

ENVIRONMENTAL ASSESSMENT

GEOTHERMAL LEASING
ON
CARIBOU NATIONAL FOREST

DECISION NOTICE
AND
FINDING OF NO SIGNIFICANT IMPACT

Geothermal Leasing of Caribou National Forest Lands
Located in
Bear Lake, Caribou, Bannock, Power and Oneida Counties of Idaho; Box
Elder and Cache Counties of Utah and Lincoln County, Wyoming

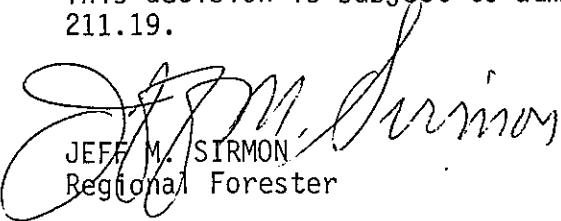
The environmental assessment indicates no significant effects upon the quality of the human environment. Therefore, no environmental impact statement will be prepared.

This determination is based upon consideration of the following factors which were discussed in detail in the environmental assessment: a) Geological, geochemical and geophysical exploration will have no significant effects. b) No irreversible resource commitments and retrievable loss of timber production on lands used for access road and drilling sites. c) No apparent adverse cumulative or secondary effects. d) Physical and biological effects are limited to the area disturbed by roads and drill sites and are of short duration. e) Known unique or rare resources within the area (whooping crane, bald eagle, and peregrine falcon) will not be adversely affected.

I have selected Alternative C as the plan for Geothermal Leasing of the Forest lands described in this report. It provides maximum opportunity for exploration for this energy source while shielding the more fragile and sensitive areas of the Forest. Other resources are adequately protected and the trade-offs favor the proposed action. This alternative, with mitigation measures and monitoring specified, provides the best combination of physical, biological, social, and economic benefits and is considered to be the environmentally preferred alternative.

Implementation of the plan will take place no sooner than 30 days from the date of this Decision and public distribution of this Decision Notice. Questions regarding this Decision should be sent to the Caribou National Forest, 250 South 4th Street, Pocatello, Idaho 83201.

This decision is subject to administrative review pursuant to 36 CFR 211.19.


JEFF M. SIRMON
Regional Forester

6/19/81
Date

ENVIRONMENTAL ASSESSMENT
GEOTHERMAL LEASING

ON

THE CARIBOU NATIONAL FOREST

LOCATED IN

the State of Idaho, Counties of Bannock, Bonneville,
Bear Lake, Caribou, Franklin, Oneida
the State of Utah, Counties of Box Elder and Cache
the State of Wyoming, County of Lincoln

Responsible Agency: USDA Forest Service
Caribou National Forest
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Pocatello, Idaho 83201

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Abstract: This Environmental Assessment describes and evaluates three alternative degrees of control of geothermal leasing and exploration. Alternative C, which permits leasing on most of the Forest and applies stipulations to adequately protect other resource values, has been selected by the Forest Service. The reasoning for the determination that an Environmental Impact Statement will not be prepared is included.

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CARIBOU NATIONAL FOREST

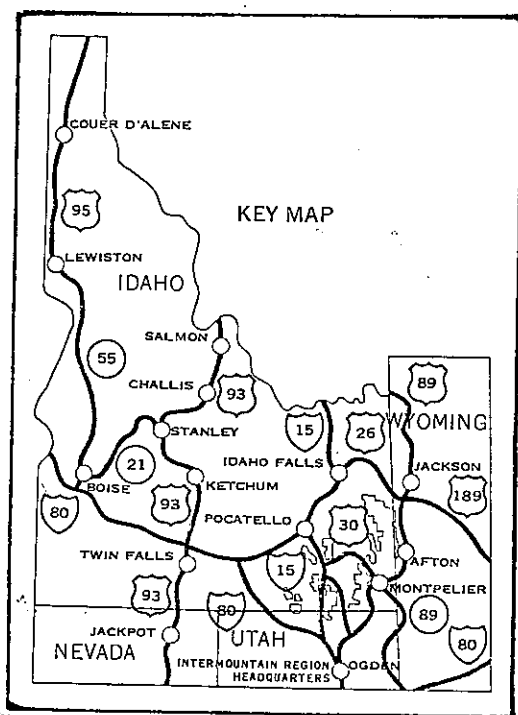
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INTRODUCTION

Proposed Action:

The action proposed is to recommend for or against issue of geothermal leases on any and all parts of the lands under the jurisdiction of the Caribou National Forest when and as such application is made for such leases.* The land area (1,094,133 acres) administered by the Caribou National Forest is depicted at a scale of 1/4 inch to 1 mile on maps in the Appendix at the end of this assessment. These lands lie in Southeast Idaho in Bonneville, Caribou, Bear Lake, Franklin, Bannock, Oneida, and Power Counties with minor portions extending into Lincoln County, Wyoming, and Box Elder and Cache Counties in Utah.



*The Forest Service, under authority contained in 43 CFR 3201.1-3, makes recommendation to the Bureau of Land Management to either issue or deny leases applied for on Forest Service lands.

The Geothermal Steam Act of 1970, Section 15(b) states: "Geothermal leases for lands withdrawn or acquired in aid of functions of the Department of Agriculture may be issued only with the consent of, and subject to such terms and conditions as may be prescribed by, the head of that Department to insure adequate utilization of the lands for the purposes for which they were withdrawn or acquired."

Major Issues, Concerns, and Opportunities:

The issuance of leases of and by itself will result in no ecological impacts. The potential concerns evolve from the fact that each lease gives the leasee the right to explore for geothermal energy within the confines of the lease and to develop and exploit any geothermal energy discovered. The impacts expected to be generated by exploration, development, and exploitation are the issues of concern.

The probability of a geothermal discovery on the Forest, although rather unlikely, could occur at one or more places in any degree of magnitude. Development and exploitation of any such discovery will have significant impacts, but until a discovery is made and plans are submitted for development and production of the resource, there is no reasonable way to assess impacts attributable thereto. Development and production of each geothermal discovery will therefore require either an environmental assessment or an environmental impact statement, depending upon the severity of the impacts expected.

The only action remaining for this environmental assessment to address is that of exploration. Exploration can be in one or more of the following types: a) geologic, b) geochemical, c) geophysical, and d) borehole drilling. The first two types of exploration have no significant impacts and will not be addressed. Geophysical exploration may result in minor impacts. Exploration drilling can result in significant impacts. Each drill site may require up to 2 acres of surface disturbance, plus the disturbance of constructing any access road that might be required.

Surface resources that may be impacted during exploration in descending order of significance are: wildlife, water, fisheries, esthetics, timber, and grazing. The local economy might also be impacted to a very minor extent.

