. Approximately 683 acres of this oak/hickory woodland vegetative community occurs on the McCurtain LAA and is predominantly undisturbed. Native grass with Bermuda grass is the second most prevalent vegetation within the LAAs, and dominates certain areas of the Liberty West, McCurtain, and Bull Hill LAAs that are not forested or woodland. Based on the generalist nature of its habitat selection, each LAA could provide suitable habitat for various stages of the beetle's life history.

In addition, Mr. Shane Casson, Refuge Biologist for the Sequoyah National Wildlife Refuge, which is north of the Liberty West LAA, was contacted regarding the threatened and endangered species in the area. Mr. Casson indicated that there is a strong possibility that the American burying beetle is located on the McCurtain and Liberty West LAAs as the American burying beetle is found throughout this area (Casson 2003).

3.2 BALD EAGLE

3.2.1 Life History Information

The Federally threatened bald eagles roost and nest in large trees or cliffs near large bodies of water, especially near man-made reservoirs, where abundant fish are present. In winter, the bald eagles require the same type of habitat, but are predominantly found where carrion is present.

The adults have a dark brown body with a white head and have a wingspan of approximately 7 feet. The young are dark with white mottling under their wings. Bald eagles are long-lived and do not receive their full adult plumage for 4 to 5 years. Their nests usually are constructed in tall trees or within cliffs and are as large as 6 feet wide and 8 feet tall. The adult male and female pair utilizes the nest for several years. Two eggs typically hatch after approximately 35 days and parents may care for the fledglings for 4 to 6 weeks after hatching. The decline of the bald eagle has been the result of pesticide-induced reproductive failure, the loss of riparian habitat, and human disturbances that would kill the bird. No critical habitat has been designated for the bald eagle (USFWS 2003c).

3.2.2 Habitat Evaluation and Suitability

Characteristics of suitable habitat for the bald eagle are most similar to those found in the Bull Hill LAA near the Fourche Maline River and Wister Reservoir. Though further removed from such habitat, the Liberty West LAA is within 2 miles of the Robert S. Kerr Reservoir and similar habitat sites.

According to the ODWC, the bald eagle is likely to occur near either the Arkansas River or Canadian River by the Liberty West LAA, on San Bois Creek and Robert S. Kerr Reservoir near the McCurtain LAA, and near the Wister Reservoir and Fourche Maline Creek located adjacent to the Bull Hill LAAs. The ODWC stated that the USACE-administered land is located adjacent south of and within the Bull Hill LAA. The area serves as flood storage for Wister Reservoir. This adjacent property is currently leased to the ODWC for a State wildlife management area and to the Oklahoma Department of Tourism for Wister Lake State Park.

In addition, Mr. Casson indicated that there is a strong possibility that the bald eagle may utilize habitat on the McCurtain and Liberty West LAAs because the bald eagle forages in large territories (Casson 2003).

3.3 INTERIOR LEAST TERN

3.3.1 Life History Information

The Federally endangered interior least tern is the smallest member of the tern family with an approximate 20-inch wingspan. This bird has grayish-black wings and back, white underside, black mask and forehead, and yellow, black-tipped beak. They inhabit islands and sandy beach areas along rivers in Oklahoma from May to September. Their nests are found in dry sand, void of vegetation, and they prefer shallow water for fishing.

The interior least tern begins the courtship process from late April to early June. Courtship between the male and female involves bringing the female food and various forms of attractive display by the male to get the females attention. Once breeding has occurred during courtship on the sandy beach or island, the female digs a shallow depression, or nest, in the sand. The nesting period for the interior least tern is generally through late August. Approximately two to three eggs are laid in small scrapes in the sand and the parents generally stay with the young until fall migration. Fish are the primary staple of these birds and they sometimes travel up to 4 miles, or more, to search for food. Channelization projects and unpredictable water discharge patterns below dams have flooded nesting grounds of this bird. Recreational use of sandbars by humans and the overgrowth of brush on these sandbars limit the reproductive success of the interior least tern. Critical habitat has not been designated for the interior least tern (USFWS 2003d).

3.3.2 Habitat Evaluation and Suitability

The interior least tern is partial to wetland and riparian areas with sandy beach areas. This type of habitat may be found along the Arkansas River north of the Liberty West LAA and potentially along the Fourche Maline River near the Bull Hill LAA.

In addition, Mr. Shane Casson, Refuge Biologist for the Sequoyah National Wildlife Refuge, said that although the interior least tern generally is found on sandbars in rivers, it has been reported in the wetlands at the Sequoyah National Wildlife Refuge and, therefore, has the potential to be located in the wetlands located within the LAAs (Casson 2003).

3.4 SCALESHELL MUSSEL

3.4.1 Life History Information

According to information provided by Region 3 of the USFWS, the scaleshell mussel (*Leptodea leptondon*) is a Federally endangered invertebrate that has a very thin, elongated, fragile shell with faint green rays. These mussels live in medium-to-large-size rivers with good water quality.

The scaleshell mussel filters the water of detritus, plankton, and other microorganisms when they bury themselves in the sand and/or gravel river bottoms. This mussel reproduces by developing their eggs within the gills of the female mussel where they become glochidia (microscopic larvae). These larvae then attach themselves to a passing host fish where they continue developing until they are ready to drop off. Once they become juveniles, the mussels drop to the river bottom where they develop into adults. These mussels are extremely sensitive to changes in water quality, such as toxins from industrial activities or farming practices, and sedimentation from erosion of nearby mining activities. The livelihood of the host fish also are a crucial aspect to the survival of the scaleshell mussel. No critical habitat has been designated for this species (USFWS 2003e).

3.4.2 Habitat Evaluation and Suitability

Medium-to-large-size river habitat is found in the Arkansas River north of the Liberty West LAA and the Poteau River downstream of Wister Lake and the Bull Hill LAA. However, both of these river sections have been identified by the Oklahoma Department of Environmental Quality (ODEQ) as being Category 5 waterbodies, specifically not attaining water quality standards for a warm aquatic community (ODEQ 2002). As such, the appropriate habitats are not known to be present in or around the LAAs.

However, information provided by USFWS in the July 9, 2003 letter also stated that several sensitive areas exist around the LAAs, including the Little Sans Bois Creek, Robert S. Kerr Reservoir, Sequoyah National Wildlife Refuge, and McClellan-Kerr Wildlife Management Area, all located near the Liberty West and McCurtain LAAs. Sensitive areas near the Bull Hill LAA consist of the Fourche Maline River, which drains into Wister Reservoir; Wister Wildlife Management Area; and Wister Lake State Park. In addition, a mussel sanctuary is located approximately 5 miles downstream of Wister Reservoir within the Poteau River.

4.0 EFFECTS OF ACTIVITIES

4.1 AMERICAN BURYING BEETLE

4.1.1 Direct and Indirect Effects

According to information provided by the USFWS and the ODWC, the American burying beetle (*Nicrophorus americanus*) has the potential to be located on all three LAAs. This species requires a habitat within the post-oak savannah to grassland/scrub that would allow it the maneuverability to be active at night. Coal Lease Stipulation 4 (CLS-4) provided in the BLM's 1994 RMP states that no coal mining activities would be performed that would result in unacceptable impacts on the American burying beetle and that additional studies would need to be conducted for the American burying beetle to either remove or transplant the affected American burying beetle. Under the requirements of this stipulation, no appreciable impact on the American burying beetle should occur as a result of leasing.

