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June 8, 1999

Dear Reader:

Enclosed is the environmental assessment, resource management plan amendment and finding of no significant impact, for oil and gas management in the **Makoshika State Park Area of Management Concern**. The document has been prepared jointly by the Bureau of Land Management (BLM), the Montana Department of Natural Resources and Conservation (DNRC), Dawson County, and the Montana Fish, Wildlife and Parks (FWP).

The environmental assessment analyzes the impacts from implementing the proposed plan and three other alternatives. It incorporates comments and suggestions made on the environmental assessment and draft resource management plan amendment from the public review period that began November 12, 1998 and ended December 18, 1998.

Decision changes from the draft plan include no longer allowing oil and gas development on BLM and County-administered minerals in Makoshika State Park and in sections 14 and 23 in T. 15 N., R. 55 E., and stipulating those areas as No Surface Occupancy; and not allowing seismic exploration on BLM, County and FWP-administered surface in Makoshika State Park and in sections 14, 23 and 24 of T. 15 N., R. 55 E., and sections 30 and 32 of T. 15 N., R. 56 E. The reader should refer to Maps 2 and 3 for a comparison of proposed management versus existing management (Alternative A).

The resource management planning process includes an opportunity for review of BLM's decisions through a plan protest to the Director of BLM. Any person or organization who participated in the planning process and has an interest which is or may be adversely affected by the approval of BLM's decisions in the resource management plan amendment may protest the plan. Careful adherence to the following guidelines will assist in preparing a protest that will assure the greatest consideration for your viewpoint.

- (1) Only those persons or organizations who participated in the planning process may protest the plan.
- (2) A protesting party may raise only those issues which were commented on during the planning process.
- (3) Additional issues may be raised at any time and should be directed to the Miles City Field Office for consideration in plan implementation, as potential plan amendments, or as otherwise appropriate.

The protest period begins June 9, 1999 and ends July 8, 1999. There is no provision for an extension of time. Protests filed late, or filed with the State Director or Field Manager shall be rejected by the Director. In order to be "timely" your protest must be sent to the Director of BLM and must be postmarked no later than the last day of the protest period. Although not a requirement, sending your protest by certified mail, return receipt requested, is recommended.

All protests must be filed in writing to:

Director, Bureau of Land Management
 Attention: Ms. Brenda Williams, Protests Coordinator
 1849 C Street N.W.
 WO-210/LS-1075
 Department of the Interior
 Washington, D.C. 20240

The overnight mail address is:

Director, Bureau of Land Management
 Attention: Ms. Brenda Williams, Protests Coordinator
 1620 L Street N.W. Room 1075
 Washington, D.C. 20036

Dawson

To expedite consideration, in addition to the original sent by mail or overnight mail, a copy of the protest may be sent by:

FAX to (202) 452-5112; or Email to bhudgens@wo.blm.gov

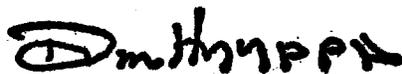
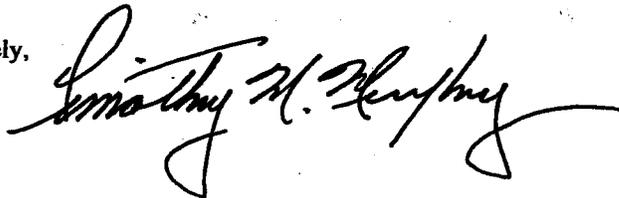
In order to be considered complete, your protest must contain, at a minimum, the following information.

1. The name, mailing address, telephone number, and interest of the person filing the protest.
2. A statement of the issue being protested.
3. A statement of the portion of the plan being protested. To the extent possible, this should be done by reference to specific pages, paragraphs, sections, tables, and maps in the proposed plan.
4. A copy of all documents addressing the issue submitted during the planning process or a reference to the date the issue was discussed for the record.
5. A concise statement explaining why the BLM State Director's decision is believed to be incorrect is a critical part of the protest. Take care to document all relevant facts and to reference or cite the planning documents, environmental analysis documents, and available planning records (meeting minutes, summaries, correspondence.) A protest without data will not provide BLM with the benefit of your information and insight, and the Director's review will be based on the existing analysis and supporting data.

After protest resolution, the agencies will issue a Decision Record. At the end of the 30-day protest period, the BLM may issue a Decision Record, approving implementation of any portion of the proposed plan not under protest with the BLM. Approval will be withheld on any portion of the plan under protest with BLM until the protest is resolved.

We thank the individuals and organizations who participated in the planning process and look forward to your continued interest in the management of Makoshika State Park Area of Management Concern.

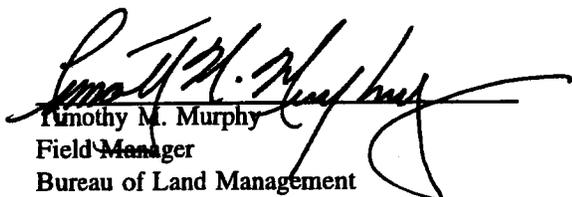
Sincerely,



Don Hyyppa
Region Seven Supervisor
Dept. of Fish, Wildlife & Parks



Dwayne Andrews
Area Manager
Dept. of Natural Resources & Conservation



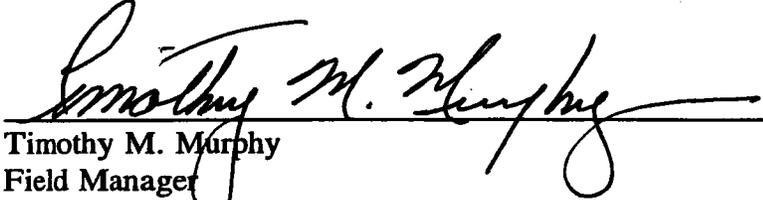
Timothy M. Murphy
Field Manager
Bureau of Land Management



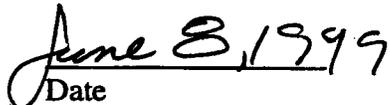
Harold Skartved
Chairman
Dawson County Commissioners

FINDING OF NO SIGNIFICANT IMPACT

On the basis of the information contained in the amendment to the Big Dry Resource Management Plan and the attached environmental assessment, the BLM has determined that the proposed action will have no significant impact on the human environment and that preparation of an environmental impact statement is unnecessary.



Timothy M. Murphy
Field Manager
Miles City Field Office



Date

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**OIL & GAS LEASING IN MAKOSHIKA STATE PARK
 AREA OF MANAGEMENT CONCERN
 COOPERATIVE ENVIRONMENTAL ASSESSMENT & PROPOSED RMP AMENDMENT
 BETWEEN THE BLM, MONTANA FISH, WILDLIFE & PARKS, MONTANA DEPARTMENT OF
 NATURAL RESOURCES & CONSERVATION, & DAWSON COUNTY, MONTANA
 EA # MT-024-98-79
 June 8, 1999**

INTRODUCTION

This environmental assessment (EA) addresses management of potential oil and gas development in Makoshika State Park and Area of Management Concern (AMC, see map 1). The EA has been prepared jointly by the Bureau of Land Management (BLM), the Montana Department of Natural Resources and Conservation (DNRC), and the Montana Fish, Wildlife, and Parks (FWP), in cooperation with the Dawson County Commissioners.

Private surface ownership and private mineral ownership exist within the AMC. Neither the existing Memorandum of Understanding (MOU), the proposed MOU, nor any of the alternatives have any authority over use or development of private holdings. Case law also protects reasonable access to these properties.

Areas of the AMC are currently under lease. The terms of the leases will not be affected by the proposed MOU. Once the leases expire or terminate, any new leases would be issued with lease terms described in the proposed MOU.

The BLM issued a Notice of Intent to Plan in the *Federal Register* on June 2, 1998. The public was asked for their issues and concerns in the notice and during a public meeting held in Glendive September 29, 1998.

PURPOSE AND NEED FOR PROPOSED ACTION

Recent oil and gas leasing activity has raised public concern about the management of the Makoshika State Park AMC. The area is managed according to an MOU between BLM, the FWP, and Dawson County. The MOU needs to be revised to include land managing agencies within the Park, including DNRC, and reflect the legal mandates and objectives of the agencies, in coordination with the public. The agencies and the public have determined that the recreation, visual, sensitive soil, paleontological, and cultural resources in the area need additional protection.

LOCATION

The planning area is Makoshika State Park and the surrounding AMC outlined on Map 1. The area is located in Dawson County, southeast of Glendive and covers various sections in T. 14 N., R. 56 E., and T. 15 N., R. 55 and 56E., (see Appendix 1).

**Table 1
 ACRES OF OIL, GAS AND SURFACE
 ADMINISTRATION IN THE MAKOSHIKA STATE
 PARK AREA OF MANAGEMENT CONCERN**

	Surface Acres	Oil/Gas Acres
BLM	3924.52	6628.28
DNRC	640.00	1280.00
FWP	3994.12	0
COUNTY	4490.47	4490.47
Total Acres	13049.11	12398.75

BLM CONFORMANCE WITH THE APPLICABLE LAND USE PLAN

The proposed action on BLM-administered lands is subject to the Big Dry Resource Area RMP approved April 1996. The Record of Decision states

"(I)n Makoshika State Park...oil and gas leasing and development will be conducted according to the Memorandum of Understanding between BLM, Montana Fish, Wildlife and Parks, and Dawson County."

If approved, the proposed action will amend the land use plan.

RELATION TO OTHER PLANS**BLM**

Federal oil and gas leasing authority for public lands are found in the Mineral Leasing Act of 1920, as amended, and for acquired lands in the Acquired Lands Leasing Act of 1947, as amended. Leasing of federal oil and gas is affected by other acts such as the National Environmental Policy Act of 1969, the National Historic Preservation Act of 1966, the Federal Land Policy and Management Act of 1976, the Wilderness Act of 1964, the Endangered Species Act of 1973, as amended, and the Federal Onshore Oil and Gas Leasing Reform Act of 1987. Regulations governing federal oil and gas leasing and lease operations are contained in 43 CFR 3100, Geophysical Exploration (43 CFR 3150), Onshore Operating Orders (43 CFR 3164.1), the Makoshika State Park MOU, and BLM manuals and instruction memorandums.

DNRC

DNRC is the managing agency for the State of Montana School Trust Lands granted to the state by the Enabling Act of 1889. State leasing authority for school trust lands is found in the Territorial Act of March 2, 1867, Article X of the Montana Constitution, and Title 77 of the Montana Code Annotated. Regulations governing state land management are contained in Title 36, Chapter 25 of the Administrative Rules of Montana and DNRC oil and gas leasing policy and procedures. Actions must also comply with the Montana Environmental Policy Act, Title 75, Chapter 1, Parts 1 & 2.

FWP

FWP is the managing agency for lands they own and for statewide wildlife resources. The agency has separate responsibilities for fish, wildlife, and parks granted to the state by the Enabling Act of 1889. Authority for managing state parks is found in Title 23 of the Montana Code Annotated (MCA). Actions must also comply with the Montana Environmental Policy Act, Title 75, Chapter 1, Parts 1&2.

ALTERNATIVES CONSIDERED BUT NOT ANALYZED IN DETAIL

Terminate the MOU and issue leases within the Makoshika State Park AMC with standard lease terms. This alternative would not adequately protect the recreational, sensitive soils, cultural, paleontological and visual resources of the park and so was not analyzed in

detail. This alternative would not provide for an organized and coordinated approach to management of geophysical and oil and gas activities.

Close Makoshika State Park AMC to oil and gas leasing on DNRC-administered ownership. This alternative is in conflict with the conditions of the deed for surface ownership to FWP, and the constitutional trust mandate for mineral ownership administered by the DNRC and so is not analyzed in detail.

Exchange lands so the Park is all under state control was considered but not analyzed in detail. The purpose of this plan is to make oil and gas leasing decisions. Exchanging surface acres would be outside the scope of the plan. Note: BLM-administered lands within Makoshika State Park are to be disposed to the FWP through the Recreation and Public Purposes Act (BLM, 1996.)

Income from new wells or leasing should be put back into the park was considered but not analyzed in detail. There are state and federal legislative mandates the agencies must follow regarding where revenues from leasing minerals can be deposited. Putting income from leasing and new wells back into the Park would require new legislation.

ALTERNATIVES ANALYZED IN DETAIL

The proposed action and three alternatives are analyzed in detail. Alternative A, the no action alternative, would manage the area under the present MOU. Alternative B would provide the maximum protection for sensitive soils, recreational, paleontological, and cultural values. Alternative C would protect those resources while allowing oil and gas leasing. The Proposed Action Alternative would protect those resource values while allowing oil and gas leasing and limited oil and gas development.

Seismic data is acquired to determine if a structure exists which might contain oil or gas. Geophysical exploration does not include core drilling for subsurface geologic information or well drilling for oil and gas. A federal oil and gas lease is not required before conducting geophysical operations (BLM, 1995.)

An oil and gas lease grants the right to explore, extract, remove, and dispose of oil and gas deposits that may be found on the leased lands. The lessee may exercise the rights conveyed by the lease, subject to lease stipulations and permit approval requirements. The lease terms specify the rental and royalty rates for the lease in addition to other requirements for conducting operations on the lease. Terms and conditions for existing oil and gas leases (valid existing

ALTERNATIVES ANALYZED IN DETAIL

rights) cannot be changed by the decisions in this document until the lease expires. When the lease expires, the area will be subject to the decisions reached in this document.

Lease stipulations are a part of the federal lease only when environmental and planning records show the need for them. Three types of lease stipulations describe how lease rights are modified: no surface occupancy (NSO), timing limitation (seasonal restriction), and controlled surface use (CSU). Lease stipulations may be changed by application of waivers, exceptions, or modifications (WEMs).

Waivers are a permanent exemption from a lease term. This occurs when the resource does not require the protection of the lease stipulation.

Exceptions are granted on a case-by-case basis. Each time the lessee applies for an exception, the resource objective of the lease stipulation must be met.

Modifications are fundamental changes to the provisions for a lease stipulation either temporarily or for the term of the lease.