Background Information

The earth is an immense reservoir of geothermal energy, but most of this energy is contained in the earth's core and mantle at depths unlikely ever to be tapped by any foreseeable drilling technology. Within the earth at depths potentially accessible to drilling (about 6 miles) are stored approximately 10^{24} British thermal units of heat (White, 1965, p. 2), but most of this heat is far too diffuse to be considered as a potential resource. However, economically significant concentrations of geothermal energy do occur in local "hot spots" where high temperatures (150° to 650° F) are found in porous rocks containing liquid water and (or) steam; such concentrations of extractable heat are known as "geothermal reservoirs." The reservoirs are found in regions of recent volcanism and mountain-building, and in deep parts of many sedimentary basins.

The energy in a geothermal reservoir consists of heat, largely stored in rocks and to a lesser extent in liquid water and (or) steam filling pores and fractures.

The water and steam provide the means by which heat from deep sources is transferred by convection to depths shallow enough to be tapped by drilling. Water and steam also serve as the agents by which geothermal heat escapes at the surface in hot springs and fumaroles and through which geothermal heat can be tapped commercially by wells.

The fluid in most geothermal reservoirs is liquid water (White and others, 1971) that is held at temperatures above surface boiling by the confining pressure.

Decrease in pressure upon withdrawal of the liquid water causes steam to form by boiling, and a mixture of steam and water is produced at the surface. A few reservoirs contain primarily steam, and the wells produce dry or superheated steam with no water. These dry steam reservoirs are positively known only in the Larderello-Mt. Amiata region of Italy, at Mutsukawa, Japan, and at the Geysers, California.

For a geothermal reservoir to have appreciable potential for exploitation, it must meet the following requirements: (1) relatively high temperature (greater than 250^o to 400^oF, depending on processing technology), (2) a depth shallow enough to permit drilling (currently 10,000 ft or less), (3) sufficient rock permeability to allow the heat transfer agent (water and (or) steam) to flow

continuously at a high rate, and (4) sufficient water recharge to maintain production over many years.

Limited exploitation of geothermal resources has occurred since the turn of the century, primarily to generate electric power. Geothermal resources also have been used for space heating, product processing, and agricultural heating; and, in addition, some geothermal fluids contain chemicals and metals that are potentially valuable by-products.

On December 24, 1970, the President of the United States of America signed into law the Geothermal Steam Act. This legislation authorized the Secretary of the Interior to issue leases for the development and utilization of geothermal steam and associated geothermal resources. Pursuant to the National Environmental Policy Act of 1969, the Secretary prepared an Environmental Assessment (Impact Statement) on the proposed program and alternatives. The draft document was released for public comment in October of 1971. An "Environmental Statement of The Geothermal Leasing Program" was released in October of 1973.⁽¹⁾

(1) From the Bureau of Land Management's Environmental Analysis Report Geothermal Leasing in the Eureka Resource Area.

One of the major recommendations for the mitigation of possible adverse environmental impacts was to prepare an environmental assessment of the area proposed for leasing.

The following environmental assessment covers geothermal leasing and exploration activities on all lands administered by the Caribou National Forest and is in compliance with the foregoing recommendation. Areas of high sensitivity to impacts will be cited.

Any exploration work such as test hole drilling and correlated surface disturbance such as site grading and road building will require an operating plan and a site specific environmental assessment.

A discovery of a geothermal resource worthy of development will require submission, by the lease holder, of plans for development and production. These plans, in turn, will be the subject of an environmental assessment, which could lead to an environmental impact statement if the impacts were expected to significantly affect the human environment.

Reference: CFR Title 40 Part 1502.20, Tiering of Environmental Impact Statements.

The Caribou National Forest lies within a major geothermal belt extending along the eastern margin of the Basin and Range Province. This belt is the faulted boundary between the Basin and Range Province and the Colorado Plateau-Rocky Mountain Provinces. The belt lies just west of the Wasatch front near Salt Lake City and extends northward through Southeast Idaho to Yellowstone National Park and south and southwestward to the vicinity of Lake Mead. It is about 62 miles wide and about 350 miles long.

Geothermal reservoirs appear to be entirely of the hot water type. Electric power may be generated eventually in a few places, but the most likely development will be in direct heat applications such as food processing and space heating. (U.S. Fish and Wildlife Service - Geothermal Handbook. NP-21172)

Maps 1A and 1B in the Appendix show the location of known wells and springs in Southeast Idaho that have temperatures above normal. These springs and wells with some pertinent data are tabulated on page 9. It should be noted that only one of these occurrences is on Forest lands encompassed by this assessment and that all are of the hot water type, and most of them at relatively low temperature. These maps also show geothermal leases, lease applications, and known geothermal resource areas.

Geothermal experts of the Idaho Department of Water Resources give ratings of high geothermal potential to only two areas near the Caribou National Forest. One is north of Preston (sites 9, 10, 11, 21, 22, and 23 on the map). The other is of large areal extent, includes Corral Creek Springs (15) located west of Blackfoot Reservoir, and extends northward to include all of Blackfoot Reservoir, Grays Lake, Brockman Creek Hot Springs (26), and westward on the Fort Hall Indian Reservation to include Yandell Warm Springs (not on map) east of the city of Blackfoot. It may also extend east of Grays Lake onto the Forest as three oil and gas exploration wells (27) on Big Elk Mountain are reported to have encountered hot waters. Similar exploration wells in the Grays Lake area have encountered hot waters, triggering considerable geothermal leasing activity in the vicinity. Leasing initiated here has not spread to the Forest.

NO.	COUNTY	T	R	SEC	NAME	TYPE	TEMP	LITERS/MIN	VOLUME	REMARKS	REFERENCE
1	Bannock	5S	34E	26		W	-	-		Flowing Well, Slight Sulfur Odor	1
2	Bannock	8S	31E	18	Indian Spring	S	32°C	+7500			2
3	Bannock	9S	38E	21	Lava Hot Springs	S				Numerous Springs	1
4	Bannock	12S	37E	12	Downata Springs	S				Numerous Spring Vents	1
5	Power	12S	34E	36							1
6	Franklin	12S	40E	31			52°C	-			1
7	Oneida	15S	35E	3	Pleasantville	S	29°C				2
8	Oneida	15S	36E	27	Warm Springs	S					
9	Franklin	14S	39E	36	Ben Meek Well	W				SE of Malad, 1 Spring Vent	1
10	Franklin	15S	39E	8	Battle Creek	S	43-84°C			Slight Sulfur Odor	1
					Hot Springs					Numerous Vents	1
11	Franklin	15S	39E	17	Squaw Hot Springs	S	69-77°C	140-450		Local Uses - Hog Scalding, Bathing	1
12	Oneida	16S	36E	10						Numerous Hot Springs	1
13	Oneida	16S	36E	23	Price Hot Springs	S	33°C				1
14	Franklin	16S	38E	24	Myron Fonsbeck	W	23°C	157			2
15	Caribou	6S	41E	19	Corral Creek	W&S	42°C	1300		A Number Of Exploration Holes Drilled	1&3
16	Caribou	8S	42E	7	Hooper Springs	S	24-31°C			For Phosphate Rock Flowed Hot Water	2
17	Caribou	9S	41E	10	Steambank Spring	S	31°C			High CO ₂ and Mineral Content	2&3
18	Caribou	9S	41E	12	Soda Spgs. Geyser	W	*	7500		Submerged in Soda Point Reservoir	3
19	Caribou	9S	42E	14	Sulfur Springs	S	-			Contain Mineral and CO ₂	3
20	Caribou	10S	45E	1	Book Spring	S	Warm			Drilled for Hot Water	3
21	Franklin	12S	40E	36		S	33-35°C			Sulfurous Odor, Slight Sulfur Deposit	3
22	Franklin	12S	41E	31		S	33-35°C			Pool Never Freezes	2
23	Franklin	13S	41E	7	Maple Grove	S	76°C	1300		About 1/2 sq mi of Springs on Both Sides of Bear River	2
24	Bear Lake	15S	44E	13	Bear Lake Hot Spr.S	S	47°C			"	2
25	Bear Lake	12S	43E	7	Pescadero	S	+25°C	Seeps		1 Pool, Numerous Vents	2
26	Bonneville	2S	42E	26	Brockman Creek	S	Unknown	Unknown		CO ₂ Gas, Travertine Deposits	2
27	Bonneville	2S	44E	23&24	Big Elk Mountain	W	Unknown	Unknown		Numerous Springs, Sulfur Odor	1,2
28	Caribou	7S	38E	26	Bancroft	S	Unknown	Unknown		Wildcat Oil Exploratory Hole	2
29	Lincoln, Wyo	33N	119W	23	No Name	S	Unknown	Unknown		On Banks of Portneuf River	3
										Sulfurous Odor	4