Land within the LAAs have been considered suitable for mining with the inclusion of CLS-4 for the American burying beetle. The USFWS, in its letter dated July 9, 2003, stated that the following measures should be taken prior to mining to prevent an impact on the American burying beetle. Surveys, conducted by a biologist with a Section 10 permit, should be conducted when the American burying beetle is active, which is late April to mid-September, and during or after the mine plan approval process and prior to construction. The surveys would be coordinated among the operator, ODM and the

Office of Surface Mining, and the USFWS. If survey results are negative, then project activities can proceed. If survey results are positive, then baiting away or trapping and relocating the American burying beetle must be implemented prior to the dormant season to avoid a significant adverse impact on this beetle. If the survey cannot be postponed until the American burying beetles active period, or if results are positive for the survey, formal consultation under Section 7 must take place.

4.1.2 Interdependent and Interrelated Effects

Interdependent actions that would affect the American burying beetle would consist of the development of haul roads used to transport coal via trucks. These haul roads would be located on the proposed LAAs, but not within the active mine area. Surface disturbance would occur in these areas and reclamation would be completed at the conclusion of mining activities.

The construction of transport or haul roads has the potential of covering up the burrows of the American burying beetle. CLS-4 provided in the BLM's 1994 RMP states that no coal mining activities, including construction of haul roads, would be performed that would result in unacceptable impacts on the American burying beetle. According to information provided in this CLS-4, if the American burying beetle has a potential to be affected during development of haul roads, additional studies will be conducted to either remove or transplant the affected insect. The same care, in avoidance of this beetle during construction activities, will be taken when performing subsequent haul road development activities on the leased parcels. Based on the requirements of this stipulation, no appreciable impact on the American burying beetle should occur as a result of leasing.

Interrelated actions that may affect the American burying beetle would include blasting activities. The explosives are needed to break up overburden after topsoil is removed. The controlled explosions have the potential to displace the American burying beetle that lives in the ground in areas surrounding the LAAs. However, under the requirements of CLS-4, no appreciable impact to the American burying beetle should occur as a result of leasing.

Reclamation efforts, which involve redistributing the topsoil and establishing permanent vegetation on the disturbed areas after mining activities are complete, would be a positive interrelated action for this mining project. The planting of native trees, shrubs, and grasses in the area eventually would result in potential habitat for the American burying beetle.

4.1.3 Cumulative Effects

The cumulative affects of mining operations within the LAAs include the re-establishment of the same type of habitat for species in this area. Specifically, within the Bull Hill and McCurtain LAAs abandoned mine lands exist that would be reclaimed by the proposed mine leases. The potential for more threatened and endangered species utilizing abandoned mine lands would increase with the establishment of better habitat than what currently exists. In addition, in the long-term after coal removal and reclamation, this area would most likely be left alone, allowing for long-term habitat stability.

4.2 BALD EAGLE

4.2.1 Direct and Indirect Effects

The removal of trees for mining activities would impact bald eagle habitat by destroying potential nesting areas. However, no bald eagles or nests were observed during the April 2003 site reconnaissance. In addition, noise from mining activities would impact bald eagles. The noise from operating equipment, especially from blasting, could disrupt the normal nesting and or foraging habits of the species if bald eagles are located near the mining area. This would result in a temporary and/or intermittent displacement of bald eagles depending on the proximity, frequency, and magnitude of the noise.

4.2.2 Interdependent and Interrelated Effects

Under the preferred alternative, riparian and wetland areas would be excluded from mining operations, including construction of haul roads. Therefore, neither the bald eagle nor its habitat would be affected.

Interrelated actions that may affect the bald eagle would include blasting activities. The explosions might displace the bald eagle temporarily, and might force the species to seek a quieter habitat elsewhere. However, this is anticipated to be a short-term impact.

Reclamation efforts, which involve redistributing the topsoil and establishing permanent vegetation on the disturbed areas after mining activities are complete, would be a interrelated action for the mining operations. The planting of native trees, shrubs, and grasses in the area would result eventually in potential habitat for the bald eagle.

4.2.3 Cumulative Effects

The cumulative effects of mining operations within the LAAs include the re-establishment of the same type of habitat for species in this area. Specifically, within the Bull Hill and McCurtain LAAs abandoned mine lands exist that would be reclaimed by the proposed mine leases. The potential for more threatened and endangered species utilizing abandoned mine lands would increase with the establishment of better habitat than what currently exists. The re-establishment of these grasses and the addition of native trees within the reclamation area would enhance the habitat in the future for the bald eagle by adding more roosting or nesting areas. In addition, in the long-term after coal removal and reclamation this area would most likely be left alone, allowing for long-term habitat stability.

4.3 INTERIOR LEAST TERN

4.3.1 Direct and Indirect Effects

As described in Section 3.3, the interior least tern is partial to wetland and riparian areas. Therefore, any mining activities that impact wetlands, particularly with sandy and/or shallow areas, would disturb potential habitat for the interior least tern. This could result in displacement of the species from the area. It should be noted that under the preferred alternative, mining of wetlands would be avoided and no impact is anticipated to occur to interior least tern habitat.

In addition, noise from mining activities may directly impact the interior least tern. The noise from operating equipment, especially from blasting, could disrupt the normal nesting and or foraging habits of the interior least tern if the species were located near the mining area. Similar to the impacts on bald eagles, this would result in a temporary and/or intermittent displacement of the interior least tern depending on the proximity, frequency, and magnitude of the noise.

4.3.2 Interdependent and Interrelated Effects

Under the preferred alternative, riparian and wetland areas would not be included in mining operations, including construction of haul roads. Therefore, neither the least tern nor its habitat would be affected.

Interrelated actions that may affect the interior least tern would include blasting. The explosions might temporarily displace the interior least tern, and might force the species to seek a quieter habitat elsewhere. However, this is anticipated to be a short-term impact.

Reclamation efforts, which involve redistributing the topsoil and establishing permanent vegetation on the disturbed areas after mining activities are complete, would be a positive interrelated action for this mining project. The planting of native trees, shrubs, and grasses in the area will eventually create a habitat that is preferred by the interior least tern, bald eagle, and American burying beetle.

4.3.3 Cumulative Effects

The cumulative effects of mining operations within the LAAs include the reestablishment of the same type of habitat for species in this area. Specifically, within the Bull Hill and McCurtain LAAs, abandoned mine lands exist that would be reclaimed by the proposed mine leases. The potential for more threatened and endangered species utilizing abandoned mine lands would increase with the establishment of better habitat than what currently exists. The interior least tern would benefit if wetlands were created during abandoned mine land reclamation activities. In addition, in the long-term after coal removal and reclamation this area would most likely be left alone, allowing for long-term habitat stability.