The decision whether to grant WEMs generally occurs during the Application for Permit to Drill approval process. If the authorized officer determines the change to be major or significant, the proposed action will be subject to a 30-day public review period.

If the lease is changed by a waiver or permanent modification, BLM will issue a written notice to the lessee and any other affected lessees. The notification to lessees is titled "Notice to Amend the Lease Terms."

After lease issuance, the lessee may conduct lease operations with an approved permit. Proposed drilling and associated activities must be approved before operations begin. The operator must file an Application for Permit to Drill or Sundry Notice that must be approved according to (1) lease terms, (2) Onshore Oil and Gas Orders, and (3) regulations and laws.

STATE AND COUNTY MANAGEMENT COMMON TO ALL ALTERNATIVES

Dawson County leases are issued, with appropriate stipulations, to oil and gas companies by the County Commissioners.

Any seismic or drilling applications received by the County are forwarded to Region 7 FWP (Miles City) for review and

development of permit conditions. Drilling proposals are also reviewed and approved by the Montana Board of Oil and Gas Conservation (BOGC).

DNRC - Trust Land Management Division (TLMD) is authorized by the Montana State Land Board to lease state-owned oil and gas for exploration and development. Under the Montana Environmental Policy Act (MEPA), the TLMD must review leasing of nominated tracts for potential impacts on the human and natural environment prior to leasing, unless a clause for denial of activity is added to the lease. The Land Board decides whether to lease the nominated tracts with appropriate stipulations or to deny leasing.

Notification of the tracts nominated for lease is submitted to the following agencies and the public for review and comments.

DNRC - TLMD Minerals Management Bureau Chief, Forest Management Bureau Chief, and Land Management Section Supervisor Agricultural and Grazing Bureau

DNRC - TLMD Division Area Office Managers

DNRC - Archeologist and Hydrologist/Geologist

Montana Fish, Wildlife and Parks

Regional Offices and Field Biologists at applicable Area Resource Offices

Montana Natural Heritage Program, and

U.S. Fish and Wildlife Service.

Comments received from these agencies and the public are reviewed and stipulations are developed for each tract nominated for leasing.

Issues reviewed for this process include: presence of sensitive plant and animal communities; presence of historical or cultural sites; potential impacts of oil and gas related activities on soils, hydrology, wildlife, vegetation, and human resources; potential for "No Surface Occupancy" restrictions; potential conflicts with current land use; and other potential resources for the tract.

Field evaluations from past inspections, information from DNRC-TLMD field office files, and, if necessary, additional on-site evaluations are used by the TLMD field staff in assessing potential impacts from oil and gas leasing and subsequent development. Information contained in the programmatic EIS produced by the BOGC (BOGC, 1989) is

also utilized in determining the potential impacts of future oil and gas development for the nominated tracts. Stipulations are then attached to the lease to provide resource protection during future lease operations. These stipulations range from no surface occupancy restrictions, to requirements for operating plan approval, with the potential of future denial, to surface damage settlement issues.

For all nominated tracts, additional environmental assessments will be completed with the receipt of an operating plan by both TLMD and the BOGC. Potential problems are mitigated at that time through modifications in the plan. TLMD cannot deny drilling of a well unless stipulated at the time of the lease, but stipulations can be added to the operating plan to mitigate impacts. The BOGC, however, may deny a drilling permit or include additional stipulations in the drilling permit.

For tracts nominated in potentially sensitive areas, a special stipulation has been developed that creates a tiered environmental review process with the potential for future denial of activities. An impact analysis is not required prior to leasing a tract with this stipulation (North Fork Preservation Assoc. v. Dept of State Lands, 238 Mont. 451, 778, P.2d 862 (1989); Conner v. burford, 836 F.2d 1521 at 1528 (9th Cir., 1988)). When activity is proposed on a lease, the operating plan receives an environmental review. This review consists of an evaluation of impacts of the proposed action. Additional stipulations and mitigating measures may be required prior to the activity, or the activity may be denied. Depending on the location and potential impacts from the specific activity proposed, this environmental review could consist of an EA or an EIS.

Additional EAs may be necessary with further development of the lease. EAs are completed as necessary throughout the term of the lease.

The BOGC is responsible for requiring "measures to be taken to prevent contamination of or damage to, surrounding land or underground strata caused by drilling operations and production..." (MCA 82-11-111(2)(a)). The BOGC issues permits for oil and gas drilling operations (MCA 82-11-122), and also oversees proper plugging and abandonment of seismic shotholes and oil and gas wells (MCA 82-11-123(4)). All permitting by the BOGC is subject to an environmental review under the MEPA.

MANAGEMENT ACTIONS SPECIFIC TO EACH ALTERNATIVE

The following acreages are approximated and do not include any private surface or minerals.

PROPOSED ACTION

For a comparison of the proposed MOU (proposed action) versus the existing MOU (Alternative A) see maps 2 and 3. The BLM, FWP, Dawson County, and the DNRC would manage the exploration and development of oil and gas resources with lease stipulations that protect the wildlife, cultural, paleontological, soil, recreational, and visual resources of the Makoshika State Park AMC. This management would protect the Makoshika State Park from development through the use of No Surface Occupancy stipulations and continue to allow limited access to public-owned oil and gas resources along the southern edge of the AMC.

Oil and gas leasing would be managed according to the proposed MOU between FWP, DNRC, BLM, and Dawson County (see Appendix 3.) In summary, oil and gas development would not be allowed on 9,894 BLM and County-administered mineral acres in Makoshika State Park and portions of the AMC. These areas would be stipulated No Surface Occupancy (see map 2). Seismic exploration would not be allowed on these areas and in section 16 of T. 15 N., R. 56 E., (11,184 BLM, County, DNRC and FWP-administered surface acres). Oil and gas leasing would be allowed with lease terms on 1,225 BLM-administered mineral acres. Seismic exploration would be allowed on 1,865 BLM and DNRC-administered surface acres. Oil and gas leasing and development would be allowed with site specific stipulations in T. 15 N., R. 55 E., Section 36 (640 DNRC-administered mineral acres, see Map 2).

The DNRC would allow no leasing, extraction or seismic operations for a period of three years from the execution of the MOU, in T. 15 N., R. 56 E., Section 16 to allow time to negotiate an exchange with FWP (640 DNRC-administered minerals). It is the intent of FWP to purchase from the County, T. 15 N., R. 56 E., Section 15 (outside the AMC), and exchange the minerals in Section 15 for the DNRC minerals in Section 16 (inside the AMC). If the exchange is completed, Section 16 would be leased under a No Surface Occupancy stipulation.

If the exchange is not completed, the DNRC-administered minerals in T. 15 N., R. 56 E., Section 16 would have a "Sensitive" stipulation attached:

"This lease includes areas that may be environmentally sensitive. If the lessee intends to conduct any activities on the leased premises, the lessee shall submit to the Trust Land Management Division, one copy of an Operating Plan or Amendment to an existing Operating Plan, describing in detail the proposed activities. No activities shall occur on the

tract until the Operating Plan or Amendments have been approved in writing by the Director of the DNRC."

On July 21, 1997, the Land Board directed the DNRC to bring before the board, any proposed operating plans for exploration or drilling for oil and gas in T. 15 N., R. 56 E., Section 16. Prior to approving an operating plan in this section, the DNRC shall: 1) give the public a chance to comment at a public meeting in Glendive and at a Land Board meeting in Helena, and 2) receive approval from the Land Board for the decision.

ALTERNATIVE A (Existing Management)

Oil and gas leasing would be managed according to the 1989 MOU for Makoshika State Park and AMC. In summary, 8,636 BLM and County-administered minerals would be stipulated No Surface Occupancy, and 2,484 BLM and County-administered mineral acres would be stipulated Controlled Surface Use.

Oil and gas leasing would be allowed on the DNRC-administered minerals (1,280 acres). Many of the authorized drilling locations would be adjacent to recreation sites, have access by existing park roads, and would be located in the core area of the park.

Geophysical operations would be restricted to thumper trucks on existing roads or surface charges placed off-road by portable (helicopter/foot) methods (11,769 BLM, FWP, County-administered surface acres.)

Geophysical operations, oil and gas leasing, drilling, and production would be allowed on DNRC-administered minerals. In T. 15 N., R. 56 E., Section 16, the DNRC authorized development activities would be conducted under the "Sensitive Stipulation" discussed under "Proposed Action."

ALTERNATIVE B (Majority No Leasing)

Under Alternative B, oil and gas leasing would be allowed with a No Surface Occupancy stipulation on 1,280 DNRC-administered mineral acres. The AMC would be closed to oil and gas leasing on 11,199 BLM and County-administered mineral acres. Geophysical exploration would be allowed on 1,280 surface acres (DNRC and FWP-administered) and would not be allowed on 11,769 surface acres (BLM, County and FWP-administered.)

Seismic operations on the 1,280 acres would be allowed from October 1 through March 31, provided the ground is dry or frozen. Seismic operations would be restricted to the use of elevated surface charges. Vehicle access would be limited to designated roads and trails. Surface charges placed off-road would be accessed by portable (helicopter or foot) methods. Any development of the oil and gas resources would be through the use of directional drilling from off-lease well sites.

ALTERNATIVE C (No Surface Occupancy)

Under Alternative C, any development of the oil and gas resources would be through the use of directional drilling from off-lease well sites. Oil and gas leasing would be allowed with a No Surface Occupancy stipulation with WEMs on 12,399 BLM, County and DNRC-administered mineral acres. Seismic exploration would be allowed from October 1 through March 31, provided the ground is dry or frozen (13,049 BLM, County, FWP and DNRC-administered surface acres). Seismic operations would be restricted to the use of elevated surface charges. Vehicle access would be limited to designated roads and trails. Surface charges placed off-road would be accessed by portable (helicopter or foot) methods.

AFFECTED ENVIRONMENT

INTRODUCTION

The Makoshika State Park AMC is situated within the Missouri Plateau subdivision of the Great Plains physiographic province. The area lies east and approximately 400 feet above the Yellowstone River Valley. The terrain is a dissected landscape of plateaus, flat alluvial fans, and narrow v-shaped valleys, typical of what are called badlands in the region. Slopes in the area range up to 75 percent. This dissected topography is due to the geology of the area. Bentonite shales are easily eroded by water and contain enough salts to limit plant growth. Erosional features dominate the landscape. These erosional features include thin columns capped with sandstone rocks (hoodoos), vertical drop-offs, steep spires, and razor like ridges.

The Yellowstone River is approximately three miles west of the tablelands within the AMC. There are no permanent streams in the area, although it is dissected by numerous intermittent streams draining into the Yellowstone River. The area contains a few small springs and ponds.

AIR QUALITY

Ambient air quality in the AMC is good overall. Localized elevated levels of total suspended particulates and sulfur dioxide occasionally occur due to oil and gas production and other industrial activities. The area is in a Class II airshed. The closest Class I airshed is the Theodore Roosevelt National Memorial Park located 25 miles east in North Dakota. Other Class I airsheds are the Fort Peck Indian Reservation located approximately 72 miles to the northwest and the Fort Berthold Indian Reservation in North Dakota located approximately 72 miles to the northeast. The Northern Cheyenne and Crow Indian Reservations are located approximately 120 miles to the southwest.

CULTURAL

Approximately 66 public surface acres have been inventoried for cultural resources in the AMC, with no sites found. There is a potential for finding prehistoric and historic sites in the area. Site types that may be encountered include lithic scatters, campsites, and bison kill sites.

The Makoshika badlands preserve PaleoIndian sites. Isolated grassy buttes preserve pristine remnant PaleoIndian campsites which may hold the physical proof of when the first people came to Montana. Dr. Leslie B. Davis has been conducting research on PaleoIndian sites in Makoshika since 1991.

GEOLOGY

The youngest formations in the area are Quaternary alluvium and eolian deposits that have been reworked from older materials. Alluvial material in the form of landslide material and stream deposits have moved to the lowest part of the landscape by water and gravity. Eolian material, predominantly sand, has been brought in by prevailing winds from the Yellowstone River valley and reworking of older eolian deposits.

Below this veneer of stream and wind deposits lies the Ludlow Member of the Tertiary Fort Union Formation, which caps many of the ridges and hills. This member is commonly white to tan siltstone and shale with some sandstone, often in the form of channel sandstone. Below this is the upper Cretaceous Hell Creek Formation, famed for its dinosaur fossils. Between these two formations is a lignite seam, defining the K-T Boundary (Cretaceous - Tertiary) at which time dinosaurs became extinct.

The Hell Creek Formation is widely exposed in the AMC and responsible for the formation of the badlands topography. The upper part of the Hell Creek Formation is a gray bentonite shale which commonly weathers to a "popcorn" surface texture. The lower part of the Hell Creek Formation is yellow to tan medium grained sandstone. This sandstone is poorly cemented and is easily weathered to a semi-consolidated sand. Only small areas of the next oldest formation, the Fox Hills Sandstone, are exposed in the AMC. The upper part of the Fox Hills, the Colgate Member, is a white to gray poorly cemented sandstone deposited as beach sand. The Cedar Creek Anticline, which extends from the Glendive area to south of Baker, has resulted in the uplift and exposure of these and older formations. The anticline has provided lithologic and stratigraphic traps for oil and gas. Development of this area for oil and gas production started in the 1950s and continues today.

HYDROLOGY

In areas surrounding the AMC, the Fort Union Formation is often used for groundwater production. In the planning area, only a limited thickness of this formation still remains. The area is highly dissected and does not hold a stable, adequate supply of water for any purpose. Below the aquifer is the Lower Hell Creek - Fox Hills Aquifer. The lower Hell Creek Formation and Fox Hill Sandstone are clean sandstones that may produce up to 30 gallons per minute with depths up to 450 feet. These aquifers are relatively shallow in the area and are economical for water production. Below these aquifers are approximately 1,000 feet of marine shales, making wells deeper than the Fox Hills Sandstone too

expensive for most uses. Water quality in the area is highly mineralized and is used mainly for livestock and some domestic uses.