*Water has been cooled by expanding CO₂
**See Appendix

In the Star Valley in Wyoming, there are a series of warm water sloughs along the west side of the Salt River from north of Auburn to the vicinity of Freedom. Warm springs (29) in this area emit strong sulfurous odors along with the water. This evidence of geothermal energy may be the reason for the leases on nearby Forest lands.

Geothermal springs and wells throughout the vicinity of the Caribou National Forest, with but one exception (No. 27), are found in the major valleys and lowlands. It appears that such springs and wells are in close proximity to major fault structures that coincide with the more prominent valleys, while the National Forest encompasses the higher topography. For this reason, the Forest area is believed to have a low geothermal potential.

At present, there are five (5) geothermal leases on the Caribou National Forest, covering 7,219 acres. There are twenty-four (24) lease applications pending, which cover an additional 40,151 acres. More lease applications are expected due to the continuing National energy crisis and close proximity to an apparently favorable geological setting. Most of the leasing activity is expected in that portion of the Forest lying adjacent to the Idaho-Wyoming state line.

The only known geothermal resource area (KGRA) in the mapped area is located north of Conda, Idaho. It covers four sections (2,560 acres) and encompasses parts of J. R. Simplots' Conda Mine and patented mining claims. This KGRA is approximately 115 miles from the Island Park KGRA and Old Faithful Geyser in Yellowstone National Park.

The Geological Survey is responsible for classification of lands as KGRAs. It may be, as in this case, that a parcel of land for which two or more parties have applied for a lease has been classified as a KGRA. It should not be construed as meaning a geothermal resource has been identified. KGRAs are advertised and leased to the highest bidder.

Each stage of geothermal operations from exploration through development, production, and abandonment are closely governed by the Department of Interior's Geological Survey through the Conservation Division. Geothermal Resources Operational Orders (GRO) form the guiding direction of that group. These are very detailed and explicit rules covering most conceivable situations.

The name and title of the six orders are:

- G.R.O. Order 1. Exploratory Operations
- G.R.O. Order 2. Drilling, Completion, and Spacing of Wells
- G.R.O. Order 3. Plugging and Abandonment of Wells
- G.R.O. Order 4. General Environmental Protection Requirements
- G.R.O. Order 5. Forms and Reports (Now in Draft Form - Not Released)
- G.R.O. Order 6. Pipelines and Surface Facilities
- G.R.O. Order 7. Production and Royalty Measurements and Equipment and Testing Procedures

AFFECTED ENVIRONMENT

Physical Factors:

The physical characteristics of the area include relatively steep mountains and deep canyons--such as the head of Montpelier Creek, and valleys--such as Caribou Basin and Diamond Creek. Elevations range from 4,800 feet in Curlew Valley to 9,953 feet on Meade Peak.

The Columbia River Basin drainage makes up about 49 percent of the area, with the drainages of the Blackfoot River, the Salt River, and the Portneuf River, and some smaller tributaries flowing into the Snake River.

The Bear River and its tributaries drain about 47 percent of the area. The remaining 4 percent is drained by Deep Creek. These two drainages discharge into the Great Salt Lake.

a. Lands - The Caribou National Forest administers an area of 1,094,133 acres. Certain portions of this area have incumbrances which may restrict or prohibit geothermal activity. Such encumbrances include but are not limited to campgrounds, rights-of-way, range improvement structures, summer homes,

and other special use permits, and critical wildlife habitat. Oil and gas leases and lease applications cover most of the Forest. Phosphate leases and lease applications cover a large portion of the eastern parts of the Forest.

Roadless Area Review and Evaluation (RARE II) has resulted in recommendation to Congress that 16,000 acres of the Worm Creek Roadless Area (4-179) be given Wilderness status, and that the Mount Naomi Roadless Area (4-758), containing 77,830 acres, be assigned to Further Planning. This area lies astride the Idaho-Utah border, the two sides being administered by the Caribou and Wasatch National Forests respectively. The Caribou portion contains 28,800 acres. (See Map 3B.)

In the Worm Creek administratively endorsed Wilderness Area, no activities which might alter the wilderness quality of the land will be allowed, unless permitted by law or prior right. Entry for development purposes will be prohibited. Any applications involving the Worm Creek area will be covered by a separate environmental assessment for Further consideration. A lease application cannot be rejected solely because it lies with a Wilderness or a proposed Wilderness Area. Appropriate analysis of all reasonable alternatives must be provided, together with stipulations as applicable, with all recommendations involving Wilderness or proposed Wilderness.