4.4 SCALESHELL MUSSEL

4.4.1 Direct and Indirect Effects

As indicated in Section 3.4, no habitat for the scaleshell mussel is present within the LAAs; therefore no direct impacts on scaleshell mussel habitat would occur. However, several sensitive areas exist around the LAAs, including a Mussel Sanctuary located approximately 5 miles downstream of Wister Reservoir within the Poteau River (downstream of the Bull Hill LAA). It is understood that sedimentation could disrupt the scaleshell mussel (*Leptodea leptodon*), which partially buries itself in the river bottom. However, sediment and erosion control would be provided at the mining locations through implementation of the Storm Water Pollution Plan and Permit. The plan and its permit do not allow off-

site migration of sediment from the disturbed soil areas; measures would be implemented to ensure compliance with the plan and permit. Therefore, no indirect impacts on the scaleshell mussel would be anticipated.

However, the USFWS recommended surveying the Poteau River to determine the density of the scaleshell mussel and the degree of potential impacts that could be caused from mining activities. In addition, the USFWS recommends monitoring the water quality of Wister Reservoir before, during, and after mining operations to verify that the water quality has not been adversely affected.

4.4.2 Interdependent and Interrelated Effects

No interdependent or interrelated effects have been identified for the scaleshell mussel.

4.4.3 Cumulative Effects

No projects or activities have been identified that would impact the scaleshell mussel or its habitat. Therefore, no cumulative effects on this species would occur.

5.0 INCIDENTAL TAKE

The term "take" is defined in Section 3(18) of the 1973 Endangered Species Act as a means to "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in such conduct" of a threatened or endangered species. The term "incidental take" is defined in section 10(a)(1)(B) of this act as "any taking otherwise prohibited by section 9 (a)(1)(B) if such taking is incidental to, and not the purpose of, the carrying out of an otherwise lawful activity."

Based on the existing habitat, potential for threatened or endangered species to be present, and the proposed activities, incidental take of the bald eagle, interior least tern, or scaleshell mussel is not anticipated. However, incidental take of the American burying beetle could occur.

As suggested by the USFWS in their July 9, 2003 response letter, surveys would be conducted prior to mining activities for the American burying beetle by a biologist with a Section 10 permit. If the American burying beetle were discovered during the survey, baiting away or trapping and relocating techniques would be employed prior to mining activities to avoid significant adverse impacts on this species. The actual number of individuals of this species that may need to be relocated would be determined in consultation with the USFWS.

Efforts would be taken to conduct this survey during the active period of the American burying beetle, which is late April to mid September. Survey results would be provided to the USFWS. If the survey cannot be completed during the beetle's active period, Section 7 consultation with the USFWS would be initiated. If survey results find no sign of the American burying beetle within the LAAs, the USFWS indicated that the project could proceed (USFWS 2003b).

6.0 CONSERVATION MEASURES

6.1 OVERVIEW

Conservation measures are actions that, when implemented by the Federal agency or applicant, would reduce or eliminate the adverse impacts of the proposed mining activity. Based on research conducted for this project, it appears that the American burying beetle is the endangered species that would be the most likely affected by mining activities within the LAAs due to their presence throughout eastern Oklahoma. To reduce the adverse impacts to the American burying beetle from proposed mining activities, the following measures would be taken prior to mining activities:

- Surveys for this beetle would be conducted, if it at all possible, during the active period (late April to mid September) when the beetle is mobile and not in its dormant stage. All investigation results would be submitted to the USFWS. If positive results are indicated for this survey, the American burying beetle either would be baited away or trapped and relocated by a biologist with a Section 10 permit (before the beetle's dormant stage begins, if only mining during the winter is possible). Baiting does not require an individual with this permit.

- If a survey cannot be performed during the beetle's active period and mining activities cannot be postponed, formal Section 7 consultation with the USFWS would be initiated to ensure that mining activities in the LAAs would not jeopardize the continued existence of the American burying beetle. The USFWS stated that a separate BA would need to be prepared in this case.

If results of the survey yield evidence that the American burying beetle is not present in the LAAs, mining could proceed as planned.

Additional conservation measures recommended for the bald eagle, interior least tern, and scaleshell mussel include the following:

- For mining that would take place adjacent to wildlife management areas, wetlands, or other bodies of water, every effort would be taken to avoid riparian zones and wetland areas. An undisturbed, meaning absent of all mining activities, buffer zone of at least 100 feet would be left intact between mining activities and streams/rivers in the LAAs. Leaving as much riparian area intact as possible around these sensitive areas protects the habitat for threatened and endangered species, migratory birds, and general wildlife populations. Leaving a buffer zone would reduce the impact on water quality by filtering contaminants and sediment before reaching these sources of water.

- During reclamation efforts, subject to landowner preference, native grasses and tree saplings/shrubs would be planted to provide a supportive habitat for these threatened and endangered species, migratory birds, and other wildlife. In addition, haul roads would be revegetated during reclamation. Native grasses that could be considered during the reclamation process include big bluestem, little bluestem, indiangrass, switchgrass, silver bluestem, and purpletop grasses. Additionally, sapling trees and shrubs that might be considered during the reclamation process include the red oak, post oak, loblolly pine, Mexican plum, deciduous holly, and hawthorns.

- An additional measure that would be taken to prevent contaminants/sediment from entering wetlands and sensitive areas (San Bois Creek, Robert S. Kerr Reservoir, Sequoyah National Wildlife Refuge, McClellan-Kerr Wildlife Management Area, Fourche Maline River, Wister

Reservoir, Wister Wildlife Management Area, Lake Wister State Park) and adversely affecting threatened and endangered species would include the construction of diversions berms and/or silt fences around the perimeter of the mining area in accordance with an ODEQ-approved Storm Water Pollution Prevention Plan. In addition, sediment ponds within the mining area would be constructed to control surface water discharge.

- Every precaution would be taken to reduce fugitive dust emissions that originate from mining activities including water suppression techniques in accordance with the mining operation air permit.

7.0 AGENCY RECOMMENDATIONS

The USFWS and ODWC provided recommendations pertinent to the proposed mining operations. While these are not committed at this time, the recommendations would be considered. These recommendations are as follows:

7.1 ADDITIONAL RECOMMENDATIONS FROM THE USFWS

- Avoid impacting wetland areas. If wetlands could be affected, contact the USACE to discuss permitting requirements.

- Take extra precautions not to disturb the migratory bird habitats that are found within the nearby Wildlife Management Areas and National Wildlife Refuges. All native migratory birds are protected under the Migratory Bird Treaty Act.

- Acid mine drainage, fugitive dust, and disposal of overburden and waste rock are potential impacts of this project and should be addressed in the environmental review process. These issues have been addressed in the environmental assessment for the project.

- Historical impacts on water quality of the Wister Reservoir, Robert S. Kerr Reservoir, Poteau River, Fourche Maline River, and Arkansas River regarding mining operations should be researched and evaluated. To ensure water quality of these bodies of water is not degraded, especially for the livelihood of the scaleshell mussel, monitoring should be conducted before, during, and after mining operations.

- The removal of any of the riparian areas on the north side of Wister Reservoir and Fourche Maline River is strongly discouraged due to the negative impacts the removal would have on migratory birds, water quality, fish, and wildlife.

7.2 ADDITIONAL RECOMMENDATIONS FROM THE ODWC

- A vegetative buffer zone should be maintained between the active mine area and the USACE property in order to protect the water quality and ecological integrity at the Bull Hill LAA.

- At least a 75-foot buffer zone (100-foot buffer zone for perennial streams) should be established between active mine areas and intermittent streams with no mining activities within the buffer zone. Erosion control measures should be instituted at the mine area to prevent sediment run-off into nearby creeks and/or streams. Any mining within a creek/stream should be coordinated with the USACE in the form of a Section 404 permit.