MINERALS

Development of fields in the Cedar Creek Anticline began in 1951 and oil and gas production continues today. The Hell Creek Formation itself contains numerous thin lignite coal beds, too sparse to be of economic importance. Bordering the AMC and south of Glendive, lies a large deposit of bentonite that has not been mined.

The AMC is located within the Cedar Creek Anticline that extends from northwest of Glendive, southeasterly into the northwest corner of South Dakota. The Anticline includes geologic formations that contain oil and gas resources. There are no active federal oil or gas leases in Makoshika State Park or the AMC. The state section in T. 15., R. 55 E., section 36 is currently leased for oil and gas. Portions of private minerals within the AMC are currently leased for oil and gas. Of the seven wells that have been drilled within the AMC, only two have produced oil in commercial quantities and none have produced gas in commercial quantities.

Thin lignite coal beds are located within the AMC. The coal does not have commercial value because it is scattered in small quantities and of poor quality. The AMC does not contain any precious or strategic metals.

PALEONTOLOGY

Stratigraphy in this area encompasses the K-T Boundary (Cretaceous - Tertiary), which has become the subject of intensive scientific scrutiny in recent years. The Hell Creek Formation, which is exposed extensively throughout the AMC, is renowned worldwide for amount and number of dinosaur fossils it has produced. The area has been of interest for paleontological investigators since eastern Montana was initially prospected for dinosaur fossils. Interest has increased recently. School groups from all over eastern Montana come to Makoshika to learn about dinosaurs. The Hell Creek Formation has produced dinosaurs from the latest part of the age of dinosaurs, some of which are the best known: Tyrannosaur Rex and Triceratops. On the other side of the K-T Boundary, the Fort Union Formation has produced crocodile, turtle, and gar fossils.

RECREATION

The AMC encompasses eight square miles of roadless area. This represents an area of sufficient size to afford solitude for park visitors. These tracts of land are not contiguous but

the broken nature of the landscape enforces the effect of solitude. The primary attractions for visitors to the AMC are the visual and physical aesthetics associated with the badlands formations, the broad scenic vistas, and the solitude that is characteristic of much of the area lying south and east of Glendive. Archeological and paleontological resources are of emerging importance. The public has the opportunity to observe and enjoy this normally inaccessible terrain by using the existing road system and information provided by the Montana State Park system.

Makoshika State Park is being developed into a "destination park" by FWP. The FWP has invested millions of dollars in a visitor center and other improvements at Makoshika State Park. The community and the Glendive Chamber of Commerce and Agriculture have tied the tourism and marketing of Makoshika State Park to their Economic Development Plans. Tourism contributes substantially to the economy of Glendive, especially through the summer months. Protection of the scenic vistas and quiet solitude of Makoshika is vital to the continued growth of the tourism in Dawson County and Glendive. Visitation to Makoshika has steadily increased from 12,000 in 1991 to more than 65,000 in 1998. The dedication of the visitor center in 1994 and park improvements are primarily responsible for the increase in use.

SOCIOECONOMICS

Dawson County had an estimated population of 9,080 in 1996. Total personal income was \$166 million and per capita personal income was \$18,286 or 95 percent of the State average. Non-farm earnings were \$99.3 million.

Tourism, in particular tourism associated with Makoshika State Park, contributes substantially to the Glendive economy. The average nonresident visitor spends \$42 per day in Montana. Makoshika has had 90,528 nonresident visitors since the visitor center opened (1994 through 1997.) Tourism has contributed an estimated \$3,802,178 to Montana during this period. The mining industry, including oil and gas extraction and non-metal mining (aggregates), accounts for 5 percent of non-farm earnings. Non-farm employment was 5,005 jobs and mining accounted for 101 jobs, or 2 percent. Earnings from the mining industries averaged over two times the average from other non-farm industry.

Federal receipts, rents, and royalties fluctuate annually based on production and prices. Fifty percent of the net federal receipts are returned to the states. Federal production in Dawson County averaged 146,000 barrels of oil annually from 1994 to 1997. The average value of federal oil and gas receipts, rents, and royalties for the years 1994 to 1997 was

\$604,000. Gross revenue of the oil and gas produced for this time period in Dawson County was approximately \$21,000,000 (all owners.)

SOILS

Soils in the AMC vary widely in physical and chemical characteristics. These soils have limited development and are usually classified as Entisols. Soil textures are commonly silty clays and silty clay loams with localized areas of sandy loams. Soil depths vary with landscape position. Very shallow soils (less than 10 inches) occur on steep slopes and deep to very deep soils (60 inches or greater) occur on gentle slopes. There are approximately 7,308 mineral acres with slopes over 30 percent in the area. Soils may be alkaline to very strongly alkaline, particularly where slope wash has leached salts to a lower position on the landscape. Productivity varies, but is generally very low, with only small areas producing adequate vegetation for grazing by wildlife and livestock.

VEGETATION

Approximately 70 percent of the Makoshika State Park AMC landscape is badlands. The badlands are sparsely vegetated with sagebrush, saltbush, rabbitbrush, and mixed grasses. The remaining 30 percent of the AMC landscape is equally composed of Mixed-Grass Prairie and woodlands. Mixed-Grass Prairie generally consists of blue grama, green-needle grass, needle-and-thread grass, and sagebrush habitat types. Woodland areas containing intermittent populations of ponderosa pine and rocky mountain juniper are found mainly in the Sand Creek vicinity. Trees are found on the northern exposures and adjacent to tertiary drainages that provide potential ecological sites for deciduous species such as green ash and boxelder.

Leafy Spurge is also present within the AMC. Currently, biological and chemical applications are being used to control the spread of noxious weeds.

Over 225 species of wild flowers have been identified within these habitats. One state sensitive plant, *Linaria canadensis* has been documented in T. 15 N., R. 56 E., Section 32

(Scow, Culwell, and Larson 1982). *Linaria canadensis* is considered critically imperiled in Montana where it is extremely rare. An attempt to confirm presence of *Linaria canadensis* was made by park staff in July 1998. None were found. *Linaria canadensis* normally flowers in May and June. The plant may exist but was not detected in mid-July. Current taxonomic treatments rename *Linaria canadensis* as *Nuttallanthus texanus* and regard it as a distinct species. The common name of Blue toadflax should not be confused with the exotic species, Dalmation toadflax (*Linaria dalmatica*).

Bittersweet, *Celastrus scandens*, was located in 1975 within two miles of the northern boundary of the park. Bractless *Mentzelia*, *Mentzelia nuda*, was located in 1982 within two miles of the northern boundary of the park. The only state sensitive species recorded inside the AMC was Blue Toadflax, *Nuttallanthus texanus*. Blue Toadflax was located in 1982 in T. 15 N., R. 56 E., Section 32.

VISUAL RESOURCES

BLM designated the entire AMC, including the Yellowstone River section, a Visual Resource Management (VRM) Class II area in 1996. The objective of VRM Class II is 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 predominate natural features of the characteristic landscape.

WILDLIFE

The area is inhabited by many wildlife species such as whitetailed and mule deer, bobcats, fox, coyotes, rabbits, chipmunks, and porcupines. Avian species found on the site include sharptail and sage grouse, Hungarian partridge, mourning dove, meadowlark, magpie, finch, bluebird, other neo-tropical songbirds and species of hawks. The entire area is crucial winter range for mule deer. A record search with the Montana Natural Heritage Program shows the Prebel's Shrew, *Sorex prebelie*, adjacent to the north boundary of the park.

ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This section presents the environmental affects of each alternative. Short-term impacts are those that would last less than three years. Long-term impacts would last three years or longer.

The following elements would not be affected by the proposed action or the alternatives: Areas of Critical Environmental Concern (ACECs), Farmlands, Floodplains, Native American Issues, Environmental Justice, Wetlands or Riparian Zones, and Wild and Scenic Rivers. No cumulative impacts were identified.

ASSUMPTIONS

Assumptions provide common data for the agencies to use when conducting the environmental analyses. Assumptions are based on previous events, experience of personnel, and their knowledge of resources in the area. Assumptions are not decisions. They provide baseline information that the interdisciplinary staff use to analyze the impacts from allowing or foregoing an activity.

Geophysical operations could be conducted over the entire AMC within the next 20 years. Seismic lines would be spaced approximately 200 feet apart. Surface charges would be placed above ground on lath, with the explosives spaced approximately 50 feet apart. It is assumed that the entire AMC will be leased for oil and gas within the next 20 years.

Due to the topography of the AMC and the higher oil and gas potential areas south of the AMC, drilling in the AMC would proceed at a predicted rate of 3 oil or gas wells during the next 10 years and 7 total wells in the next 20 years, regardless of mineral ownership. All but 1 of these 7 wells would be drilled in the southwest third of the AMC. Out of the 7 wells drilled, 2 would be producing wells.

Approximately 14 acres would be disturbed in 10 years and 31 acres in 20 years from oil and gas development. Surface disturbance for a typical deep oil well (from 5,000 to 12,000 feet deep) includes 1.5 acres for a 1-mile bladed trail and 3.0 acres or less for the well pad, for a total of 4.5 acres per well for the drilling phase. Surface disturbance for the well pad during the production phase would be 2.0 acres or less. New trail construction would range between 0.25 miles to 1.5 miles depending on well location from existing roads.

Producing oil and gas wells in the AMC would have an average life span of 25 years, which includes 20 years of production and 5 years for reclamation. Wells completed as dry holes would have an up to 5-year reclamation life span,

which means surface vegetation would be recovered.

Oil and gas drilling and production activities would occur first on private lands. Production facilities are likely to be located on these lands within the AMC.

The resource specialists estimated the number of wells that would be affected for each alternative. The effect could be increased costs resulting from site relocations and delays, or in some cases, a number of wells could not be drilled. While the increased costs of relocating well sites and delays are important from an individual operator's standpoint, the increased costs were not estimated due to the small number of wells potentially affected.

In southeastern Montana, there would be an average of 1 cultural resource site for every 100 acres of land. In the Makoshika area of management concern, where drill sites would be located on slopes less than 30 percent or flatter areas, the average number of sites per acre would increase. Approximately 1 out of every 7 to 10 sites would be eligible for nomination to the National Register of Historic Places and would require mitigation.

There would be a high potential for significant fossils to be located in the area.

Recreational use and construction of recreational facilities would increase.

IMPACTS FROM MANAGEMENT COMMON TO ALL ALTERNATIVES

There would be no impacts from management common to all alternatives.

IMPACTS FROM MANAGEMENT ACTIONS SPECIFIC TO EACH ALTERNATIVE

PROPOSED ACTION

AIR QUALITY

Impacts to air quality from oil, gas and seismic activities would not occur within Makoshika State Park. The following impacts would occur outside the Park on the southern edge of the AMC.

Potential impacts to air quality would be associated with dust and particulates from vehicles used to conduct geophysical operations or to conduct oil and gas lease operations. Traffic would be heaviest and regular during the drilling and completion phase, while traffic would be less frequent and intermittent during the production phase.

ENVIRONMENTAL CONSEQUENCES PROPOSED ACTION

Impacts would be mitigated by dust abatement measures through the use of appropriate road service materials or water application during periods of high vehicle activity.

Air quality would be impacted by the flaring or venting of gases during the drilling and production phases. Impacts would be mitigated by enforcing EPA and State emission standards.

CULTURAL RESOURCES

Oil and gas activities increase the potential for cultural resource site discovery. In response to industry applications, approximately 70 acres would be surveyed for cultural resources in 20 years. Cultural resources would be impacted if surface disturbance were to take place over a previously unknown cultural site. Impacts to significant cultural resource sites would be mitigated through site avoidance or data recovery, including excavation. Avoidance of the site area would be the preferred mitigation measure.

If a previously unknown cultural resource site was discovered during construction, the operator would immediately cease work that might further disturb such material and contact the appropriate agency. The agency would be responsible for all required recordation and stabilization of exposed materials. The operator would be responsible for mitigation costs.

HYDROLOGY

Impacts to hydrology from oil, gas and seismic activities would not occur within Makoshika State Park. The following impacts would occur outside the Park on the southern edge of the AMC.

Road and well pad construction would disturb the surface and could increase sediment loads in surface run-off. Water quality could be degraded in waters affected by spilled fluids. This impact would be mitigated by use of dikes and impermeable liners to prevent the entry of fluids into existing water.

Underground water sources which feed springs and wells could be affected by seismic or drilling operations. Impacts would be mitigated by setting limits and minimum distances from water sources for seismic charges. The drilling program would be designed to protect useable Underground Sources of Drinking Water (USDWs) from contamination from drilling operations. The State of Montana and BLM requires the use of fresh water muds while drilling the portion of the well through the USDWs. The State and BLM also require setting surface casing past the deepest USDW into a

competent clay formation. The surface casing would then be cemented in place. A cement bond log may be required to verify the integrity of the cement.

The plugging program would be designed to secure the well bore and prevent contamination to mineral or water bearing formations. Cement would be pumped into the well bore to seal any perforations. Cement would also be pumped into the well bore at specified formations to prevent migration of any fluids that might enter the well bore.

MINERALS

Stipulations would eliminate seven potential drilling sites in the Park and AMC. The value of an oil and gas lease could be reduced by the inclusion of restrictive stipulations. Some areas might not be leased because of stipulations or the increased costs of operations complying with stipulations.

Lease stipulations would dictate where drill sites could be located on agency lands. Limiting drill sites to specific areas could reduce or eliminate the opportunity to drill into a specific geologic target. Orderly development of an oil or gas field could be hindered by limiting drill sites to specific areas. Drill sites may have to be located on privately owned lands within or adjacent to the AMC to facilitate directional drilling into the geologic target. Costs associated with drilling and producing directionally drilled wells are higher than costs associated with vertically drilled wells.

Not allowing geophysical activity would prevent the opportunity to obtain subsurface data that could be used to make decisions about purchasing leases and where to locate drill sites.

PALEONTOLOGICAL RESOURCES

Paleontological resources would be impacted if surface disturbance were to take place over an unidentified paleontological site. Mitigation measures for paleontological resources would include site avoidance and data recovery, including excavation. Avoidance of the site area would be the preferred mitigation measure.