The Mount Naomi Roadless Area (RARE II 4-758) is currently classified as a Further Planning Area. One of the primary reasons for allocating this

area to Further Planning was the need to gather additional minerals data upon which to base a Wilderness - non-Wilderness decision. Therefore, mineral exploration is considered an integral part of the Further Planning process. It must be conducted in such a way that a Wilderness option can be retained or restored by reclamation. Leasing as a precursor of detailed exploration work is consistent with this policy. All leases issued within Further Planning areas will carry, in addition to standard and other special stipulations, the Further Planning area stipulation, a copy of which is in Appendix A. (FSM 2822.14b in Appendix C)

b. Geology - The geology of the area is made up primarily of sedimentary formations from the Paleozoic and Mesozoic Ages. Folding and faulting are common and dictate the orientation of the drainages; the main ridges of the mountains lie in a southeast-northwest direction with subdrainages commonly at right angles to them. Many of the high ridges, such as Red Mountain, Bald Mountain, and others, are anticlines. Some mineral deposits are present--the most common being beds of phosphoria. These have been sampled in Palisades Creek, which is about 15 miles north of this area, and have yielded oil at the rate of 3 gallons per ton. Other potential oil- and gas-bearing strata are present and include: The Wayan and Gannet Formations of the Cretaceous Age, the Stump Formation of Jurassic, the Thayne and Woodside Formations of Triassic, the Wells Formation of Pennsylvanian, and the Brazer Formation of Mississippian Age. (Geology and Mineral Resources of Bonneville County, County Report No. 5,

by C.N. Savage) Placer gold mining operations were extensive during the late 1800s in Caribou Basin, and dredge mining operations on McCoy Creek occurred as late as 1964. Two very small placer operations are active at the present time on Caribou Mountain. Two large phosphate mines operate on the Forest near Soda Springs, and two others operate in the near vicinity.

c. Climate - Annual precipitation is about 20 to 40 inches, most of which comes as winter snowfall. Generally, rains occur in late May and early June, with some thunderstorm activity in July and August. Usually June has the greatest and July the least precipitation of the twelve months of the year. Prevailing winds are westerly and mean maximum temperatures average 24⁰F in January and 74⁰F in July. The average growing season (frost-free period) varies from 142 days in Pocatello to 80 days in Montpelier, to less than 60 days at higher elevations. (Reference Idaho Earth Science, Ross and Savage)

d. Soils - Soils of the area have developed under a subhumid forest canopy that is common in mountainous land of the Middle Rocky Mountains. Organic matter accumulates rather rapidly, and soils surface horizons are mostly thick and dark colored; subsoil colors are usually lighter. Nearly all the upland forest soils are residual and have developed in place from weathered sedimentary bedrock, mostly limestone, sandstone, quartzite, dolomite, chert, and shale. Stony to gravelly loam and medium-

textured soils are underlain by Jurassic, Triassic and Paleozoic lime-stones and sandstone, quartzite, dolomite, and chert. Finer-textured, non-stony soils are underlain by highly weathered Cretaceous sandstone, limestone, shale and some conglomerate. In certain locations, the fine-textured Cretaceous-derived soil exhibits its structural weakness in slumps and landslides. Such areas of disturbance may vary from a few widely spaced spots of a few square yards to a whole mountain side covering hundreds of acres, which shows movement due to gravity. Mass movement of such soil is most likely when it is wet or saturated, or is a result of earthquake tremors. Such soil is also readily eroded when disturbed or stripped of vegetation. The erosion potential characteristics are related to soil texture, depth, ground cover, and slope. Erosion rates vary widely, ranging from .001 inches per year on undisturbed sites to 0.3 inches per year on disturbed sites. Most soil disturbances have the potential for sediment production. Maps 2A and 2B in the Appendix show relative stability of the land surface.

e. Water - The Caribou National Forest administered lands are drained by the Portneuf, Blackfoot, and Salt Rivers, and some smaller streams--all of which are tributaries of the Snake River of the Columbia drainage basin; and by the Bear River and lesser streams flowing into the Great Salt Lake.

Water from these lands is generally of high quality. Streams peak from snowmelt as early as March and may run high as late as July. During periods of high intensity summer storms, the runoff may be briefly and sharply increased. There is indication, in certain areas, of poor watershed conditions. The indicators are excessive streambed loads and raw streambanks. The streams in the vicinity of the phosphate mines are now intensively monitored. Stream monitoring is sparse on the rest of the Forest where land use is for renewable resources such as grazing, logging, recreation, etc.

Stream monitoring is being done by the Forest Service, the Geological Survey, the Idaho Fish and Game Department, the Idaho Division of Environment of the Health and Welfare Department, by various municipalities, and by several of the mining companies. The Idaho State Division of Environment is spearheading an effort to coordinate all such efforts.

f. Air - The air in and around the Caribou National Forest is relatively clean and pure. Air pollution emanating from industry in Pocatello, Soda Springs, and along the Wasatch Front in Utah affects the area to a very slight degree along the nearest periphery of each such source of pollution. Occasional air pollution arises from local burning activities on nearby farms or

from wildfire smoke. Some minor air pollution results from vehicles driving on dusty Forest roads. Noise pollution is created by occasional low-flying aircraft, recreation vehicles, logging, and mining activities.

g. Esthetics - The majority of the lease area has esthetic appeal, which is enhanced in some localities by a feeling of vastness and isolation. Examples are the beautiful mountain settings available in the headwaters of many of the drainages-- particularly those at Big and Little Elk Mountains, and in Caribou Basin. Except for occasional views from the highest mountains and along main access routes, the presence of roads or any significant impacts of civilization are not felt.

Biological Factors:

a. Vegetation - The north slopes are generally vegetated with an overstory of coniferous trees and an understory of dense brush and grass. The east slopes generally support a scattered coniferous-aspen overstory and a brush-grass ground cover. The south and west slopes tend to support fewer trees and are generally vegetated with grass and scattered brush, but also contain considerable areas of bare soil. Ridgetops usually have

a sparse cover of low-growing vegetation covering a rocky soil mantle.

The Caribou National Forest has produced about 10 million board feet of timber annually for the past 5 years. The primary timber species are lodgepole pine and Douglas-fir.

A Research Natural Area is in existence on the West Fork of Mink Creek, and another is proposed on Gibson Jack Creek. Both of these areas are within the Pocatello municipal watershed and will therefore be protected by the No Surface Occupancy Stipulation. Elk Valley Marsh on the Montpelier Ranger District has also been proposed as a Research Natural Area. This also is to be protected by the No Surface Occupancy Stipulation.

There are no known sensitive, threatened or endangered plant species on the Caribou National Forest as shown by the official listing of such species for Region 4 dated March 27, 1980.

b. Wildlife - A total of 75 species of mammals, 272 species of birds, 13 species of reptiles, and 6 species of amphibians have been identified in the Caribou National Forest and surrounding area.

Big game animals of the area are elk, moose, deer, bear, and cougar. Herd sizes of deer and elk are limited by the carrying capacity of winter range. Calving grounds for elk are also critical areas.

Beaver and muskrat are fur-bearing animals found in most of the streams of the Forest. Beaver population is controlled by a limited food source of aspen and willow. Muskrats are found in and around beaver dams and along the slower moving streams in the valleys. Muskrat and beaver are trapped for fur.

Game birds of the Caribou National Forest are: sage grouse, sharp-tailed grouse, blue grouse, ruffed grouse, chukar and Hungarian partridge, pheasant, doves, and various species of ducks and geese. Critical areas for grouse are their breeding, nesting, brood-rearing, and winter habitats. Wetlands as nesting and brood-rearing areas are the critical habitat for waterfowl.

There are 25 species of raptors that inhabit the area during a part or all of the year. Some of the more important species are: prairie falcons, golden and bald eagles, turkey vulture, osprey, and several species of hawks and owls. These birds prey upon small rodents, fish, reptiles, amphibians, and carrion. Deer mice, chipmunks, ground squirrels, red squirrels, mountain hare, and porcupine are among the significant small mammal populations of the area upon which the raptors prey.