- Several native grasses/forbs are recommended to reclaim the area to pasture conditions. Mexican plum (*Prunus mexicana*), sand plum (*Prunus angustifolia*), deciduous holly (*Ilex decidua*), roughleaf dogwood (*Cornus drummondii*), hawthorns (*Crataegus sp.*), blackhaw viburnum (*Virburnum rufidulum*), shrub lespedeza (*Lespedeza thunbergii*), and chokecherry (*Prunus virginiana*) are recommended shrubs for wildlife enhancement during this process. Hackberry (*Celtis leavigata & C. occidentalis*), bur oak (*Quercus macrocarpa*), shumard oak (*Q. shumardii*), black cherry (*Prunus serotina*), blackgum (*Nyssa sylvatica*), sassafras (*Sassafras albidum*), and green ash (*Fraxinus pennsylvanica*) can be planted along the margins of post-mining areas for wildlife habitats.

- Fescue or seracia lespedeza plant species are not recommended for reclamation purposes due to their invasive growth habits and their poor value as food to wildlife. Black locust (*Robinia pseudo-acacia*), Russian olive (*Elaeagnus angustifolia*), autumn olive (*Elaeagnus umbellatus*), and Osage orange (*Maclura pomifera*) also should be avoided due to their invasive growth habits and their ability to displace more beneficial vegetation.

8.0 DETERMINATION OF EFFECT

This BA evaluates the potential effect of mining activities on Federally listed and proposed listed species and designated and proposed critical habitat for the three LAAs located in Haskell, Latimer, and LeFlore Counties, Oklahoma. In addition, this BA assesses whether any such species or habitat are likely to be affected adversely by mining activities, which is used in determining the need for formal consultation with the USFWS (50 CFR 402.12).

Information regarding the potential for threatened and endangered species within the LAAs was provided by the USFWS, ODWC, and ONHI. Upon review of this information, the following Federally listed species were assessed to occur near or within all three LAAs: American bury beetle (*Nicrophorus americanus*), bald eagle (*Haliaeetus leucocephalus*), and interior least tern (*Sterna antillarum*). The scaleshell mussel (*Leptodea leptodon*), occurring near the LAAs in the Poteau River, north and south of the Wister Reservoir, was also assessed.

8.1 AMERICAN BURYING BEETLE

The American burying beetle is a habitat generalist that is found throughout the southeastern portion of Oklahoma. This species thrives in a variety of habitats and spends the majority of its life underground. Coal mining operations have the potential to impact the American burying beetle if surveys are not performed in areas that have a potential to accommodate this insect. Based on the potential impacts from the proposed mining activities on the American burying beetle, potential displacement and need to relocate individuals of this species (i.e., incidental take), the proposed action may effect, but is "not likely to adversely effect" the American burying beetle. As stated in the CLS-4 stipulation, this beetle will be effected if it must be displaced and taken out of its original territory. However, every effort to avoid an adverse impact to the American burying beetle will be taken and should not occur with the relocation and/or baiting away of this insect, if needed.

8.2 BALD EAGLE

Bald eagles prefer mature shoreline forest areas around large bodies of water where there are plenty of fish and waterfowl. Based on the potential impacts from the proposed mining activities on the bald eagle, including temporary and intermittent displacement of species, and the removal of nesting and/or foraging habitat, the proposed action may effect but is "not likely to adversely effect" the bald eagle. The bald eagle would be effected if it had to be relocated away from construction activities. However, no adverse impact is anticipated to occur to this species with the ample shoreline forest areas located east and west of the construction area and the plentiful food source that will remain nearby.

8.3 INTERIOR LEAST TERN

The interior least tern prefers to make its home on sparsely vegetated sandy beaches or island areas near water. This species makes its living by diving into water to catch is prey. Based on the potential impacts from the proposed mining activities on the interior least tern, including temporary and intermittent displacement of species, and the removal of nesting and/or foraging habitat, the proposed action may effect but is "not likely to adversely effect" the interior least tern. The interior least tern would be effected if it had to be relocated away from construction activities. However, no adverse impact is anticipated to occur to this species with the ample shoreline areas located near the construction area and the plentiful food source that will remain nearby.

8.4 SCALESHELL MUSSEL

As mentioned in Sections 3.4 and 4.4, habitat for the scaleshell mussel is not present in the LAAs, but is located within 5 miles. As a result of the distance to scaleshell habitat and the onsite mitigation that would be implemented to control impacts on water quality, impacts on the scaleshell mussel would not be anticipated. Considering the fact that site- and species-specific surveys have not yet occurred, the worst anticipated impacts on the scaleshell mussel at this time are that mining activities may affect, but are "not likely to adversely affect" the scaleshell mussel.

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APPENDIX A

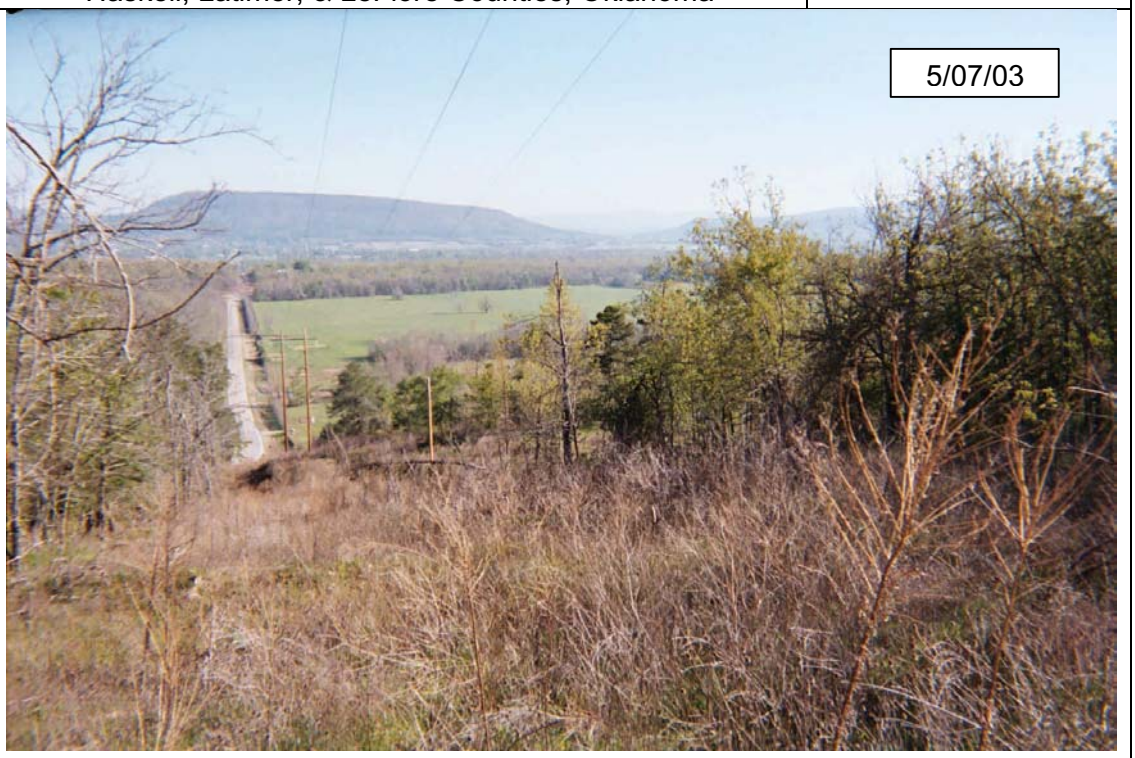
SITE PHOTOGRAPHS

URS

PHOTOGRAPHIC LOG

Farrell-Cooper	BLM Biological Assessment Federal Coal Lease Sales Haskell, Latimer, & LeFlore Counties, Oklahoma	Project No. 37973784

Photo No. 1	Date: 05/07/03



Description:

Bull Hill Tract (sheet 4 parcel) near Latimer and Leflore Counties. Looking north from top of ridge.