Oil and gas activities could increase the potential for paleontological resource discovery. If a previously unknown paleontological resource is discovered during construction, the operator would immediately cease work that might further disturb such material and contact the appropriate agency. The agency would be responsible for all required recordation and stabilization of exposed materials. The operator would be responsible for mitigation costs.

RECREATION

There would be no impacts to recreation from the proposed action.

SOCIOECONOMICS

The increase in No Surface Occupancy acres could decrease the value of the bonus bids for leases and increase the costs of lease development due to site relocations, directional drilling, and seasonal delays.

There would be no significant change in the acres explored, leased, or the number of holes drilled for oil and gas over the 20-year timeframe. There would be no oil or gas wells forgone under this alternative. There would be no significant change in federal, state or county rent or royalties paid on an average annual basis. There would be no unavoidable, adverse, irreversible, and irretrievable impacts on socioeconomic conditions.

SOILS

Impacts to soils from oil, gas and seismic activities would not occur within Makoshika State Park. The following impacts would occur outside the Park on the southern edge of the AMC.

In the areas where oil and gas development would be allowed, the rapidly eroding fragile badlands soils would be prone to mass movement when disturbed by road building or vibration. Activities that cause little to no soil disturbance on the plains greatly increase erosion in the fragile badlands soils. Even minimal disturbance and loss of vegetation can cause the thin topsoil to wash away, accelerating erosion.

Of particular concern would be hoodoos - pinnacles of clay or soft material capped and protected by harder, erosion resistant rocks, commonly, sandstone. Shocks from elevated surface charges would have a more localized effect on soils than drilled charges. Shocks from seismic activity would have a potential to affect water wells. For this reason, seismic lines would be directed around water wells to mitigate impacts. This same means would protect the unique features of the park.

Increased erosion could occur to soils after removal of vegetation during construction and before vegetation was reestablished. Mitigation during operations may include water erosion control devices such as water bars and drain dips. Recontoured areas during the production phase would be seeded with perennial species native to the area. Mitigation of total surface disturbance would be completed

at the end of the project with reclamation and revegetation with native species.

VEGETATION

Impacts to vegetation from oil, gas and seismic activities would not occur within Makoshika State Park. The following impacts would occur outside the Park on the southern edge of the AMC.

Accidental spills or discharge from production operations could impact or cause mortality to vegetation. Escaped discharge would be mitigated through emergency and immediate site reclamation. The spill or discharge would be physically contained and the affected site would be reclaimed through either onsite remediation, including bioremediation, or removal of the contaminated soil with disposal in an approved location. The affected area would be reclaimed through the placement of new clean topsoil, recontoured, and seeded with native species.

Vegetation along seismic lines would be damaged by the equipment used in seismic operations. For above-ground discharges, vegetation would be affected from ground level, up to the height of the discharge and along the seismic line, out to 10 feet on either side of the discharge center. Damage would result to bark and leaves would be stripped from the branches. Grass and forbs would be cut off at ground level. Coniferous plants could experience long-term damage. Other vegetation would be expected to recover from seismic activity following the next growing season. During vibroseis operations, trucks travelling across the area would cause a short-term loss of vegetation. The vegetation would be recovered the next growing season.

All vegetation would be removed from well pad, tank battery, pipelines, and road locations. Impacts would generally be short-term if the well was a dry hole. Impacts would be long-term if the well was producing. Mitigation measures would include stockpiling of topsoil, recontouring of ground surface, and application of native seed on recontoured areas during production or upon completion of the project.

Impacts would occur to vegetation from noxious weeds on well pads, tank batteries, pipelines, and access roads. These areas would be treated with eradication as a goal.

VISUAL RESOURCES

There would be no impacts to visual resources within Makoshika State Park.

WILDLIFE

Impacts to wildlife from oil, gas and seismic activities would not occur within Makoshika State Park. The following impacts would occur outside the Park on the southern edge of the AMC.

Roads and vehicle traffic associated with the exploration and development of oil and gas resources may result in fewer continuous blocks of roadless wildlife habitat.

In isolated instances, migratory waterfowl and shorebirds may die if trapped in open reserve pits. This impact would be mitigated by using self-contained drilling units or insuring the pit complies with the Migratory Bird Treaty Act, such as installing nets over the reserve pits.

During seismic and drilling operations, highly mobile wildlife species would disperse from the immediate area of operations. Following completion of the seismic or drilling operations, these species would return to the area. Release of poisonous gas during drilling or production may produce mortality in localized wildlife species and could cause a loss of usable habitat for mobile species up to 24 hours in the immediate area. A poisonous gas release would be treated as an emergency situation by industry and the agencies and mitigation to stop the release would be immediate. Actions taken to stop the release time, and local wind events would disperse the gas to non-toxic levels.

Overhead power lines would pose a threat to raptor species from collision with wires and electrocution. Mitigation measures may require that power lines be buried.

The landscape physiography would continue to provide security habitat for wildlife due to the broken terrain and existing ground cover.

ALTERNATIVE A (Existing Management)

AIR QUALITY

Potential impacts to air quality would be associated with dust and particulates from vehicles used to conduct geophysical operations or to conduct oil and gas lease operations. Traffic would be heaviest and regular during the drilling and completion phase, while traffic would be less frequent and intermittent during the production phase. Impacts would be mitigated by dust abatement measures through the use of appropriate road service materials or water application during periods of high vehicle activity. Dust and particulate from truck traffic on park roads would affect recreational use at some developed recreation sites.

Air quality would be impacted by the flaring or venting of gases during the drilling and production phases. Impacts would be mitigated by enforcing EPA and State emission standards.

Development activity during the summer months could create higher levels of particulate matter in the air.

CULTURAL RESOURCES

Oil and gas activities increase the potential for cultural resource discovery. As a result of industry applications, approximately 70 acres would be surveyed for cultural resources in 20 years. Cultural resources would be impacted if surface disturbance were to take place over a previously unknown significant cultural site. Impacts to significant cultural resource sites would be mitigated through site avoidance or data recovery, including excavation. Avoidance of the site area would be the preferred mitigation measure.

Additional impacts on the KXGN radio tower butte (section 19, T. 15 N., R. 56 E.) could occur if this site was used as an oil drill pad.

If a previously unknown cultural resource site was discovered during construction, the operator would immediately cease work that might further disturb such material and contact the appropriate agency. The agency would be responsible for all required recordation and stabilization of exposed materials. The operator would be responsible for mitigation costs.

HYDROLOGY

Road and well pad construction would disturb the surface and could increase sediment loads in surface run-off. Water quality could be degraded in waters affected by spilled fluids. This impact would be mitigated by use of dikes and impermeable liners to prevent the entry of fluids into existing water.

Underground water sources that feed springs and wells could be affected by seismic or drilling operations. Impacts would be mitigated by setting limits and minimum distances from water sources for seismic charges. The drilling program would be designed to protect useable USDWs from contamination from drilling operations. The State of Montana and BLM require the use of fresh water muds while drilling the portion of the well through the USDWs. The State and BLM also require setting surface casing past the deepest USDW into a competent clay formation. The surface casing would then be cemented in place. A cement

bond log may be required to verify the integrity of the cement.

The plugging program would be designed to secure the well bore and prevent contamination to mineral or water bearing formations. Cement would be pumped into the well bore to seal any perforations. Cement would also be pumped into the well bore at specified formations to prevent migration of any fluids that might enter the well bore.

MINERALS

The value of a lease could be reduced by the inclusion of restrictive stipulations. Some areas might not be leased because of stipulations or the increased costs of operations complying with stipulations.

Costs associated with drilling and producing directionally drilled wells are higher than costs associated with vertically drilled wells.

The geologic target could be reached more easily and with less cost on leases issued with controlled surface use. Lease stipulations would dictate where drill sites could be located on agency lands. Drill sites could not be located on other agency lands within the AMC. Limiting drill sites to specific areas could reduce or eliminate the opportunity to drill into a specific geologic target. Orderly development of an oil or gas field could be hindered by limiting drill sites to specific areas. Drill sites may have to be located on privately owned lands within or adjacent to the AMC to facilitate directional drilling into the geologic target.

Allowing geophysical activity would provide the opportunity to obtain subsurface data which could be used to make decisions about purchasing leases and where to locate drill sites.

PALEONTOLOGICAL RESOURCES

Paleontological resources would be impacted if surface disturbance were to take place over an unidentified significant paleontological locality. Mitigation measures for paleontological resources include locality avoidance and data recovery, including excavation. Avoidance of the locality is the preferred mitigation measure.

Oil and gas activities would increase the potential for paleontological resource discovery. If a previously unknown paleontological resource was discovered during construction, the operator would immediately cease work that might further disturb such material and contact the appropriate agency. The agency would be responsible for all required recordation and stabilization of exposed materials. The operator would be responsible for mitigation costs.

RECREATION

The construction of roads and associated utilities would detract from the visitor experience. The drill pad locations in Sections 7, 19, and 29 of T. 15 N., R. 56 E., Section 13 and Section 24 of T. 15 N., R. 55 E., would be located within the core area of the park. The drill pad locations in T. 15 N., R. 55 E., Section 12 and T. 15 N., R. 56 E., Section 7 would be located within .25 miles of the Makoshika Campground. Mitigation measures would include placing the well pads and associated roads out of the viewshed as much as possible, buried pipelines, powerlines, and camouflaging above ground facilities to blend into the surrounding terrain.

The continual drilling operations and associated traffic would make camping undesirable for most park visitors in the immediate vicinity. The heavy truck traffic could create an unsafe condition for both pedestrians and visitor traffic on the roads during seismic and drilling operations. Mitigation measures would include notifying visitors when operations were occurring.

SOCIOECONOMICS

The lease stipulations could decrease the bonus value of the federal, state, and county leases relative to private leases, and increase the cost of lease operations due to site relocations and delays. There would be no wells forgone under the alternative.

There would be no unavoidable adverse, irreversible, and irretrievable impacts on socioeconomic conditions.

There would be impacts and decreases in camping and use of park trails, if drilling and development were to occur. The decrease in visitor use would result in fewer nonresident visitors and shortened length of stay for most park visitors. The result would be a decrease in tourism dollars spent in Glendive and Dawson County by out-of-town visitors.

Private property values adjacent to the park may decrease if oil and gas drilling, development, and production were to occur. Property owners who attempt to sell property during oil and gas development or production may not receive full market value for their properties based on pre-exploration appraisals.

SOILS

In the areas where oil and gas development would be allowed, the rapidly eroding fragile badlands soils would be prone to mass movement if disturbed by road building or vibration. Activities that cause little to no soil disturbance on the plains greatly increase erosion in the fragile badlands

soils. Even minimal disturbance and loss of vegetation can cause the thin topsoil to wash away accelerating erosion.

Of particular concern would be hoodoos - pinnacles of clay or soft material capped and protected by harder, erosion resistant rocks, commonly sandstone. Shocks from drilled charges would effect more acres of soils than surface charges.

Increased erosion could occur to soils after removal of vegetation during construction and before vegetation is reestablished. Mitigation during operations may include water erosion control devices, such as water bars and drain dips. Recontoured areas during the production phase would be seeded with native species. Mitigation of total surface disturbance would be completed at the end of the project with reclamation and revegetation with native species.

Managing seismic activity with surface charges could damage some of the unique features of the park from shock and vibration. Of particular concern are the hoodoos - pinnacles of clay or soft material capped and protected by harder, erosion resistant rocks (commonly sandstone.)

VEGETATION

Accidental spills or discharge from production operations could impact or cause mortality to vegetation. Escaped discharge would be mitigated through emergency and immediate site reclamation. The spill or discharge would be physically contained and the affected site would be reclaimed through either onsite remediation, including bioremediation, or removal of the contaminated soil with disposal in an approved location. The affected area would be reclaimed through the placement of new clean topsoil, recontoured, and seeded with native species.

There would be a one to two year growing season impact from seismic lines to grass, forbs, and shrubs. Vegetation along seismic lines would be damaged by the discharge of aerial explosives used in seismic operations. Vegetation would be affected from ground level, up to the height of the discharge and along the seismic line out to 10 feet on either side of the discharge center. Damage would occur to bark and leaves would be stripped from the branches. Grass and forbs would be cut off at ground level. Coniferous plants could experience long-term damage.

All vegetation would be removed from well pad, tank battery, pipelines, and road locations. Impacts would generally be short-term if the well was a dry hole. Impacts would be long-term if the well was producing. Mitigation measures would include stockpiling of topsoil, recontouring

of ground surface, and application of native seed on recontoured areas during production or upon completion of the project.

Accidental spills or discharge from drilling and production operations could impact or cause mortality to vegetation. Escaped discharge would be mitigated through emergency and immediate site reclamation. The spill or discharge would be physically contained and the affected site would be reclaimed through either onsite remediation, including bioremediation, or removal of the contaminated soil with disposal in an approved location. The affected area would be reclaimed through the placement of new clean topsoil, recontoured and seeded with native species.

Oil and gas surface disturbing activities in Section 32, T. 15 N., R. 56 E., could impact the state sensitive plant Blue Toadflax, *Nuttallanthus texanus*. Mitigation measures for the protection of this species would include data recovery through a contracted survey to locate the species within the proposed area of disturbance, and avoidance of the inhabited area.

VISUAL RESOURCES

The visual impacts and disturbance created by oil exploration and development would impact the scenic view of the badlands. The authorized drill pad locations in Sections 12 and 14 of T. 15 N., R. 55 E., could impact the view from residences beside the park.

Drilling or oil field development on the drill pad locations would result in visual impacts within the park (NPS, 1991.) Impacts may include light from drill rigs, facilities, and gas flares detracting from the views of the night sky. Mitigation measures would include utilization of ground flares in flare pits.