The wetlands in and about the Caribou National Forest and Grays Lake National Wildlife Refuge are the summer habitat for the largest nesting population of the greater sandhill crane in North America. The whooping crane, an endangered species not native to this area, was introduced here in 1975 in an ongoing foster parent program. Eggs were taken from

whooping crane nests in Canada and substituted for eggs of the greater sandhill crane in nests in the Grays Lake Refuge. The program from inception to date has been reasonably successful. Both species of crane radiate outward from their wetlands-nesting area to feed in adjacent fields, rangeland, and forests. Both species migrate to a warmer climate for the winter months.

Four types of critical wildlife habitat have been identified on the Forest and delineated on Maps 3A and 3B in the Appendix. The four types of critical habitat are here named and the critical season identified:

Big Game Winter Range	November 1 to April 15
Elk Calving Area	May 1 to June 30
Waterfowl and Crane Summer Habitat	April 1 to October 1
Grouse Strutting Grounds	March 15 to July 15

The aforementioned critical areas are currently identified. This may change with time as knowledge of wildlife increases and areas of useage change.

In addition, Montpelier Reservoir, Elk Valley, and some wetlands in the vicinity of Grays Lake National Wildlife Refuge have been recognized to be of critical value as wildlife habitat.

In accordance with the Endangered Species Act of 1973, P.L. 93-205, the Federal list of endangered and threatened fauna has been checked, and it was found that the American peregrine falcon, bald eagle, and whooping crane are on the list.

Historically, the peregrine falcon was related to the riparian and marshland vegetative types associated with Grays Lake, Bear Lake, and the Bear River. Historical nesting sites are present within the area, but none of them are known to be currently active.

The bald eagle is a transient with no known nesting sites or other critical habitat on the Caribou National Forest. There is no known critical habitat for the whooping crane on the Forest.

A total of five sensitive animal species are known or believed to inhabit lands on or adjacent to the Caribou Forest. These are:

<u>Common Name</u>	<u>Scientific Name</u>
(1) Bobcat	<u>Lynx rufus</u>
(2) Kit fox	<u>Vulpes velox</u>
(3) Ferruginous hawk	<u>Buteo regalis</u>
(4) Prairie falcon	<u>Falco mexicanus</u>
(5) Sharp-tailed grouse	<u>Pedioecetes phasianellus columbianus</u>
(6) River otter*	<u>Lutra canadensis</u>

*Designated as sensitive by the Forest--not on State list.

c. Fish - The Blackfoot River, Bear River, Salt River, South Fork of the Snake, and the Grays Lake drainage provide some of the highest quality fishing in the State of Idaho. Several of the tributary streams arising on the Caribou National Forest are classed as high quality trout streams. Some of the lesser streams, not noted for fishing, are important spawning sites. The game fish of note in this area are: cutthroat rainbow, brook, and brown trout, and white fish. Other species include sculpin, sucker, redbite shiner, and dace.

The State of Wyoming has identified a pure strain of Utah cutthroat trout as an isolated population in Giraffe Creek, a tributary of

Bear River. There will be additional investigations going on in the future on this finding, and there is a possibility this fish may be a unique species, which would necessitate some special management consideration for Giraffe Creek.

d. Domestic Livestock - Five hundred fifty-seven livestock operations have grazing privileges on the lands administered by the Caribou National Forest. It provides 64,679 animal unit months of forage for 101,000 head of sheep, 124,132 AUMs of forage for 25,526 head of cattle, and 866 AUMs for 1,031 horses. (Forage for one cow for one month equals one animal unit month--equivalency factors are used for other domestic animals.)

EVALUATION CRITERIA

GOALS:

1. Determine what areas of the Forest are compatible with geothermal leasing and consequent exploration.
2. Reveal any need for special stipulations to protect surface resources.

OBJECTIVES:

1. Make as much of the Forest available for leasing as possible without excessive impacts on surface resources.

2. Formulate stipulations designed to minimize impacts to surface resources, caused by exploration and to rehabilitate disturbed areas at conclusion of the action.

FEASIBILITY TESTS:

1. Does the Alternative consider available technology to permit the maximum tolerable development of geothermal resources?
2. Does the alternative allow for the protection of surface resources within the constraints of existing laws and regulations?
3. Is the balance of trade-offs (costs and benefits) favorable to the proposed action?

ALTERNATIVES CONSIDERED

The spectrum of viable alternatives from the current no leasing situation to opening the entire Forest to leasing has been considered, and the following three alternatives have been formulated.

- A. Continue to withhold leases pending development of Forest Plan (according to National Forest Management Act) and an accompanying Environmental Impact Statement. (No action alternative)

To continue the present course of deferring leasing pending a Forest Plan appears to be a viable alternative. This has been the practice for the past several years.

- B. Permit leasing and related activity on any and all parts of the Forest where such leasing is not now prohibited by law.

Opening the entire Forest to leasing except for those areas where leasing is currently prohibited such as roadside withdrawals, campgrounds, and administrative sites could be done with no immediate difficulty. Some difficulty might arise during exploration drilling relative to wildlife, recreation, and esthetics. Strong mitigation measures would be necessary if discovery were made and production ensured in certain sensitive or fragile areas.

- C. Permit leasing on any and all parts of the Forest where such leasing is not now prohibited by law, with the exceptions of the Administration-endorsed Worm Creek Wilderness Area and certain specified fragile or highly sensitive areas. All leases will contain the necessary stipulations and constraints to minimize adverse impacts.

MANAGEMENT REQUIREMENT AND CONSTRAINTS:

- A. Geothermal leasing with no surface occupancy stipulations will be recommended in any of the following-named areas which are delineated on Maps 3A and 3B in the Appendix:
1. Pocatello Municipal Watershed
 2. Elk Valley Marsh
 3. Wetlands near Grays Lake
 4. Montpelier Reservoir
- B. Any applications for lease of lands within the Administration endorsed Worm Creek Wilderness Area will require a separate environmental assessment.
- C. All geothermal leases on National Forest lands incorporate the following standard stipulations as revised to conform with the Geothermal Steam Act of 1970.
1. United States Department of the Interior, Bureau of Land Management, Form 3109-3, dated June 1971, entitled "Stipulations For Lands Under Jurisdiction of the Department of Agriculture."
 2. United States Department of the Interior, Bureau of Land Management, Form 3109-5, dated August 1973, entitled "Surface Disturbance Stipulations."

3. United States Forest Service Supplement to Form 3109-3, entitled "Surface Occupancy Stipulations."

Copies of each of the aforementioned stipulations are appended for handy reference.

D. In addition to the above stipulations, the following special stipulation will apply on the Caribou National Forest under the Forest's preferred alternative:

1. Vehicular travel for reconnaissance geology, geophysics, and geochemical types of survey requiring no surface disturbance will conform to off-road vehicle regulations unless otherwise approved.