Photo No. 2	Date: 05/07/03

Description:

Bull Hill Tract (sheet 9 parcel) near Latimer and Leflore Counties, looking east near rural road intersections.

URS

PHOTOGRAPHIC LOG

Farrell-Cooper	BLM Biological Assessment Federal Coal Lease Sales Haskell, Latimer, & LeFlore Counties, Oklahoma	Project No. 37973784

Photo No.	Date:
3	05/07/03

Description:

McCurtain mining area taken from atop a ridge and looking west from the far southeast corner of the property.

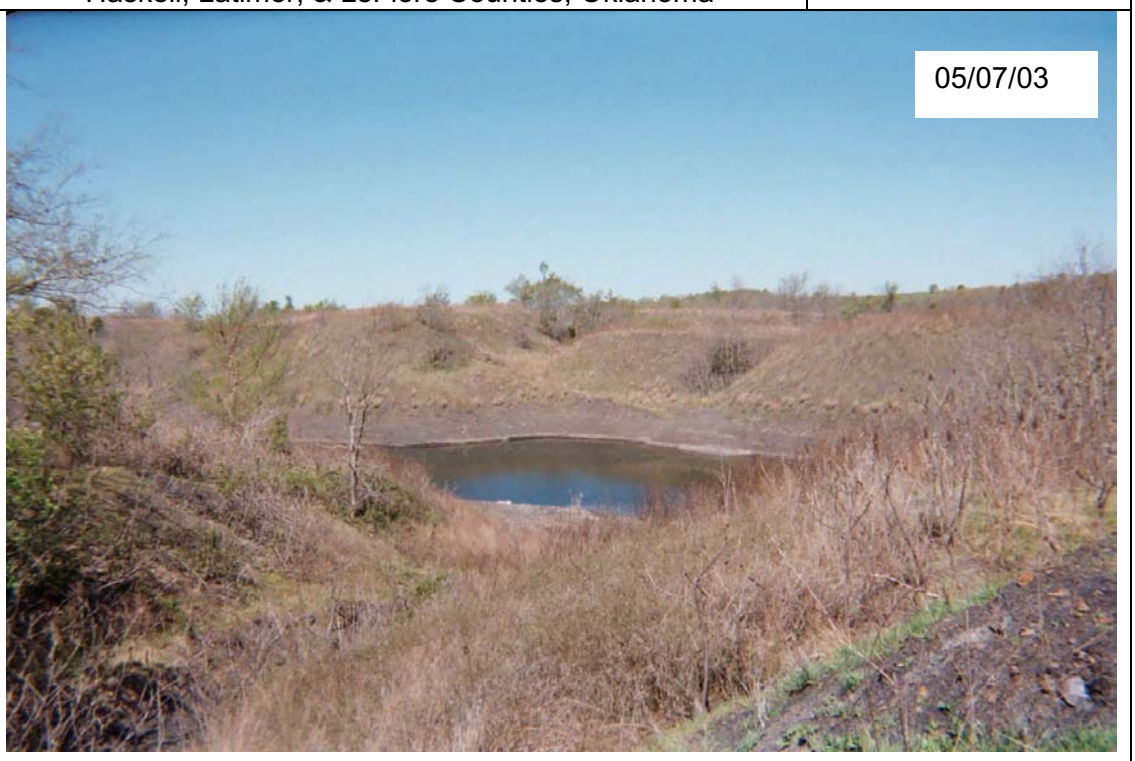


Photo No.	Date:
4	05/07/03

Description:

McCurtain mining area taken from atop a ridge and looking back east from the far southeast corner of the property.

URS

PHOTOGRAPHIC LOG

Farrell-Cooper	BLM Biological Assessment Federal Coal Lease Sales Haskell, Latimer, & LeFlore Counties, Oklahoma	Project No. 37973784

Photo No. 5	Date: 05/07/03

Description:

McCurtain parcel on southwest corner, looking northeast.

Photo No. 6	Date: 05/07/03

Description:

North portion of McCurtain tract that has already been strip-mined, looking east.

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PHOTOGRAPHIC LOG

Farrell-Cooper	BLM Biological Assessment Federal Coal Lease Sales Haskell, Latimer, & LeFlore Counties, Oklahoma	Project No. 37973784

Photo No. 7 | **Date:** 05/07/03

Description:

Dragline activities removing overburden from nearby coal mining operations.

Photo No. 8 | **Date:** 05/07/03

Description:

Wetland area on southeast side of Liberty West Tract, looking southwest.

URS

PHOTOGRAPHIC LOG

Farrell-Cooper	BLM Biological Assessment Federal Coal Lease Sales Haskell, Latimer, & LeFlore Counties, Oklahoma	Project No. 37973785

Photo No. 9	Date: 05/07/03

Description:

Wetland area on east side of Liberty West Tract, looking north.

Photo No. 10	Date: 05/07/03

Description:

North side of Liberty West Tract, looking north from road.

APPENDIX B

AGENCY CORRESPONDENCE

United States Department of the Interior

BUREAU OF LAND MANAGEMENT

OKLAHOMA FIELD OFFICE

7906 E. 33rd Street, Suite 101
Tulsa, OK 74145-1352

221 N. Service Road
Moore, OK 73160-4946

In Reply Refer To:
NM-040-2002-043,044
1320 (NM04410)

March 31, 2004

CERTIFIED MAIL RETURN RECEIPT REQUESTED

Memorandum

To: Field Supervisor, FWS, Tulsa, OK

From: Field Station Manager, BLM, Moore, OK

Subject: Request for Review of Biological Assessment (BA) for the Oklahoma Resource Management Plan Amendment and Environmental Assessment (OKRMPA/EA) For 3 Lease Application Areas: Liberty West, McCurtain, and Bull Hill.

The Bureau of Land Management (BLM) has proposed to amend their 1994 Oklahoma Resource Management Plan (RMP) to include three competitive coal lease sales submitted by Farrell-Cooper Mining Company in February and June of 2002. The RMP amendment would incorporate the Lease Application Areas (LAA), which total approximately 6,883 acres of previously unleased coal into the existing RMP. The first proposed lease site is northeast of Stigler, the second is north of McCurtain, and the third is broken into three units north and northwest of Wister Reservoir.