WILDLIFE

Roads and vehicle traffic associated with the exploration and development of oil and gas resources may result in fewer continuous blocks of roadless wildlife habitat. In isolated instances, migratory waterfowl and shorebirds may die if trapped in open reserve pits. This impact would be mitigated by stipulating the installation of nets over the reserve pits or other measures to comply with the Migratory Bird Treaty Act. During seismic and drilling operations, highly mobile wildlife species would disperse from the immediate area of operations. Following completion of the seismic or drilling operations, these species would return to the area. Release of poisonous gas during drilling or production may produce mortality in localized wildlife species and could cause a loss

ENVIRONMENTAL CONSEQUENCES
ALTERNATIVE A

of usable habitat for mobile species up to 24 hours in the immediate area. A poisonous gas release would be treated as an emergency situation by industry and the agencies and mitigation to stop the release would be immediate. Actions taken to stop the release time, and local wind events would disperse the gas to non-toxic levels.

In early spring when mule deer are fawning, seismic and drilling activities may increase mortality by predators by displacement of fawns into less secure areas. Seismic and drilling operations may increase mortality of broods of birds that nest on the ground due to destruction of the nest by surface charges or construction of roads and pads. Mitigation measures for fawning or brood rearing activity would require an on-the-ground wildlife survey of local populations to provide for limitations to specific timeframes for seismic and drilling operations.

Overhead power lines would pose a threat to raptor species from collision with wires and electrocution. Mitigation measures may require that power lines be buried, or raptor protection strips applied.

The landscape physiography would continue to provide security habitat for wildlife due to the broken terrain and existing ground cover.

ALTERNATIVE B (Majority Closed to Leasing)

There would be no impacts to cultural resources, paleontology, vegetation, hydrology, scenery, soils, or wildlife.

AIR QUALITY

There would be impacts to air quality associated with dust and particulate from vehicle traffic on roads utilized to conduct geophysical operations on DNRC-administered minerals. Impacts would be mitigated by dust abatement measures through the use of water application during period of high vehicle activity.

MINERALS

Closing areas to oil and gas leasing would reduce the opportunity to obtain subsurface data, eliminate the recovery of any commercial quantities of oil or gas, eliminate any revenues from leasing or production, and could hinder orderly field development.

Drill sites could not be located on other agency lands within the AMC. Orderly development of an oil or gas field would be hindered. Drill sites may have to be located on privately

owned lands within or adjacent to the AMC to facilitate directional drilling into the geologic target. Costs associated with drilling and producing directionally drilled wells would be higher than costs associated with vertically drilled wells.

Allowing geophysical activity in sections 16 and 36 would provide the opportunity to obtain subsurface data which could be used to make decisions about purchasing leases and where to locate drill sites. Not allowing geophysical activity within the remaining parts of the AMC would preclude obtaining subsurface data, inhibit the collection and accuracy of subsurface data on adjacent lands, reduce the value of lease or preclude the purchase of leases on lands without seismic data, and affect the location of drill sites.

RECREATION

The opportunity for expansion of hiking trails or vehicle access through development activities would not exist.

SOCIOECONOMICS

The number of leases sold and the number of wells drilled could be reduced because of lack of geophysical data.

Impact from no leasing would be the possible loss of federal and county oil and gas by drainage from off-lease wells, possible loss of rents and royalties, loss of data, and possible hinderance to orderly field development. One well would be foregone. The loss of rents and royalties from one producing well due to the closure of federal lands would be a reduction in federal receipts, greater than 10 percent.

VEGETATION

Accidental spills or discharge from production operations could impact or cause mortality to vegetation. Escaped discharge would be mitigated through emergency and immediate site reclamation. The spill or discharge would be physically contained and the affected site would be reclaimed through either onsite remediation, including bioremediation, or removal of the contaminated soil with disposal in an approved location. The affected area would be reclaimed through the placement of new clean topsoil, recontoured, and seeded with native species.

ALTERNATIVE C (No Surface Occupancy)

There would be no impacts to cultural resources, hydrology, paleontology, scenery or soils.

AIR QUALITY

Potential impacts to air quality would be associated with

dust and particulate from vehicle traffic on roads utilized to conduct geophysical operations. Impacts would be mitigated by dust abatement measures through the use of water application during period of high vehicle activity.

HYDROLOGY

Seismic work may cause sedimentation of water sources such as springs and wells. Impacts would be mitigated by setting limits and minimum distances from water sources for seismic charges.

MINERALS

The value of a lease could be reduced by the inclusion of restrictive stipulations. Some areas might not be leased because of stipulations or the increased costs of operations complying with stipulations.

Lease stipulations dictate where drill sites could be located on agency lands. Drill sites could not be located on other agency lands within the AMC. Orderly development of an oil or gas field could be hindered by limiting drill sites. Drill sites may have to be located on privately owned lands within or adjacent to the AMC to facilitate directional drilling into the geologic target. Costs associated with drilling and producing directionally drilled wells are higher than costs associated with vertically drilled wells.

Allowing geophysical activity would provide the opportunity to obtain subsurface data which could be used to make decisions about purchasing leases and where to locate drill sites.

RECREATION

The noise and disturbance could impact winter visitor experiences during active seismic operations. Associated traffic would make winter camping undesirable for most park visitors in the immediate vicinity. Any heavy truck traffic could create an unsafe condition for both pedestrians and visitor traffic on the roads during seismic operations. Mitigation measures would include notifying visitors when operations were occurring.

SOCIOECONOMICS

Drilling would not be allowed on the federal leases, however, off-lease directional drilling could access much of

the No Surface Occupancy acreage, protecting it from drainage. The value of the bonus bids for leases would decrease relative to private leases. Lease operation costs would increase due to site relocations, directional drilling costs, and delays.

Exploration, leasing, and drilling would continue at the assumed rate in the AMC. There would be no wells foregone under this alternative. There would be no significant change in federal rents and royalties paid on an average annual basis. There would be no unavoidable, adverse, irreversible, and irretrievable impacts on the socioeconomic conditions.

SOILS

Shocks from elevated surface charges for seismic exploration would have a more localized effect on soils than drilled charges. Shocks from seismic activity would have a potential to affect water wells.

Managing seismic activity with surface charges could damage some of the unique features of the park from shock and vibration. Of particular concern are the hoodoos - pinnacles of clay or soft material capped and protected by harder, erosion resistant rocks (commonly sandstone.)

VEGETATION

There would be a one to two year growing season impact to grass, forbs, and shrubs from seismic lines. Vegetation along seismic lines would be damaged by the discharge of aerial explosives used in seismic operations. Vegetation would be affected from ground level, up to the height of the discharge and along the seismic line, out to 10 feet on either side of the discharge center. Damage would occur to bark and leaves would be stripped from the branches. Grass and forbs would be cut off at ground level. Coniferous plants could experience long term-damage.

WILDLIFE

During seismic operations, highly mobile wildlife species would disperse from the immediate area of operations. Following completion of the seismic operations, these species would return to the area.

CONSULTATION AND COORDINATION

A *Federal Register* notice was published June 2, 1998 announcing the agencies intent to plan for the Makoshika area. The public was asked to provide nominations, issues, concerns, alternatives and comments.

In November 1998, approximately 200 copies of the EA and Draft Amendment were distributed for public comment at a cost of \$400. Newspaper releases were issued November 12, 1998, announcing the availability of the document and the comment period for the EA and Draft Amendment. The comment period closed December 18, 1998.

COMMENTS AND RESPONSES

In the 43 letters, cards, and telephone calls received on the EA and Draft Amendment were over 100 comments. These letters and cards are available for review at the BLM, FWP and DNRC offices in Miles City and the County Commissioners' office in Glendive. Approximately 40% of the comments were considered to be substantive comments on the content of the EA and Draft Amendment. The comments (1) addressed the adequacy, inaccuracies or discrepancies in the analysis; or (2) identified new impacts, alternatives or mitigation measures. The remainder of the comments were considered to be expressions of personal preference.

Comments have been grouped below by topic, followed by the agencies' response. Often text revisions to the EA and Proposed Amendment were considered to be the response. This is noted where appropriate. Duplicated comments only appear once. Although there is no response to comments that expressed a preference ("I like Alternative B") these statements have been carefully considered in the plan's development and the decision-making process.

GENERAL

COMMENTS

1. Where is the representation for wildlife, recreation, culture and history of Makoshika?
2. I'm opposed to oil exploration and drilling activities including those tracts of privately owned land within the borders of the park.
3. Why can't some Government agencies follow the people's will?

4. The BLM Miles City District Office is dragging its feet on protecting Makoshika State Park from the negative impacts associated with oil and gas development. The process is dragging on too long. The BLM is not taking the public's concerns with regards to oil and gas development seriously. Dawson County residents overwhelmingly support limiting oil and gas development in Makoshika to "No Surface Occupancy" stipulation for all park lands.

RESPONSES

1. The EA addresses wildlife, recreation and cultural resources in the Affected Environment and Environmental Consequences sections. The EA was written and reviewed by specialists in these fields to describe the present environment and the effects of the proposed action and the alternatives on the environment. The proposed decision is based on this overall analysis.
2. As stated in the Introduction of the EA, the agencies and Dawson County do not have any authority or jurisdiction over the activities on privately-owned surface or minerals. This plan amendment applies only to BLM, State and Dawson County-administered land and minerals. (See "Proposed Action" on p. 4 for decision changes.)
3. The agencies and Dawson County are responding to segments of the public with varying interests, including interest in oil and gas resources and park resources. An Advisory Group was established at the beginning of the MOU review process. Concerns were recorded and analyzed. A public meeting was held to gather the public's comment on the EA and Draft Amendment. All comments have been considered in reaching the proposed decision. Proposed management needs to meet the needs of park users and meet the mandates of each agency and local government. The proposed decision was changed based on analysis and public input.
4. A moratorium was placed on any federal oil and gas leasing within the Makoshika AMC until the EA and Plan Amendment process was completed. No federal oil and gas leases have been issued during this planning process. The agencies and Dawson County elected to work with an Advisory Group and to provide several opportunities for public involvement, which has lengthened the process. BLM and Dawson County-administered oil and gas within Makoshika State Park would be stipulated No Surface Occupancy and seismic operations would be closed under the proposed plan (see decision changes under the "Proposed Action," p. 4).

The proposed decision was based on public involvement and analysis of the potential impacts.

CULTURAL RESOURCES

COMMENTS

1. Makoshika is much older than any other park or area, so destroying the archaeological possibilities would be devastating to future exploration.
2. Page 6 states "66 public surface acres have been inventoried in the AMC with no sites found." This may give many readers a false sense of the potential for sites in the area. Where survey is completed, there was often a high density of sites. Section 12 in T. 15 N., R. 55 E., has eight previously recorded sites. There is also a higher density than what's assumed on page 9. We also wonder about the notion that only 1 of 7 to 10 sites are significant. As the EA points out on page 6, the potential for intact Early Period sites is generally felt to be high and those sites are usually found to be significant.

RESPONSES

1. Prior to government authorizing surface-disturbing activities, a cultural resource survey must be performed to determine if any cultural resources are located in the proposed disturbance area. If a significant site is found, the area is avoided through project relocation. If the proposed project cannot be relocated, then the site must be mitigated to recover information.
2. The numbers reflect what is in BLM's records. More of the park was surveyed, and there is information on sites, but not the surveys themselves. The majority of sites in Makoshika are found along the long ridges. The 66 acres surveyed where no sites were found were in the bottom-lands.

Overall the density of sites is likely to be less than what's indicated by the 8 sites found in section 12. According to a 1979 Class II intensity survey that covered areas of highest site probability, 15 sites were found, 13 in upland areas. The Class II survey covered approximately 8 sections. This 8-section survey represents an average of 1 site for every 341 acres. Most of the sites recorded are surface sites and have a low probability for buried materials (significant remains.) The assumption used was based on the average site density for southeastern Montana - 1 site for every 100 acres.

ECONOMICS

COMMENTS

1. On pages 7 and 8 of the EA, it is stated that production of oil in all of Dawson County in the period 1994-1997 brought in \$604,000 in receipts, rents and royalties. In the same period, tourism to Makoshika State Park generated \$3,802,178. This is five times greater than the figures for oil production.
2. The areas owned by BLM within the park, including the AMC must surely be a very small part of the lands owned by the BLM in the state. It is hard to believe that a No Surface Occupancy designation for Makoshika would make a significant difference in the overall income of the agency in the state.

RESPONSES

1. The non-resident visitor use value was derived from total visitors and it is a gross value. On the other hand, the oil and gas figures are only the average annual payments to the U.S. derived from federal production. The gross value for all oil and gas production in Dawson County from 1994-1997 was \$21,104,192. This is based on the total county production multiplied by the statewide average price reported to the Oil and Gas Division of DNRC.
2. The surface and mineral acreage administered by BLM in the Makoshika AMC is a small portion of the approximately 8 million surface acres and 38 million mineral acres administered by BLM in Montana. As indicated in the EA, a No Surface Occupancy designation for Makoshika would not make a significant difference in the overall receipts of the BLM in Montana, but could have an impact on the local economy (see also decision changes under "Proposed Action," p. 4).

LANDS

COMMENTS

1. Makoshika State Park should be totally controlled by the state. Land swapping could be done by FWP, BLM and private owners to everyone's benefit.

RESPONSES

1. The purpose of the plan is to make decisions for oil and gas management. Exchanging surface acres would be

outside the scope of the plan (see "Alternatives Considered but not Analyzed in Detail" on p. 2.)

The Recreation and Public Purposes (R&PP) Act as amended allows the transfer of federal land to state or local ownership for public purposes such as schools, fire stations, and parks. More than 2,500 surface acres administered by the BLM in the Park have been transferred to the state (FWP) and another 2,700 BLM-administered surface acres have been applied for R&PP transfer to FWP in the Park (BLM, 1996).

OIL AND GAS

COMMENTS

1. Why not choose NSO in Makoshika? Where is the need? Who is supporting drilling inside the park? What oil company wants to lease this land and how many acres will be leased?
2. Is it necessary to develop every last acre and square mile of land? Can we not reserve a few small areas for values other than economic development?
3. What is the leased dollar amount per acre?
4. What plan or research has been done to determine quantities of oil and oil bearing structures within the park? The answer was a muffled reply about the BLM not knowing of any oil deposits. Your answer at the public meeting implied that you (BLM) don't have a clue about existing oil deposits and have no intention of finding out before you lease the park to the oil industry.
5. Income from new wells or leasing should be put back in to the park.
6. Has a workable alternative been proposed to horizontal drill?
7. I do not believe you could enforce oil leases that would give no surface occupancy but with a designated site. Roads would not accommodate large thumper trucks or other heavy equipment without impact, construction of roads would have a drastic impact.
8. Only thumper trucks should be permitted (to do seismic work.) There may be new technology, such as ground penetrating radar or aerial magnetic technology that could be used in the future.
9. The state land board unknowingly allowed a lease inside Makoshika.