2. Exploration and/or development activity which will result in any surface disturbance such as seismic survey lines, road building, drill site construction or similar activity will be presented in a written plan, together with all drawings, maps, and sections needed to clearly define work to be done, the exact location of such activity, equipment to be used, and the time frame in which it is to be accomplished. Firm completion dates will be set for seasonal projects. Such dates will be early enough in the fall to allow all disturbed areas to be reshaped and seeded prior to freeze-up and/or snow cover. An abandonment plan shall also be incorporated detailing the removal of all buildings and equipment, and the rehabilitation of all surface area disturbed. All

temporary roads upon abandonment shall, in addition to the foregoing, be blocked in a manner to preclude the passage of four-wheel drive vehicles, with the intent and purpose of rendering reuse of any part of the road by wheeled vehicles impossible. Such plans are to be presented not less than 90 days prior to initiation of activity, and this lead time must include a period of not less than 30 days in which the subject area is free of snow to permit a field examination by Forest officials. Plans must be approved by the appropriate Forest Service and Geological Survey officials prior to start of field work.

3. The Forest Service reserves the right to restrict or impose special conditions on field activity where any of the following are known to exist or are disclosed by field examination:

- a. Unstable terrain and/or unstable soil (see Maps 2A and 2B in Appendix)
- b. Terrain with slopes in excess of 40 percent
- c. Critical wildlife and fish habitat - Critical habitat shall include, but is not limited to, the following (dates bracket sensitive time periods):

(See Maps 3A and 3B in Appendix)

- (1) Big Game Winter Range - November 15 to April 15
- (2) Big Game Calving and Fawning Areas - May 15 to June 30
- (3) Moose and Elk Wallows - September 1 to November 1
- (4) Known Habitat of Threatened or Endangered Species - when such habitat is actually occupied by such species
- (5) Grouse Strutting Grounds - March 15 to July 15

- d. Areas where planned activity would detract unduly from esthetic values or conflict with other Forest resource values to an unreasonable extent.

EFFECTS OF IMPLEMENTATION

The impacts attributable to geothermal leasing that can be assessed in this environmental assessment are only those impacts caused by exploration, as was developed in the Introduction. (See Issues, page 4) These impacts would affect wildlife, water, fisheries, esthetics, timber, grazing, and the local economy. Under Alternative A, no additional leasing would occur; therefore, there would be no impacts to other resources or to the local economy, and so this alternative requires no further consideration.

The number of leases, the area leased, and the amount of exploration done will be a function of the geothermal potential of the area as viewed by the explorationist and would be little affected by any reasonable stipulations attached to the leases. Interest in the area is currently slight but would increase rapidly if one of the larger companies were to start exploration, and it would become extreme if a discovery were made. Lands designated for no surface occupancy under Alternative C will reduce the total area available for surface occupancy by about 5 percent and should reduce the potential lease activity by a lesser percentage. In view of the present low interest level, only a very modest exploration program is contemplated, with little difference in the level of activity between Alternatives B and C.

Surface resources that may be impacted during exploration in descending order of significance are: wildlife, water, fisheries, esthetics, timber, and grazing. The local economy may also be impacted to a very minor extent. The following-described impacts to those resources will apply equally for Alternatives B and C.

a. Wildlife - Seismic exploration could cause a brief agitation of wildlife with normally insignificant effects. However, the same activity in critical habitat during critical periods could have a significant impact on the affected wildlife. Alternative A would have no impact. Alternative B would have a slight short-term impact, while Alternative C would have less impact.

Construction of access roads and drill pads, the drilling activity, and the attendant traffic would displace wildlife for the duration of the activity and for a brief period thereafter. Under current rehabilitation practices, the disturbed habitat should return to near normal use and productivity in 5 years or less.

b. Water - Water quality could be affected by activity associated with geothermal leasing. Crossing live streams with machinery will cause turbidity in streams. Drill site locations and the disposal of debris connected with drilling operations have potential for lessening water quality. Spills from settling ponds or holding tanks, fuel supplies, etc., are commonly associated with drilling operations. Also, ground water flows might be affected by drilling holes from one

strata to another, but adherence to the geothermal resource orders mentioned on page 13 leave little chance of this happening. Water quantity may be minutely affected during the exploration and development phases by using some for drilling operations. This will be significant only if it depletes a critical supply needed for wildlife, livestock, or domestic use. The Pocatello Municipal Watershed delineated on Map 3A in the Appendix is recommended for leasing with no surface occupancy stipulations for the foregoing reasons.

Elk Valley Marsh is unique because of its size and high altitude. It is an important and productive wildlife habitat. The Bear River Land Management Plan recommends the area be designated a Research Natural Area and that surface occupancy by oil and gas exploration be prohibited. Mineral leasing, exploration, mining and quarrying were also recommended against.

Montpelier Creek Reservoir is an important local recreational fishery. Surface occupancy of this reservoir should be prohibited to protect this resource value.

The wetlands on the Forest adjacent to Grays Lake are important wildlife habitat and should be protected by a no surface occupancy stipulation. Other minor areas of wetlands are encompassed by the Caribou National Forest. These wetlands will be protected as critical wildlife habitat and/or will be protected under Forest Service supplement to Bureau of Land Management's Form 3109-3, both of which will be

made part of all future geothermal leases on the Caribou National Forest. This will assure compliance with E.O. 11988 and E.O. 11990 as well as accomplish other objectives.

Alternative A would have no impact. Alternative B would have a modest impact on waters, while Alternative C should have a slightly less impact.

c. Fisheries - The potential impacts on fisheries are essentially the same as that for water, though it should be emphasized that pollution which might be tolerable for other water use could be disastrous to fisheries. Also, a condition of water pollution that may exist for a very brief period and be entirely corrected may wipe out aquatic life in a stream and require years for the fishery values to return to normal. Such a disaster might result if a test well discharged hot, toxic, or saline waters into a stream. Here also compliance with the geothermal resource orders will leave little chance of such an occurrence. Compliance with the listed stipulations and constraints would make such a happening unlikely.

Alternative A would have no impact. Alternative B would have a modest impact on waters, while Alternative C should have slightly less.

d. Esthetics - The greatest impact on scenic quality would be caused by access roads. Roads along exposed ridges or steep mountain sides that can be viewed from a large area or from a length of well traveled road could have a major impact. However, when roads are designed,

located, and constructed with esthetics considered, the impacts can be reduced to an acceptable level. Such roads are narrow and of low quality, permitting such great flexibility of location that little visual impact need occur. Such roads have a very brief useful life, usually less than a year, if no discovery occurs. Immediately after a road and drill site have completed their purpose, the road is closed and the area rehabilitated as a matter of normal procedure on the Forest.

Alternative A would have no impacts on esthetics, while Alternatives B and C would have a slight but equal impact.

e. Timber - The impacts on timber would come from access roads and drill sites. Such roads and sites may require the removal of a few trees, but the flexibility of design and location should minimize such impacts. A road built for exploration could at the Forest's option be retained for another purpose such as logging, and, thus, avoid a second impact on the area.