In your reply letter of July 9, 2003(reference FWS's letter: FWS/R2/OKES/02-14-03-I-0918) the FWS responded to URS Corporation's (Charles F. Andrews) letter requesting information on federally–listed endangered and threatened species and their habitats (section 7 consultation) for the 3 coal areas identified above. The information you supplied in that regard has been incorporated into the enclosed Biological Assessment (BA) written by URS Corp., and reviewed in this office by our Wildlife Biologist Phil Keasling. Mr. Keasling's comments have been incorporated and made part of the Draft BA.

The BLM is now asking the FWS to review the enclosed Draft BA and provide comments back to Keith Tyler, Co-Team Lead OKRMPA/EA, at the Moore, Oklahoma address listed above. If it would facilitate your review, the Draft BA, color maps, and photos can be supplied to you via electronic media. Keith's

e-mail address is: Keith_Tyler@blm.gov, or he can be reached by phone at (405) 790-1015. Thank you for your time and attention in this regard.

Field Station Manager

1-Enclosure (53 pages)

bcc: Phil Keasling (NM04410) (w/o enclosure)

Doug Cook (NM04400) (with supporting materials)

BLM-OKFO-MOORE

United States Department of the Interior

P. 2: 16

FISH AND WILDLIFE SERVICE
Ecological Services
222 S. Houston, Suite A
Tulsa, Oklahoma 74127

FAXED 7-15-4

In Reply Refer To:
FWS/R2/OKES/02-14-04-I-0688

July 15, 2004

BLM-OKFO-MOORE
2004 JUL 16 P 2: 22

Memorandum

To: Field Station Manager, Bureau of Land Management, Moore, OK
Attn: Phil Keasling

From: Field Supervisor

Subject: Review of the Biological Assessment for the Oklahoma Resource Management Plan Amendment and Biological Assessment for three Lease Application Areas: Liberty West, McCurtain, and Bull Hill in Eastern Oklahoma

The U. S. Fish and Wildlife Service (Service) has reviewed the March 2004 Biological Assessment (BA) submitted March 31, 2004, regarding the above subject. On May 18, 2004, the Service contacted Phil Keasling of the Bureau of Land Management (BLM) via telephone to clarify certain issues. Our comments are explained below in order of occurrence in the BA. Our comments are submitted in accordance with section 7 of the Endangered Species Act, as amended (ESA) and the Migratory Bird Treaty Act, as amended (MBTA).

Liberty West

Since this tract of land is primarily Bermuda grass, the environmental resources provided by this type of vegetation are minimal. The BA states that coal will be recovered by surface mining methods and would be a continuation of the adjacent permit. Mining would progress in a series of pits, 150 feet wide and 60 - 120 feet deep, comprising a total length range of 2,000 - 4,000 feet. Overburden from one pit would be spoiled in the previous open pit.

The BA stipulates that reclamation will take approximately seven years. During our telephone conversation, BLM explained that this tract will be reclaimed in segments as mining progresses linearly. The Service recommends each segment be reclaimed immediately to prevent erosion and invasive species encroachment.

McCurtain

This tract of land is primarily undisturbed oak/hickory and post oak/blackjack oak woodland communities intermixed with native grasses. This type of vegetative community likely provides suitable habitat for migratory birds and the endangered American burying beetle (ABB) *Nicrophorus americanus*.

Per the BA, coal will be recovered by underground mining methods. A highwall will be created as a means of accessing the coal through installation of a portal. The portal would remain open for 20 years. The Service is unclear as to why the portal would be open for 20 years. We request further clarification be provided in the BA regarding this issue.

Bull Hill

This tract is dominated by oak/pine woodland intermixed with native grasses. This area would also provide suitable habitat for migratory birds. The BA stipulates coal will be recovered with a combination of conventional surface mining and auger mining. Surface excavation of the pits would progress at a rate of approximately 1 mile per year.

The BLM expressed concerns raised by the Office of Surface Mining (OSM). The OSM is concerned with effects from this future exploration on areas within the project boundary historically mined by multiple small operators. Numerous small shafts created during this historic exploration have left mine shafts filled with water, creating artesian pressure. These type of areas should be addressed during the planning phase and to date have not.

All Mining Tracts

During our telephone conversation the Service questioned the probability of incurring groundwater. The BLM stated that most places will not incur groundwater but in those cases where ground water is incurred it will be pumped out into a settling pond. Mining efforts would be isolated from the surface waters by use of berms, silt fencing, and settling ponds. We urge the BLM to promote the use of native species to revegetate disturbed areas.

Species Information

Page 3-1, line 14, Table 2-The scaleshell mussel *Leptodea leptondon* occurs in the Kiamichi and Little Rivers in Pushmataha County. One recent (last 10 years) occurrence has been reported from the upper portion of the Poteau River in LeFlore County downstream of the project area. The interior least tern *Sterna antillarum* (tern) nest and forage along the Canadian River between the Sequoyah National Wildlife Refuge and Eufaula Reservoir. The bald eagle *Haliaeetus* leucocephalus has been recorded from this same stretch of the Canadian River as well as from Robert S. Kerr Lake and Eufaula Reservoir, as well as Wister Lake.

Habitat Evaluation and Suitability

The Service concurs with BLM's determination that the ABB is likely to occur throughout the above three mining leases. The Service also concurs with the possibility that bald eagles may utilize the habitat on the McCurtain and Liberty West leases. The Service further concurs with BLM's determination that the tern utilizes the Arkansas River as feeding and nesting habitat and may utilize surrounding wetlands as foraging habitat. Therefore, the tern could be present in wetlands within the mining leases. In addition, the terns nest and forage along the Canadian

River from the Sequoyah National Wildlife Refuge to the Eufaula Reservoir. The Canadian River is close to the mining leases, thus increasing the chances of terns utilizing wetlands within the mining leases.

Effects

In our July 9, 2003, letter the Service stipulated that surveys must be conducted during the ABB's active period, roughly between late April and mid-September. Through researching the weather pattern across eastern Oklahoma, the Service has determined that temperatures are suitable for ABB activity from approximately May 20 to September 20. The Service would appreciate updating the BA to reflect this. If surveys result in ABB captures, then as stated in the BA baiting away or trapping and relocating must be implemented. The Service should be contacted for specific details prior to implementing these measures. Depending on the timeframe topsoil is removed to the time it is redistributed, ABBs could begin utilizing these areas. Consequently, ABBs could be adversely effected and this issue should be addressed in the BA.

Since no bald eagles or nests were observed during the April 2003 site reconnaissance the Service concurs that no direct effects would occur to bald eagles. However, indirect effects could occur in the form of harm or harassment by displacing eagles due to noise. The Southeast States Bald Eagle Recovery Plan (U.S. Fish and Wildlife Service 1989) recommends a primary and secondary buffer around eagle nest. The primary zone ranges from 750 to 1,500 feet outward from the nest tree. Mining in the primary zone is considered to have detrimental effects on nesting eagles and should not occur during any season. The secondary zone ranges from 450 feet to 1-mile. Activities such as mining should be conducted during the non-nesting period. For communal roost no land clearing or disruptive human activity should occur within 1,500 feet of roosts. The Service recommends conducting surveys to determine if there are any bald eagles or nests within a 1 mile distance from the project perimeter or disturbance area, and then maintaining an appropriate buffer and/or implementing the project during the appropriate season. Refer to the Southeast States Bald Eagle Recovery Plan for further details relating the protection of the bald eagle.