RESPONSES

1. The analysis in the EA considered several alternatives, including NSO. An NSO stipulation has been proposed for BLM and County-administered minerals in Makoshika State Park (see decision changes in "Proposed Action" p. 4).
2. See response #1.
3. Federal oil and gas leases are issued by competitive bid. The closest active federal leases were issued for \$2.25 per acre, and \$11 per acre bonus bids. Additional revenue would be earned by annual rental in the amount of \$1.50 per year.

The county negotiates their rental rate on a lease-by-lease basis.

On state school trust lands, annual rentals start at \$1.50 per acre per year. Delay-drilling penalties increase the total rental to \$4.00 per acre per year in years 7 through 10 of the 10-year primary lease term. These leases are issued by competitive bid and may receive an additional up-front bonus payment ranging from a few dollars to hundreds of dollars per acre. The oil and gas lease issued by the State of Montana in 1986 on Section 16, T. 15 N., R. 56 E., received a bonus bid of \$2.00 per acre in addition to the base rental described above.

4. Although technology to find and determine hydrocarbon resources quantities improves daily, the only method to verify these resources is to drill wells. Government agencies, except in extremely rare situations, rely on private industry to perform this work. In undeveloped areas open to oil and gas leasing, agencies lease the lands and private industry explores and gathers data to determine whether substructures contain oil and gas and the quantity present.

As stated in the EA, the lands within the Makoshika AMC have been leased for several decades. Seven wells have been drilled in the area. Two wells produced oil in commercial quantities for a limited time before being plugged and the other wells were plugged as dry holes. There are oil bearing formations underlying the AMC. Private industry determines through exploration and drilling activities, whether there is enough oil and gas present to economically produce.

5. There are legislative mandates regarding where revenues from leasing minerals can be deposited (see "Alternatives Considered but not Analyzed in Detail" on p. 2.)
6. Technology exists to drill horizontal wells. The geologic structures, economics, and specific drilling and production needs determine the feasibility of using horizontal drilling techniques.
7. Stipulations contained in the lease would be enforced. There would be impacts from oil and gas development, including road construction (see "Environmental Consequences" section beginning on p. 9)
8. Geophysical activity on agency lands will be restricted to the least (lowest) impacting methods. Seismic operations would no longer be allowed in the Park (see decision change under "Proposed Action," p. 4).
9. The State Land Board has issued oil and gas leases on Section 16, T. 15 N., R. 56 E., on three occasions, the latest was in December, 1996. In 1984, the FWP and the DNRC executed a land trade of the surface estate. In the trade, the DNRC and the FWP explicitly recognized and agreed that the DNRC was retaining the mineral estate and the right to make reasonable use of the surface for development. The DNRC pre-lease sale EA for the December, 1996 sale noted the sensitive nature of the tract by recommending the Land Board include the sensitive areas stipulation on the lease. When attached to a lease, this special stipulation creates a tiered environmental review process with the potential for future denial of proposed surface operations on the lease.

The lease was competitively bid and a lease sale summary was prepared for the Land Board's consideration. The lease sale summary provides the legal location of each lease offered for sale and also highlights all stipulations proposed for attachment to the lease. For this tract, the lease sale summary notified that this tract was environmentally sensitive.

The Land Board approved the issuance of the lease on December 16, 1996 with the sensitive areas stipulation attached. The lease location subsequently became a concern for the Land board.

On July 21, 1997 the Board directed the DNRC to bring before the Board any proposed operating plans for exploration or drilling on the lease. The Board also directed that the DNRC shall 1) give the public a chance to comment at a public meeting in Glendive and at a

Land board meeting in Helena, and 2) receive approval from the Land Board for the operating plan decision. The Land Board's comments indicated that the information provided by the DNRC to the Land Board advised of the sensitive nature of the tract, but did not advise that the reason it was sensitive was its location within the park. The DNRC leasing process has been revised to include preparation of an additional information memorandum for the Land Board prior to the lease sale.

RECREATION

COMMENTS

1. Park use by tourists would be greatly affected by any type of oil and gas occupation.
2. The Park has become a real tourist attraction because of improvements.
3. Drilling could lead to a loss of interest by visitors in the Park.

RESPONSES

1. Recreational use on lands with county and BLM-administered minerals within the park would be protected by an NSO stipulation (see decision changes under "Proposed Action," p. 4). Private surface and minerals are not controlled or restricted by the stipulations in the MOU.
2. Makoshika will continue to be marketed as a destination park in eastern Montana. The continued enhancement of recreational facilities will most likely increase visitors to the park. Some park facilities and infrastructure would require additional maintenance or improvements. The FWP is committed to the completion of enhancement projects like road improvements in Cains Coulee, hiking trails, and renovating the amphitheater.
3. The revisions to the Oil and Gas MOU would help to preserve and protect the park resources for the enjoyment of park visitors now and in the future. All BLM and County drill pad locations in Makoshika State Park have been eliminated.

SOILS

COMMENTS

1. The soil in the badlands is so fragile, that any disturbance by heavy equipment or explosive charges

would be disastrous. Erosion of topsoil would be hastened by the loss of plant cover. All vegetation would be affected, as would wildlife populations, the pristine environment and tranquility of the park jeopardized.

2. In the arid west, any damage is liable to last a long time.
3. Seismic activity would ruin - if only inadvertently as an aftershock - the views and unusual land forms that are unique to the park. How about erosion and collapse of the land surface after disturbing the lower layers?

RESPONSES

1. The soils and unique badlands are indeed fragile. This is one of the reasons the drill pad locations were removed and seismic operations would no longer be allowed in the Park. These actions would help prevent damage to the fragile soils, cap rocks, and other badlands features.

Reclamation plans for any surface disturbances caused by oil and gas activities would be required.

2. See response #1.
3. See response #1.

VISUAL RESOURCES

COMMENTS

1. The unbridled beauty of Makoshika will be lost if oil rigs are constructed in its boundaries.
2. The vistas there (Makoshika) give a sense of the grandeur and awesomeness of the natural world.
3. The park should be a place where we won't see any oil derricks or pads showing up in the future.
4. Please carefully consider the viewshed of section 12 and the impact that oil development would have on both the private owners in that area and anyone else who enjoy the badlands vistas. You can view the section 12 potential development areas from both the lowland and the park road, so it affects everyone who uses the park. If development occurs, roads, pumping equipment, and environmental damage will impact the enjoyment of the park.

RESPONSES

1. Protecting the view from park vistas and the overall esthetics of the landscape in and around the park was identified as a very important issue when the agencies began the process of revising the MOU. A computer analysis of the view from the park vistas was completed to help identify the potential impacts of oil and gas exploration at Makoshika. The analysis did not take into account the view of the park from neighboring lands, in particular, the view of the Cap Rock Trail area from residences at the bottom of the drainage. The impacts to the viewshed along with public concern resulted in the agencies eliminating all the proposed BLM and County drill pad locations in the Park, including T. 15 N., R. 55 E., section 12.
2. See response #1.
3. See response #1.
4. See response #1.

PREFERENCES

1. The City of Glendive opposes any oil or gas drilling or exploratory activity which would damage the surface of Makoshika State Park or adjacent lands visible from Park vistas; supports the alternative of horizontal drilling from a safe distance beyond the park's boundaries as a means to extract oil and gas minerals underneath the park; and will oppose any exploration or mineral development plans of any company which would not guarantee protection of the values and surface integrity of Makoshika State Park for future generations to use and enjoy.
2. The people of Glendive are extremely proud of their park and very protective of it. As a state we have valued the land at Makoshika enough to set it aside as a state park to allow the public to enjoy the natural setting without intrusion from development.
3. No oil and gas leasing in the state parks. Parcels already leased should not be allowed surface occupancy.
4. I fully support the NSO stipulation.
5. Alternative C is the only logical choice.
6. There should be no drilling in Makoshika.

COMMENTS & RESPONSES
PREFERENCES

7. Drilling within the park is not within the best interest of the land and should not occur.
8. No oil and gas development in the park.
9. Alternatives B and C would increase protection of cultural resources over the proposed action.
10. The true sustained yield and renewable resource comes from tourism. As can be seen by Glendive's main street, there has been no sustained yield economically from oil.
11. The paleontological aspects of the park are fascinating. The park is a prime area for discovering and teaching and learning about dinosaurs and other prehistoric life forms. As a volunteer assisting with bone cleaning and preservation of fossils in the park collection, I am greatly disturbed by the intrusion of any industrial activities such as oil exploration. The park is an excellent resource for school children all over the world to learn about dinosaurs. Many colleges and universities also put Makoshika State Park on their schedules for geology and paleontology field trips and summer classes. I don't want any part of the park disturbed. Sixty five million year old fossils are very fragile and are too rare to be sacrificed for the potential of a few barrels of oil. Protect the park and the fossil resources it contains.
12. Makoshika State Park is one of the very few places on the earth where strata from the last three million years of the Cretaceous Period lies exposed. These layers just below, and including the K-T boundary, are subject to an intense amount of interest from the paleontologists and therefore are extremely important because they represent the very end of the Age of Dinosaurs.
13. The Park is a quiet refuge away from the busyness of business daily life. The vistas give a sense of grandeur and awesomeness of the natural world. Visitors are enriched by the trails and heights.
14. The purpose of places like Makoshika is to provide a place away from the sometimes crazy development and economic progress that necessarily attend the rest of our lives. It is to provide a refuge from the every day and natural world. It is to preserve a small piece of the natural world.
15. The remains (of oil production) have not been pretty.
16. People seeking community with nature abhor the thought of oil exploration in the park.
17. It is a crime that oil companies would even think of exploration and drilling for oil inside the park when there are many potential producing wells in Dawson County and in the surrounding area, that have been plugged, capped and abandoned. We have enjoyed and continue to enjoy the natural beauty, the unspoiled scenery and the unmarred terrain of Makoshika State Park. We want our grandchildren and future generations to be able to enjoy Makoshika State Park as much as we have.
18. To add the presence of mineral development would be to ignore the point of having a park. This kind of development is incompatible with the basic purposes of the park.
19. This special area is not yet over-commercialized and we would like to help it stay that way.
20. We should do everything in our power to protect this resource from any adverse impact from the oil industry or anyone else. The industry will come and go, but the park has to last for ages.
21. Surface occupancy for oil and gas exploration, recreational vehicles or any other heavy equipment should not be allowed anytime or anywhere in Makoshika.
22. We are not opposed to oil exploration, but not in the park.
23. Support Alternative A with some reservations.
24. Support oil well development in the AMC if it is located outside of environmentally sensitive areas using horizontal drilling techniques.
25. I believe there can be a balance between park users and oil development if this is done in a sound, careful manner.
26. You developed as good a compromise proposal as possible and should follow through with it.
27. It would be okay to lease as long as drilling was done outside the Park boundary.
28. I am for drilling in the park. The well rig would only be in the area for about 1.5 months and it would improve roads.

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APPENDIX 1

Table 2
MAKOSHIKA STATE PARK AREA OF MANAGEMENT CONCERN
OIL, GAS, AND SURFACE LEGAL LOCATIONS

<u>LEGAL LOCATION</u> (See maps 1 and 2)	<u>ACRES</u>	<u>SURFACE</u>	<u>OIL&GAS</u>
T. 14 N., R. 56 E., Section 6: Lots 1-7, S $\frac{1}{2}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$	620.98	BLM	BLM
T. 15 N., R. 55 E., Section 1: Lots 1-12, S $\frac{1}{2}$ N $\frac{1}{2}$	650.36	FWP	Private
12: All	640	FWP	BLM
13: All	640	County	County
14: Lots 1-4, E $\frac{1}{2}$, E $\frac{1}{2}$ W $\frac{1}{2}$	651.20	BLM	BLM
23: Lots 1-4, E $\frac{1}{2}$, E $\frac{1}{2}$ W $\frac{1}{2}$	650.40	County	County
24: All	640	BLM	BLM
26: Lots 3,4, E $\frac{1}{2}$, E $\frac{1}{2}$ W $\frac{1}{2}$	563.90	BLM	BLM
36: All	640	DNRC	DNRC
T. 15 N., R. 56 E., Section 5: Lots 1-4, S $\frac{1}{2}$ N $\frac{1}{2}$, S $\frac{1}{2}$	671.51	County	County
6: Lots 1-7, S $\frac{1}{2}$ NE $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, E $\frac{1}{2}$ SW $\frac{1}{4}$, SE $\frac{1}{4}$	655.09	BLM	BLM
7: Lots 1-4, E $\frac{1}{2}$, E $\frac{1}{2}$ W $\frac{1}{2}$	623.60	County	County
8: All	640	FWP	BLM
16: All	640	FWP	DNRC
18: Lots 1-4, NE $\frac{1}{4}$ NW $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, S $\frac{1}{2}$ SE $\frac{1}{4}$	303.76	FWP	BLM
19: Lots 1-4, E $\frac{1}{2}$, E $\frac{1}{2}$ W $\frac{1}{2}$	624.96	County	County
20: N $\frac{1}{2}$, SE $\frac{1}{4}$	480	FWP	BLM
21: All	640	County	County
28: All	640	FWP	BLM
29: All	640	County	County
30: Lots 1,2, E $\frac{1}{2}$, E $\frac{1}{2}$ NW $\frac{1}{4}$	473.35	BLM	BLM
32: NE, N $\frac{1}{2}$ NW $\frac{1}{4}$, SE $\frac{1}{4}$ NW $\frac{1}{4}$, SW $\frac{1}{4}$ SW $\frac{1}{4}$	320	BLM	BLM

APPENDIX 2 OIL AND GAS LEASE STIPULATIONS

PROPOSED ACTION

NO SURFACE OCCUPANCY

Use or occupancy of the land surface for fluid mineral exploration or development is prohibited in order to protect identified resource values.