Alternative A would have no impact on timber, while Alternatives B and C would have modest impacts.

f. Range - Impacts by the proposed activity on domestic livestock range are minimal. Road construction, competition for water at some locations, and disturbance of the grazing animals would be the most serious impacts. Gates being left open could allow animal trespass and have some adverse impact on proper range useage.

Alternative A would have no impact on range. Alternatives B and C would have slight but equal impacts.

g. Local Economy - Exploration could affect the local economy in a small and probably intermittent manner. It could be a single, small reconnaissance crew staying but a few days at any location; or it could be a short-term job for a local contractor to build an access road and prepare a drill site; or it could be an exploration drill manned 24 hours a day for several weeks; or it could be all three in sequence. In that none of these activities relating to geothermal energy have yet occurred on the Forest, it would be prudent to assume that such activities will have but a modest impact on the local economy. At maximum anticipated exploration effort, there could be opportunity for a few casual laborers, whether minorities or other.

Alternative A would have no impact on the economy. Alternatives B and C are estimated to have equal but insignificant potential impact.

h. Other Factors

1) Safety. Contractor employees will be exposed to the normal hazards of the occupation while constructing access roads and drill sites. Exploration drillers are exposed to hazards unique to the occupation which are adequately addressed in the Geothermal Resource Operational Orders. A very slight increase in vehicular traffic will result on Forest roads, and a corresponding increase in traffic accidents can be expected.

2) Wilderness and Unroaded Resource. Minimum standard access roads will be needed for exploration drilling. Very limited new road construction is expected. Access to drill sites that prove unproductive will be closed, leaving little long-term impact. No exploration of Wilderness Area is covered in this assessment.

3) Recreation. Access roads and exploration activity will affect recreation only on the area of disturbance and a limited peripheral area during the time of construction, occupancy, and rehabilitation. Noise from such activity will have a similarly limited range and duration.

Commitment of Resources

Alternative A would have no effect upon resources. Alternatives B and C would exchange short-term impacts on water, fisheries, wildlife, range, and esthetics, longer term impacts on timber, and an irreversible commitment of energy and other resources used for exploration for the potential of discovering a large and long lasting source of energy.

Table 1. Impacts on Surface Resources

<u>Criteria</u>	<u>Rating</u>	<u>Alternative A</u>	<u>Alternative B</u>	<u>Alternative C</u>
Wildlife	9	0 = 0	5 = 45	4 = 36
Water	10	0 = 0	4 = 40	3 = 30
Fisheries	8	0 = 0	4 = 32	3 = 30
Esthetics	3	0 = 0	2 = 14	2 = 14
Timber	7	0 = 0	2 = 14	2 = 14
Range	7	0 = 0	2 = 14	2 = 14
		0	151	124

Table 2. Benefits of Alternatives

<u>Criteria</u>	<u>Rating</u>	<u>Alternative A</u>	<u>Alternative B</u>	<u>Alternative C</u>
Potential for Energy Discovery	10	0 = 0	9.9 = 99	9.5 = 95
Local Economy	1	0 = $\frac{0}{0}$	1 = $\frac{1}{100}$	1 = $\frac{1}{96}$

In each of the above tables the criteria items were given an importance rating from 1 to 10. Under each of the alternatives a factor of from 1 to 10 was selected as a measure of the extent to which that alternative would impact each criteria. Multiplying the rating by the second factor gives a measure of expected impact. Totaling the impacts gives a numerical comparison between alternatives. In Table 1 the higher total represents the greatest adverse impact on other resources and is therefore least desirable. In Table 2 the higher total is most desirable.

Forest Service Expenditures - Implementing either Alternative B or C may cost the Forest up to \$2,000 for the planning period ending with the year 1981. The next planning period 1982 through 1985 could require an estimated \$20,000. Implementing Alternative A presents no immediate cost but could develop legal problems as it is defacto withdrawal from leasing and contrary to Public Law 91-631 - the Mining and Minerals Policy Act of 1970. (See Appendix C.)

EVALUATION OF ALTERNATIVES

Alternative A - "Continue to withhold leases pending an environmental analysis or Forest Land Management Plan and Environmental Impact Statement."

Though this has been the policy during the past several years, it meets none of the goals and objectives of this evaluation.

Alternative B - "Permit leasing and related activity on any and all parts of the Forest where such leasing is not now prohibited by law."

This would partially meet the objectives by making much of the Forest available for leasing, but it fails in that it does not prohibit leasing of environmentally sensitive or fragile areas, and it does not specify stipulations to protect surface resources.

Alternative C - "Permit leasing of all but fragile or sensitive areas, and with necessary stipulations to minimize adverse impacts."

FOREST SERVICE SELECTED ALTERNATIVE

Alternative C has been selected as the Forest Service's preferred alternative as it best meets the goals and objectives used for evaluation.

CONSULTATION AND COORDINATION

Copies of the preliminary Environmental Assessment were sent to the following:

- U.S. Geological Survey - Conservation Division
- U.S. Fish and Wildlife Service
- U.S. Bureau of Land Management
- Idaho State Fish and Game Department
- Idaho State Department of Water Resources
- Bridger-Teton National Forest
- Challis National Forest
- Targhee National Forest
- Ralph Maughn - Idaho Conservation League
- Phil Hocker - Sierra Club
- Gerald Jayne - Idaho Environmental Council

The following-named persons participated jointly with Caribou National Forest personnel in a review and critique of a preliminary copy of this report. Their efforts resulted in a much improved report and one that is coordinated with the efforts of those other agencies.

The Forest Service is grateful for their cooperation:

Charles S. Peck	U.S. Fish and Wildlife Service
Bill Davidson	Idaho Fish and Game Department
Dale Jensen	Idaho Fish and Game Department
John Heimer	Idaho Fish and Game Department
O'dell Frandsen	U.S. Bureau of Land Management
Tim Carrol	U.S. Bureau of Land Management
John Simms	U.S. Bureau of Land Management
Jeff Hogander	U.S. Bureau of Land Management

The following-listed officers and specialists of the Caribou National Forest contributed to and/or reviewed this report:

Charles J. Hendricks	Forest Supervisor
Sherm Boyce	Branch Chief, Minerals
Sonny O'Neal	Branch Chief, Minerals
Walter Hanks	Forest Ranger
Vaughn E. Francis	Forest Ranger
Wendell J. Johnson	Forest Ranger
Larry L. Hudson	Forest Ranger
Richard Kline	Forest Ranger
Larry Call	Forest Planner
Norman Bare	Soils Scientist
Thomas Robison	Hydrologist
Frank Gunnell	Wildlife Biologist
James McKibben	Wildlife Biologist
Carl Linderman	Landscape Architect
David Hansen	Zone Fisheries Biologist

CHECKLIST OF ENVIRONMENTAL FACTORS
Environmental Assessment
Geothermal Leasing on the Caribou National Forest

The following key describes the disposition of the listed factors as determined by the environmental analysis for this action/proposal.