Stalmaster and Kaiser (1998) reported a negative correlation between the number of recreational events at the Skagit River Bald Eagle Natural Area (Natural Area) and the number of bald eagles using the area. Feeding activity declined exponentially with increased recreation activity. On weekends when recreational use was high, fewer eagles used the river and they fed less than on weekdays. Feeding was then high following weekend disturbances. They predicted that feeding was reduced by 35% because of recreational use. Disruption of feeding activity was most pronounced between 0800 and 1100 hours. After 40 recreational events, eagles resuming feeding were uncommon.

Stalmaster and Kaiser (1998) recommended prohibiting recreational activity during the first 5 hours of daylight within 1,312 feet of eagles to minimize feeding disturbance. Although, disturbance in the Natural Area is different in than the proposed mining activities and potential spatial relationship to bald eagles, this research does provide a clear example of the susceptibility

of bald eagles to disturbance. Consequently, mining disturbance over a long-term period could permanently displace bald eagles from in and/or near the mining areas. Therefore, the Service does not concur with BLM's determination that only short-term impacts to bald eagles could occur.

The tern's home range during the breeding season usually is limited to a reach of river near the sandbar nesting site. However, at Salt Plains National Wildlife Refuge, home ranges varied form 27 to 2,508 acres (Talent and Hill 1985). Variations were attributed to food limitations and chick loss. Kevin Stubbs with the Service (personal communication 2004) reported that terns would potentially move up to two miles. However, he further indicated that terns would only exert the minimal amount of energy necessary to secure food and that a more typical movement distance would range from 0.25 to 0.5 miles. This indicates that terns could forage on the wetlands present in the project areas if the appropriate prey species were present. However this may not be a common occurrence in the project areas.

Cumulative Effects

Re-establishment of the same type of habitat for species in the mining leases may or may not benefit federally-listed species or other wildlife species, depending on the type of vegetation reestablished. Reestablishing the Bull Hill and McCurtain tracts with native woody species would be a benefit to wildlife. However, returning Liberty West back to a Bermuda pasture would not likely benefit wildlife species. Further, re-establishment of mature woodland vegetation communities would take approximately 20 to 50 years at a minimum. The Service does not consider this to be a benefit to the bald eagle, or any other species. In addition, the re-establishment of vegetation would require the use of equipment which would be a continuation of noise disturbance.

Further, the Service does not believe (as stated on page 4-2, line 17; and page 4-3, line 6) that "in the long-term, after coal removal and reclamation, this area would most likely be left alone, allowing for long-term habitat suitability" should be considered a beneficial cumulative effect for federally-listed species. Because these areas are being mined now and will then be left alone as opposed to leaving these areas alone now and mining them later does not constitute a benefit for any species.

Conservation Measures

The BA indicates the following conservation measures will be implemented:

- 100 foot buffer between mining area and streams or rivers;
- native vegetation would planted (provided the landowner concurred);
- diversion berms and silt fencing would be installed to prevent water quality degradation; and
- every precaution would be taken to reduce fugitive dust emissions.

Service Response

The Service concurs that the proposed mining projects may effect the scaleshell mussel, bald eagle, and interior least tern but these species are not likely to be adversely effected. Further, if as stated in the BA, ABB presence/absence surveys would be conducted and if positive ABBs would be removed from the project area, the Service believes that the proposed project would then not likely adversely effect the ABB.

We appreciate the opportunity to provide comments. If you have any questions or need further assistance with this project, please contact Hayley Dikeman of this office at 918/581-7458, extension 239.

cc: Natural Resources Section, Director, ODWC, Oklahoma City, OK

References

Stalmaster, Mark V. and James L. Kaiser. 1998. Effects of recreational activity on wintering bald eagles. Wildlife Monographs 137, pp 46.

Talent, L. G., and L.A. Hill. 1985. Final report: breeding ecology of snowy plovers, American avocets, and interior least terns at Salt Plains National Wildlife Refuge, Oklahoma. Oklahoma State University, Stillwater. 186 pp.

U.S. Fish and Wildlife Service. 1989. Southeastern States Bald Eagle Recovery Plan. Atlanta, Georgia.

Appendix C

Letters Received from Review of Draft RMPA, Preliminary Draft FONSI, and Supporting EA

Bureau of Land Management
Oklahoma Field Office
7906 East 33rd Street, Suite 101
Tulsa Oklahoma 74145-1352

June 2, 2004

Re: Draft Resource Management Plan Amendment
For Coal Lease Sales in Haskell Co.

Gentlemen:

After reviewing your preliminary draft findings, we found several areas that causes concerns:

1. 4.2.2.6 Air Quality - Dust leaving the permit area #4268 causes problems for the adjacent property owners. Specific actions should be initiated to control the dust from blasting and drag line operation, and other mining activities. Adjacent property should not be subjected to a decline in a quality of life because of this mining operation. Excessive dust aggravates health problems close to the mining operation. This is a problem that exists on Permit #4268.

2. CLS-6 - Floodplains - P.2-22 -There should be no waivers granted on the buffer zones on perennial and intermittent streams. The riparian areas and wetland areas should not be disturbed, because of water quality and wildlife considerations. According to Paul Behum's report (hydrologist with Office of Surface Mining) water quality will be degraded from mining on Permit #4268. The degradation will be significant and will continue on into this lease.

3. Soil Classes - 3.7.1 - All prime farmland should be reclaimed as prime farmland, regardless of use. This includes Stigler Silt Loam and Vian Silt Loam. The long term loss of productivity caused by the degradation of the quality of the soil on this property will outweigh the inflated short-term benefits of mining.

4. Competitive Coal Lease Sales -If at least two unaffiliated companies do not competitively bid, then some minimum bids should be established. A minimum bid should be one eight royalty or three dollars per ton (which ever is greater) before shipping charges.

Thank you,

Foster Johnson
20561 E. Tamaha Rd
Stigler, Ok 74462

Lee Teasely
20498 E. CR 1130
Stigler, Ok 74462

Ernest R. Achterberg
10641 East 33rd Street
Tulsa, Oklahoma 74146-1810
Home Phone 918-664-4861

May 18, 2004

2004 MAY 20 A 8:48
BLM-OMPD-TULSA

Mr. Doug Cook
Bureau of Land Management
Oklahoma Field Office
7906 East 33rd Street. Suite 101
Tulsa, OK 74145-1352

Dear Mr. Cook:

I have reviewed the Draft Resource Management Plan Amendment and have the following comments:

1. On pages S-1, 1-1, 1-8 and 3-3 it is stated that the 3 LAAs were mined early in the twentieth century. The Liberty West LAA has not been mined. There has been mining in the area, but none on the Liberty West LAA.

2. On page 3-31 reference is made to State Highway 271. This should be U. S. Highway 271.

3. On page 2-29, Table 2-5, the total acres with underground development potential shows .17 acres, That is not shown under the McCurtain tract.

I support the decision to implement alternative C and lease the three LAAs.