RESOURCE: Makoshika State Park and surrounding area of management concern.

STIPULATION: Surface use is prohibited within the Makoshika State Park and surrounding area of management concern except on designated sites identified in the proposed 1998 Memorandum of Understanding between BLM, Montana Fish, Wildlife and Parks, Montana Department of Natural Resources and Conservation, and Dawson County.

OBJECTIVE: To maintain the recreation, visual, sensitive soil, paleontological, and cultural values within the area.

WAIVER, EXCEPTION, MODIFICATION: This stipulation can be waived, excepted, or modified only through changes to the 1998 Memorandum of Understanding. A land use plan amendment can also be required.

ALTERNATIVE A

NO SURFACE OCCUPANCY

RESOURCE: Makoshika State Park and surrounding area of management concern.

STIPULATION: Surface use is prohibited within the

Makoshika State Park and surrounding area of management concern except on designated sites identified in the 1994 Memorandum of Understanding between BLM, Montana Fish, Wildlife and Parks, and Dawson County.

OBJECTIVE: To maintain the recreational, scenic, and other values for which Makoshika State Park was established.

WAIVER, EXCEPTION, MODIFICATION: This stipulation can be waived, excepted or modified only through changes to the 1994 Memorandum of Understanding. A land use plan amendment can also be required.

ALTERNATIVE C

NO SURFACE OCCUPANCY

RESOURCE: Makoshika State Park and surrounding area of management concern.

STIPULATION: Surface use is prohibited within the Makoshika State Park and surrounding area of management concern.

OBJECTIVE: To maintain the recreation, visual, sensitive soil, paleontological and cultural values within the area.

EXCEPTION: An exception to this stipulation can be granted by the authorized officer if the operator submits a plan demonstrating the impacts from the proposed action are acceptable or can be adequately mitigated.

MODIFICATION: None.

WAIVER: None.

APPENDIX 3
PROPOSED MEMORANDUM OF UNDERSTANDING

among:

State of Montana - Department of Fish, Wildlife and Parks;
State of Montana - Department of Natural Resources & Conservation;
Dawson County; and
Department of the Interior - Bureau of Land Management

concerning:

Mineral Management
at Makoshika State Park Area of Management Concern

- I. Purpose. This agreement is entered into by the Bureau of Land Management of the U.S. Department of Interior (BLM), Montana Fish, Wildlife and Parks (FWP), Montana Department of Natural Resources & Conservation (DNRC), and Dawson County (County) for the purpose of managing mineral resources within the Makoshika State Park Area of Management Concern (AMC).
- II. Objective. The purpose of this Memorandum of Understanding (MOU) is to develop an efficient, coordinated program for the exploration, leasing, and utilization of mineral resources and for protection of the natural resources of Makoshika State Park.
- III. Authority.
 - A. Section 102 of the Federal Land Policy and Management Act of 1976, 43 U. S. C. 1701 et. seq. as amended.
- IV. Procedure. The FWP and BLM agreed in March 1984, to develop an area-wide oil and gas policy for the management of mineral resources within the AMC. The FWP and the County have an agreement dated April 1983, wherein the County grants permission to FWP to establish oil and gas stipulations on mineral leases issued by the county; this MOU is a supplement to that agreement. The DNRC is the agency responsible for the management of school trust lands and minerals within the Makoshika AMC. FWP and DNRC have agreed to the guidelines in this MOU to govern mineral resource development on DNRC mineral and/or surface ownership. The BLM is the federal agency responsible for the management of federally owned minerals within the Makoshika AMC. The FWP is the agency responsible for management of the FWP owned surface acreage and County surface acreage of the AMC for recreation as designated by a lease agreement with the County, dated March 4, 1977. The BLM, the County, DNRC, and the FWP desire to cooperate in providing for the establishment of guidelines and stipulations for the exploration and utilization of the mineral resources in the Makoshika AMC.

It is mutually agreed that the FWP, the County, the DNRC, and the BLM will cooperate and manage their respective properties and minerals in accordance with the following guidelines.

- A. Saleable minerals, such as gravel, scoria, sand, riprap, topsoil, dirt.
 1. No extraction within the park AMC, as designated on Attachment C.
- B. Locatable or hard rock minerals such as gold, silver, bentonite, gem stones, uranium.
 1. The County and FWP will allow no leasing or extraction.
 2. The BLM has issued a decision in the Big Dry Resource Management Plan (RMP, BLM, 1996), to withdraw lands within Makoshika State Park from entry under the General Mining Law of 1872, as amended.

3. The DNRC will allow no leasing or extraction for a period of three (3) years from the execution of this MOU, in Section 16, T. 15 N., R. 56 E., to allow time to negotiate an exchange with FWP. It is the intent of the parties to this MOU for FWP to purchase from the County, Section 15, T. 15 N., R. 56 E., which is outside the AMC, and exchange the minerals in Section 15 for the DNRC minerals in Section 16, T. 15 N., R. 56 E., which is inside the AMC.

C. Leasable minerals such as oil, gas, coal.

1. Coal and Other Leasable Minerals

BLM has issued a decision in the Big Dry RMP (BLM, 1996), that the lands within Makoshika State Park are unsuitable for coal development. FWP, DNRC, BLM, and the County will allow no leasing or extraction of other leasable minerals, with the exception of oil and gas, which will incorporate the stipulations in Attachment A.

2. Oil and Gas

a. Drilling Operations

Oil and gas development will be managed according to the stipulations outlined in Attachment A.

b. Seismic Exploration

1. For conducting seismic operations, a company must have an approved permit and pay all applicable fees. Seismic operations must be conducted under the approved permit, including site specific stipulations.

- c. Oil and Gas Lease Terms, within the AMC, are shown by legal description in Attachment A. Existing lease terms will be honored until the expiration of those leases; thereafter, new or renewed leases will incorporate the required terms. Permits issued on these leases will incorporate all stipulations in Attachment A.

- d. The DNRC will allow no leasing or extraction for a period of three (3) years from the execution of this MOU, in Section 16, T. 15 N., R. 56 E., to allow time to negotiate an exchange with FWP. It is the intent of the parties to this MOU for FWP to purchase from the County, Section 15, T. 15 N., R. 56 E., which is outside the AMC, and exchange the minerals in Section 15 for the DNRC minerals in Section 16, T. 15 N., R. 56 E., which is inside the AMC.

If the exchange is not completed, Section 16 will be offered for lease under a "sensitive areas" stipulation.

- V. Administration. This MOU supersedes the MOU among BLM, Dawson County, and the FWP approved November 18, 1994, "Mineral Management at Makoshika State Park Area of Management Concern".

The term of this agreement is ten (10) years unless renewed or canceled. The need for this MOU is expected to continue indefinitely. It will be reviewed by the participants, with public participation, at least every five (5) years to determine its adequacy, effectiveness, and continuing need. Before the MOU is due to expire, if all participants agree that there is a continuing need, it may be renewed for an additional ten (10) year term.

This MOU may be amended at any time through mutual written consent of all involved agencies. Proposed amendments will be made available for public review and comment.

The MOU may be canceled at any time by one or more of its participants, following at least 30 days written notice.

ATTACHMENT A
OIL AND GAS DEVELOPMENT STIPULATIONS
PROPOSED ACTION

LEGAL DESCRIPTION	OWNER OIL/GAS	OWNER SURFACE	*DEVELOPMENT LEVEL	DESCRIPTION
T15N R56E Sec 6	BLM	BLM	NSO.	This section is part of the least developed part of the AMC and provides a view from the northeast of undisturbed badlands. Receives concentrated public use.
T15N R56E Sec 5	County	County	NSO.	This section is pristine badlands with no existing roads or development on it. Receives concentrated public use.
T15N R56E Sec 12	BLM	FWP	NSO.	This section is in the Park and in view of private landowners to the west. Receives concentrated public use.
T15N R56E Sec 7	County	County	NSO.	This section is pristine badlands with no existing roads or development on it and represents an undisturbed area of the AMC. Receives concentrated public use.
T15N R56E Sec 8	BLM	FWP	NSO.	This section lies in a primitive zone on the park described above. Drainage or directional drilling possible along east boundary from land outside the AMC. Receives concentrated public use.
T15N R55E Sec 14	BLM	BLM	NSO.	This section is located out of the view from park vistas. Receives concentrated public use.
T15N R55E Sec 13	County	County	NSO.	This section is part of the undisturbed badlands as viewed from within and outside of the AMC. Receives concentrated public use.
T15N R56E Sec 18: Lots 1-4, NE $\frac{1}{4}$ NW $\frac{1}{4}$, SE $\frac{1}{4}$ SW $\frac{1}{4}$, S $\frac{1}{2}$ SE $\frac{1}{4}$	BLM	FWP	NSO.	Section 18 is in the core of the AMC. It has the most suitable land in the AMC for future development of picnic areas, campgrounds or other visitor facilities. Mineral development would be inconsistent with long-term park management objectives. Long-term plans are to reduce or eliminate radio tower impact with the cooperation of the tower owners.

ATTACHMENT A
OIL AND GAS DEVELOPMENT STIPULATIONS
PROPOSED ACTION

LEGAL DESCRIPTION	OWNER OIL/GAS	OWNER SURFACE	*DEVELOPMENT LEVEL	DESCRIPTION
T15N R56E Sec 16	DNRC	FWP	**Lease Terms, one site to be located in accordance with footnote below.	This section is part of the undisturbed badlands as viewed from within and outside the AMC. It is the intent of the parties to this MOU, for FWP to purchase from the County, the adjacent Sec 15, which is outside the AMC, and to exchange Sec 15 minerals for DNRC minerals in Sec 16. FWP would stipulate NSO for Sec 16, if exchange is made. As long as Sec 16 mineral estate remains as state school trust land managed by DNRC, and as long as no production is occurring on land immediately adjacent to Sec 16, DNRC agrees to postpone oil and gas leasing and seismic exploration for no longer than three years from the execution of this MOU. If an exchange does not occur within this three year period, DNRC will include the "sensitive areas" stipulation on any lease issued and will consult with FWP to minimize surface impacts to the greatest extent possible.
T15N R55E Sec 23	County	County	NSO.	Section is part of the undisturbed badlands.
T15N R55E Sec 24	BLM	BLM	NSO.	This section is part of the undisturbed badlands as viewed from within and outside the AMC.
T15N R56E Sec 19	County	County	NSO.	Access is provided by existing roads. Development beyond existing roads would adversely effect scenic values and park visitors.
T15N R56E Sec 20: N½, SE¼	BLM	FWP	NSO.	This section is part of the undisturbed badlands as viewed by visitors within the AMC. Drilling site available on adjoining private land inside the AMC (Glendive Lions Club).
T15N R56E Sec 21	County	County	NSO	This section is part of the undisturbed badlands as viewed by visitors within and outside the AMC. Drilling sites available on private land to the east and northeast.
T15N R55E Sec 26: Lots 3,4, E½, E½W½	BLM	BLM	Lease Terms.	Access available along existing road on east side of section.

ATTACHMENT A
OIL AND GAS DEVELOPMENT STIPULATIONS
PROPOSED ACTION

LEGAL DESCRIPTION	OWNER OIL/GAS	OWNER SURFACE	*DEVELOPMENT LEVEL	DESCRIPTION
T15N R56E Sec 30: LOTS 1, 2, E½, E½NW¼, SE¼	BLM	BLM	NSO.	Section 30 provides scenic views from main roads within the AMC. Receives concentrated public use.
T15N R56E Sec 29	County	County	NSO.	Section 29 provides scenic views of undisturbed badlands from roads within AMC. Receives concentrated public use.
T15N R56E Sec 28	BLM	FWP	NSO.	This section is part of the undisturbed badlands as viewed from within and outside the AMC. Receives concentrated public use.
T15N R55E Sec 36	DNRC	DNRC	Standard DNRC stipulations.	This section lies at the southern boundary of the AMC. It is surrounded by private land and is bisected by the Sand Creek road. This road is primarily used by people not visiting the park. It is well beyond the view of the vistas within the park. The DNRC will consult with FWP. Management of oil and gas resources will be done in concert with the MOU.
T15N R56E Sec 32: N½N¼, SE¼NW¼, S½NE¼	BLM	BLM	NSO.	This area lies at the southern boundary of the AMC. The Sand Creek road runs to the South. Receives concentrated public use.
T15N R56E Sec 32: SW¼SW¼	BLM	BLM	Lease Terms.	This is an isolated 1/4 section surrounded by private land, adjacent to the Sand Creek road and near the southern edge of the AMC.
T14N R56E Sec 6	BLM	BLM	Lease Terms.	This is an isolated section, surrounded by private land, on the southern edge of the AMC. It is further isolated from the park by the Sand Creek Road on its north line.

*Oil and gas development may occur from NSO lease areas by directional drilling off lease.

**Drill site locations are subject to adjustment if further study identifies another area that would better meet objectives and stipulations outlined in this MOU.