Sincerely,

Ernest R. Achterberg

Ernest R. Achterberg

ERA/ma

2

Suggested language RMPA/FONSI/EA for Three Competitive Coal Lease Sales in Haskell, Latimer, and LeFlore Counties, Oklahoma

Larry Emmons, OSM—MCRCC, 6/4/04

For both the FONSI and EA (pages 2-21 and 2-22)

Coal Lease Stipulation 5 (CLS-5) Cultural Resources: Before undertaking any activities that maydisturb the surface of the leased lands, the lessee shall conduct a cultural resource intensive fieldinventory 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 area, that may beadversely affected by lease-related activities and that were not previously inventoried at such a level ofintensity. The inventory shall be conducted by a qualified professional cultural resource specialist (i.e.,archaeologist, historian, historical architect, as appropriate), approved by the authorized officer of thesurface-managing agency (BLM, if the surface is privately owned), and a report of the inventory andrecommendations for protecting any cultural resources identified shall be submitted to theManager, Program Support Division, Mid-Continent Coordinating Center~~AssistantDirector of the Western Support Center~~(PSD manager) of the Office of Surface Mining, the authorized officer of theBLM, 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, ifdifferent. The lessee shall undertake measures, in accordance with instructions from thePSD manager ~~AssistantDirector~~, or authorized officer, to protect cultural resources on the leased lands. The lessee shall notcommence the surface-disturbing activities until permission to proceed is given by thePSD manager ~~Assistant Director~~or authorized officer. The lessee shall protect all cultural resource properties within the lease area fromlease-related activities until the cultural resource mitigation measures can be implemented as part ofapproved mining and reclamation or exploration plan.

The cost of conducting the inventory, preparing reports, and carrying out mitigation measures shall beborne by the lessee.

If cultural resources are discovered during operations under this lease, the lessee shall immediately bringthem to the attention of the PSD manager ~~Assistant Director~~ or authorized officer, or the authorized officer of thesurface-managing agency, if the PSD manager ~~Assistant Director~~ is not available. The lessee shall not disturb suchresources except as may be subsequently authorized by the PSD manager ~~Assistant Director~~ or authorized officer. Within two working days of notification, the PSD manager ~~Assistant Director~~ or authorized officer will evaluate or haveevaluated any cultural resources discovered and will determine if any action may be required to protect orpreserve such discoveries. The cost of data recovery for cultural resources discovered during leaseoperations shall be borne by the surface-managing agency unless otherwise specified by the authorizedofficer of the BLM or of the surface managing agency, if different.

All cultural resources shall remain under the jurisdiction of the United States until ownership isdetermined under applicable law.

MARY ANN PRITCHARD
DIRECTOR

BRAD HENRY
GOVERNOR

STATE OF OKLAHOMA
DEPARTMENT OF MINES

2004 JUN -4 A 9:06
BLM-TULSA

June 02, 2004

Mr. Doug Cook
Bureau Of Land Management
Oklahoma Field Office
7906 East 33rd Street, Suite 101
Tulsa, OK 74145-1352

Re: Coal Lease Environmental Document, in Haskell, Latimer and Leflore Counties, OK

Dear Mr. Cook:

Our office has reviewed "The Preliminary Draft Finding of No Significant Impact and Supporting Environmental Assessment Document for Three Competitive Coal Lease Sales in Haskell, Latimer, and Leflore Counties, Oklahoma." It is very well written, easy to follow and made enjoyable reading. At this time our office has no comments.

Thank you for giving us the opportunity to review the document, and good luck on the final decision. If you have any questions please call me at (405)521-3859.

Sincerely,

Tekleab Tsegay
Chief, Technical Services

cc : Bob Cooper (FCMC)
file

4

4040 N. LINCOLN BLVD., SUITE 107, OKLAHOMA CITY, OKLAHOMA 73105-5282 TEL: 405/521-3859 FAX: 405/427-9646

June 1, 2004

BLM-OKFO-TULSA

2004 JUN -9 A 10:41

Mr. Cook.:

My name is Jerelene Rana. I am a property owner of land that you and your team are looking to put for coal mining lease. I own land in Section 1, 5 North, 22 East and in Sections 5 and 6 of 5 North 23 East. I have been at this location for over forty years.

I reside on property located in Section 1. I have a son that lives with me and has breathing problems.

I, my son and grandson all operate cattle on this operation of land that you are looking to lease. The amount of land that you are looking to lease will basically force use to be unable to operate cattle due to area of that will be used in the mining process.

Also there are several creeks in the area that I believe can be damaged due to this process.

Also it is my understanding that the large hill on my property will be basically flat ground if mining is completed. I was told by Farrell Cooper this would not happen.
Also along this hill I have several amount of natural pine timber that has been maintained and slightly managed through minimal thinning of mature timber to maintain a good quality crop for years and generations to come.

Also this land is used in the form of hunting for my relatives that do not on land and do not have the means to obtain hunting rights to other properties. I believe that your studies say that there will be no recourse in this area; however the large ridge is a sanctuary not only for deer but for other wildlife.

In the past I have had visits from people who represent Farrell Cooper Mining Company, trying to get me to sign a contract. I told them I would have to speak with my family. I also mentioned to them that I did not believe that we wanted it to be mined and would like to leave the land as is. Your report states that no land owners have spoken out about not wanting there land mined, however I speak with other individuals who have talked to Cooper that they did not want there land to be mind.

I am asking that the land I own be withheld from the mining lease.

Sincerely

Jerelene Rana Jerelene Rana

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June 2, 2004

BLM-OKFO-TULSA

2004 JUN 10 A 8:54

Mr. Cook:

My grandmother owns land in the Bull Hill land that you are looking to lease for mining.

I have read your report and this letter is to state my intentions and grandmother in that we would like her land removed from the lease.

First off there are some pages in the report that contain no information at all and are blank copies.

I read the report were there is an economic study of impact it would have o the economy. In this area there are several people that work off in other states and make more than the $36,000 annual salary that is stated they would make by being employed with Farrell Cooper. Also several people work in other counties or in the state of Arkansas. Also I would like to know how and where there numbers were calculated on new job employment since majority of employees are transferred from one area to the next. Also if part of new employment is in the transportation field, it is my understanding that most of theses business are doing fine and would not actually hire the number of new employees that you state along with the higher salary that the reports states they would obtain.

As mentioned in other conversations and letters our land is located along the Wister Wildlife Conservation land. There are several forms of wildlife that use the hill or ridge area for shelter, breeding, nesting, and for a food supply that is associated with the different vegetation growth along the ridge. Nor to mention that in the Late spring and summer times there are a limited number of eagle that come into this area.

Also to mine this ridge in my understanding you will basically destroy this ridge or hill, unlike the conversations that has been with Mr. Cooper. Someone is not telling the whole story. This will not only eliminate acreage, but also timber land for future hunting and recreational use, along with the habitat. Also I have heard that the reclaiming of land has been poor. Instead of trying to level land with top soils there has been instances where there will only put the minimal amount of soil back and leave small dips in the land that holds water and causes erosion. Also equipment is left behind.

My uncle has breathing problems and lives with my grandmother. Coal mining I believe will only worsen his condition.

Also what land of ours that would not be used by the lease I understand the water is there's to do as see fit? This will also force us not to be able to operate cattle in the manner in which we operate or my not have the ability to operate at all.

Also I read where the reclaiming process is approximately seven years and mining is one mile per year. This means that our land we cannot operate for at least ten years. I don't think that you understand what that means to someone that has there family operating and managing land and using it for over forty years.

Also I would like to know why the Corp. Land cannot be mined but an individual's land can be?

Thank You

Robert Rana

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