BIBLIOGRAPHY

**Institute of Tourism and Recreation Research at
University of Montana**

1994. Montana Trail Users Study, pg. 27

Montana Board of Oil and Gas Conservation

1989. Programmatic Environmental Impact Statement

Montana Historical Society

1998. Cultural and Paleontological File Searches for
Project Area

Montana Natural Heritage Program

1998. Species of Special Concern Reports for Project
Area

Scow, Culwell, and Larson

1982. Montana Natural Heritage Program Data
Sheet

**U.S. Department of the Interior
Bureau of Land Management.**

1995. Big Dry Resource Management Plan and Final
EIS

1996. Record of Decision and Approved Big Dry
Resource Management Plan

**Bureau of Land Management; Montana
Department of Fish, Wildlife & Parks;
Dawson County**

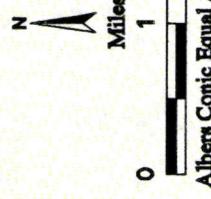
1989. Memorandum of Understanding

National Park Service

1991 Visual Quality Management Theodore
Roosevelt National Park

MAKOSHKA STATE PARK SURFACE OWNERSHIP MAP #1

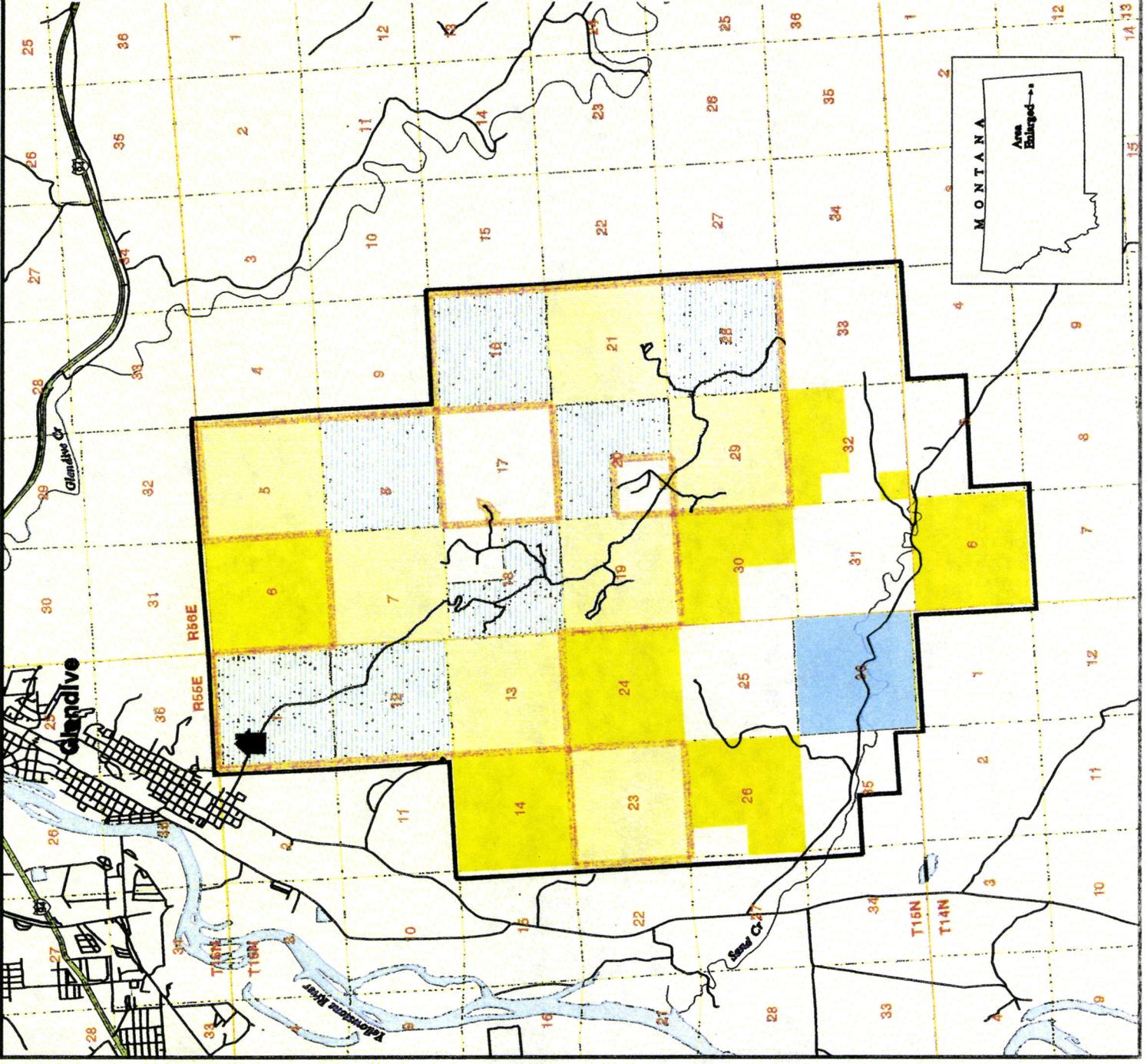
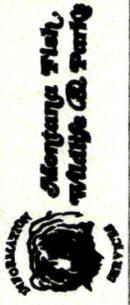
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 - Makoshika State Park Boundary
 - Roads
 - ▲ Visitor Center
- SURFACE OWNERSHIP**
- Bureau of Land Management
 - Dawson County
 - Department of Natural Resources and Conservation
 - Montana Fish, Wildlife & Parks
 - Private



Map produced by:
Montana Fish, Wildlife & Parks
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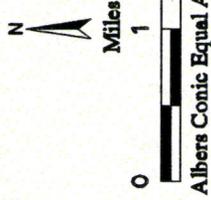
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MAKOSHKA STATE PARK MINERAL OWNERSHIP MAP #2 - PROPOSED MANAGEMENT

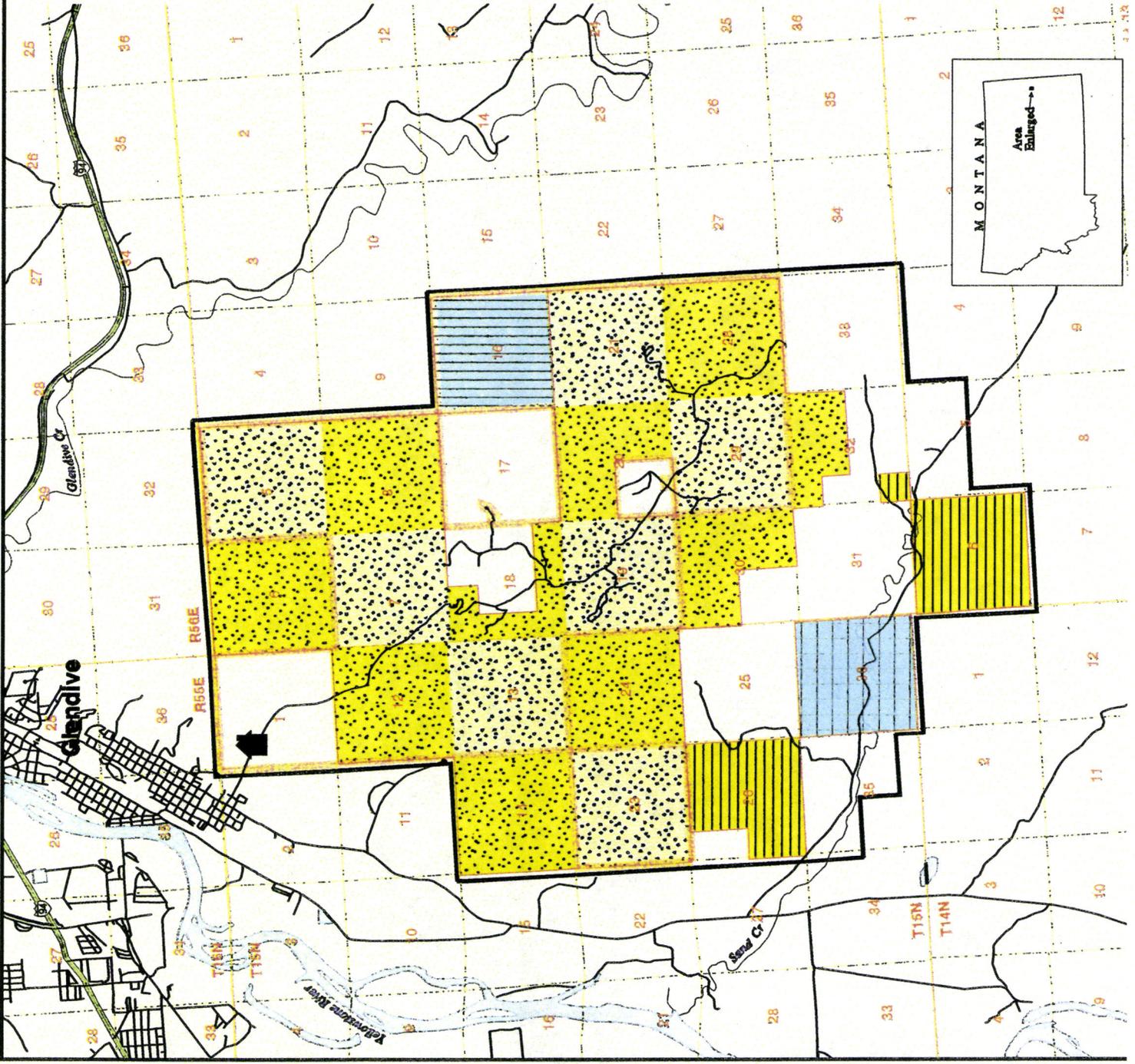
- Area of Management Concern Boundary
 - Makoshka State Park Boundary
 - Roads
 - ▲ Visitor Center
- MINERAL OWNERSHIP**
- Bureau of Land Management
 - Dawson County
 - Department of Natural Resources and Conservation
 - Private

- PROPOSED DEVELOPMENT LEVEL**
- No Surface Occupancy
 - Standard BLM Lease Terms
 - Standard DNRC Stipulations
 - One site to be located in accordance with MOU



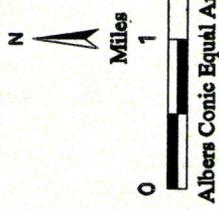
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Kalispell, MT 59901
Phone: (406) - 751 - 4570
[/wp/lands/projects/amls/makom090_000.sml](http://wp/lands/projects/amls/makom090_000.sml) - Lydia Bailey - 05/11/99
makom090_am2.emp - LB - 05/12/99

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MAKOSHKA STATE PARK MINERAL OWNERSHIP MAP #3 - EXISTING MANAGEMENT

- Area of Management Concern Boundary
- Makoshika State Park Boundary
- Roads
- ▲ Visitor Center
- MINERAL OWNERSHIP**
- Bureau of Land Management
- Dawson County
- Department of Natural Resources and Conservation
- Private
- EXISTING DEVELOPMENT LEVEL**
- ▨ Controlled Surface Use
- ▨ Controlled Surface Use (up to seven sites)
- ▨ No Surface Occupancy
- ▨ Standard BLM Stipulations



Map produced by:

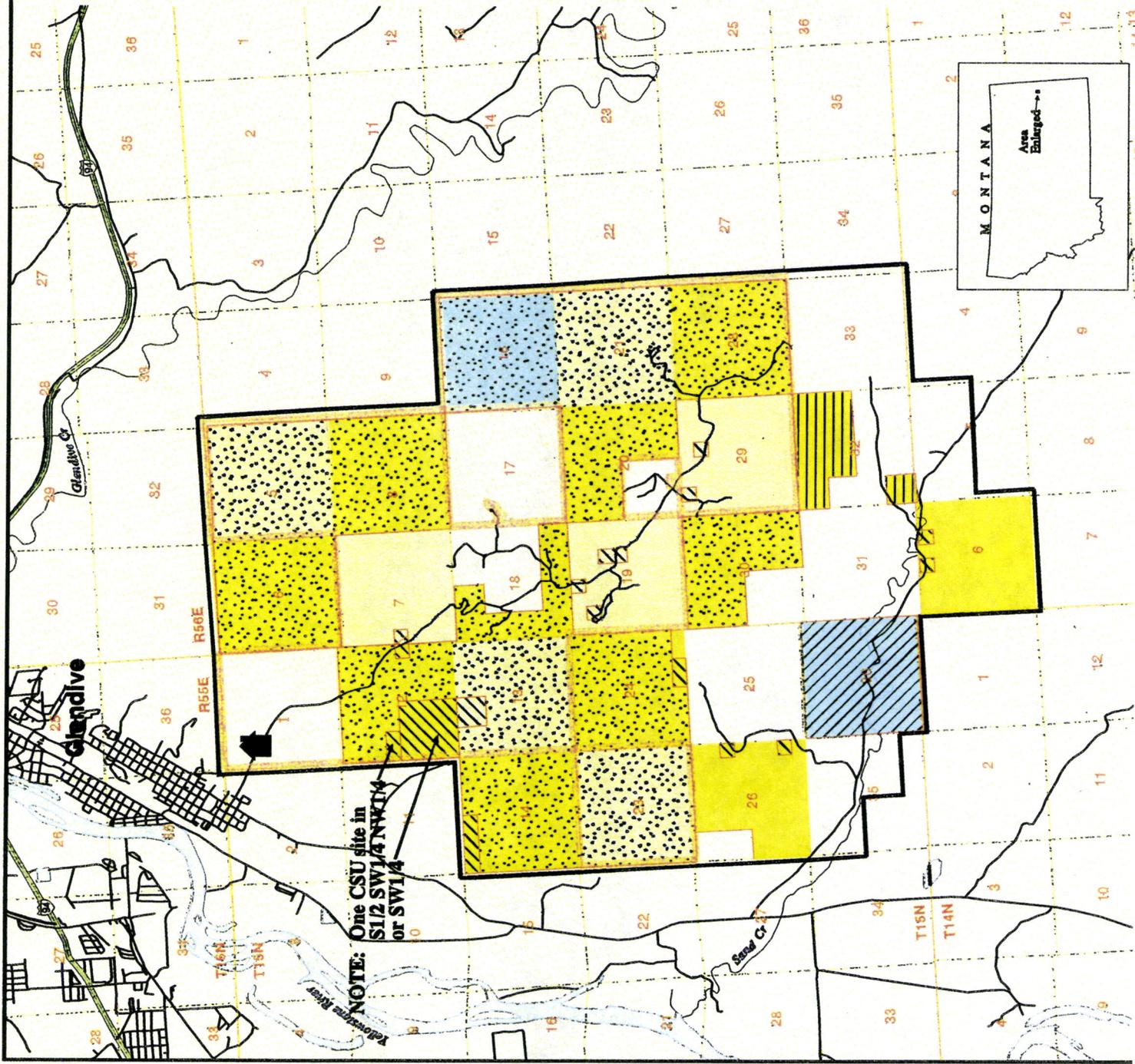
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/wp/lands/projects/aml/makcom099_aml - Lydia Bailey - 05/1/99
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Montana Fish,
Wildlife & Parks



NOTE: One CSU site in
S1/2 SW1/4 NW1/4
or SW1/4