- 1. Discussed in assessment
- 2. Considered in analysis; no further discussion deemed necessary
- 3. Not applicable to action/proposal

A. Physical Environment

- 1 Geology and minerals
- 1 Soils
- 2 Air quality
- 1 Water quality and quantity (include wetlands and floodplains)

B. Biological Environment

- 1 Sensitive plant species
- 1 Other vegetation
- 2 Threatened, endangered, or sensitive wildlife and fish species
- 3 Other wildlife and fish

C. Cultural Environment

- *1 Archaeological and historical resources
- 3 Scientific resource (unique resources primarily of scientific value not otherwise considered)
- 1 Research natural areas

D. Socio-Economic Environment

- 1 Wilderness and unroaded resource
- 1 Recreation resource
- 3 Landownership
- 3 Land use (including prime farmlands, prime timberlands, and prime rangelands)
- 1 Transportation
- 1 Effects on National Forest administration and management
- 1 Energy use and conservation
- 3 Changes in land use patterns, such as private land development
- 3 Effects which accrue differentially to minority or socio-economic groups

E. Human Health and Welfare

- 1 Safety
- 1 Landslide, avalanche, flood hazards
- * 1 Fire hazard
- 1 Other natural and man-made hazards and safety factors
- 3 Insect and disease
- 1 Noise
- 1 Maintenance and enhancement of visual resource

*Covered by Standard Stipulations

Conducted by: _____
(Name or Names)

Approved by: _____
(Name and title)

Date

Date

APPENDIX A
STIPULATIONS

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

STIPULATION FOR LANDS UNDER JURISDICTION OF DEPARTMENT OF AGRICULTURE*

The lands embraced in this lease or permit being under the jurisdiction of the Secretary of Agriculture, the lessee or permittee hereby agrees:

(1) To conduct all operations authorized by this lease or permit with due regard for good land management, not to cut or destroy timber without first obtaining permission from the authorized representative of the Secretary of Agriculture, and to pay for all such timber cut or destroyed at the rates prescribed by such representative; to avoid unnecessary damage to improvements, timber, crops, or other cover; unless otherwise authorized by the Secretary of Agriculture, not to drill any well, carry on operations, make excavations, construct tunnels, drill, or otherwise disturb the surface of the lands within 200 feet of any building standing on the lands and whenever required, in writing, by the authorized representative of the Secretary of Agriculture to fence or fill all sump holes, ditches, and other excavations, remove or cover all debris, and so far as reasonably possible, restore the surface of the lands to their former condition, including the removal of structures as and if required, and when required by such representatives to bury all pipelines below plow depth.

(2) To do all in his power to prevent and suppress forest, bush, or grass fires on the lands and in their vicinity, and to require his employees, contractors, subcontractors to do likewise. Unless prevented by circumstances over which he has no control, the lessee or permittee shall place his employees, contractors, subcontractors, and employees of contractors and subcontractors employed on the lands at the disposal of any authorized office of the Department of Agriculture for the purpose of fighting forest, brush, or grass fires on or originating on the lands or on

*This form of stipulation may be used in connection with leases and permits issued under the Acts of February 25, 1920, as amended (30 U.S.C. 181 et seq.); August 7, 1947 (30 U.S.C. 351 et seq.); February 7, 1927, as amended (30 U.S.C. 281 et seq.); April 17, 1926, as amended (30 U.S.C. 271 et seq.); June 28, 1944 (58 Stat. 483-485); September 1, 1949 (30 U.S.C. 192c); June 30, 1950 (16 U.S.C. 508b); or under the authority of any of the Acts cited in Section 402 of the President's Reorganization Plan No. 3 of 1946 (5 U.S.C. 133y-16, Note); and the Geothermal Steam Act of December 1970 (84 Stat. 1566).

adjacent areas or caused by the negligence of the lessee or permittee or his employees, contractors, subcontractors, with the understanding that payment for such services shall be made at rates to be determined by the authorized representative of the Secretary of Agriculture, which rates shall not be less than the current rates of pay prevailing in the vicinity for services of a similar character: Provided, that if the lessee or permittee, his employees, contractors, subcontractors, or employees of contractors or subcontractors, caused or could have prevented the origin or spread of said fire or fires, no payment shall be made for services so rendered.

During periods of serious fire danger to forest, brush, or grass, as may be specified by the authorized representative of the Secretary of Agriculture, the lessee or permittee shall prohibit smoking and the building of camp and lunch fires by his employees, contractors, subcontractors, and employees of contractors or subcontractors within the area involved except at established camps, and shall enforce this prohibition by all means within his power: Provided that the authorized representative of the Secretary of Agriculture may designate safe places where, after all inflammable material has been cleared away, campfires may be built for the purpose of heating lunches and where, at the option of the lessee or permittee, smoking may be permitted.

The lessee or permittee shall not burn rubbish, trash, or other inflammable materials except with the consent of the authorized representative of the Secretary of Agriculture and shall not use explosives in such a manner as to scatter inflammable materials on the surface of the lands during the forest, brush, or grass fire season, except as authorized to do so or on areas approved by such representative.

The lessee or permittee shall build or construct such fire lines or do such clearing on the lands as the authorized representative of the Secretary of Agriculture decides is essential for forest, brush, and grass fire prevention which is or may be necessitated by the exercise of the privileges authorized by this lease or permit, and shall maintain such fire tools at his headquarters or at the appropriate location on the lands as are deemed necessary by such representative.

(3) In the location, design, construction, and maintenance of all authorized works, buildings, plants, waterways, roads, telegraph or telephone lines, pipelines, reservoirs, tanks, pumping stations, or other structures or clearance, the lessee or permittee shall do all things reasonably necessary to prevent or reduce to the fullest extent scarring and erosion of the lands, pollution of the water resources, and any damage to the watershed. Where

construction, operation, or maintenance of any of the facilities on or connected with this lease or permit causes damage to the watershed or pollution of the water resources, the lessee or permittee agrees to repair such damage and to take such corrective measures to prevent further pollution or damage to the watershed as are deemed necessary by the authorized representative of the Secretary of Agriculture.

(4) If in the opinion of the authorized representative of the Secretary of Agriculture, the lands are valuable for watershed protection, the lessee or permittee shall provide for control of surface runoff and return the affected area to as productive condition as practicable.

(5) To pay the lessor or permitter or his tenant or the surface owner or his tenant, as the case may be, for any and all damage to or destruction of property caused by the lessee's or permittee's operations hereunder; to save and hold the lessor or permitter or the surface owner or their tenants harmless from all damage or claims for damage to persons or property resulting from the lessee's or permittee's operations under this lease or permit.

(6) To recognize existing uses and commitments, in the form of Department of Agriculture grazing, timber cutting, and special use permits, water developments, ditch, road, trail, pipeline, telephone line, and fence rights-of-way and other similar improvements, and to conduct his operations so as to interfere as little as possible with the rights and privileges granted by these permits or with other existing uses.

(7) To install and maintain cattle guards to prevent the passage of livestock in any openings made in fences by the lessee or permittee or his contractors to provide access to the lands covered by this lease or permit for automotive and other equipment.

(8) If lessee or permittee shall construct any camp on the lands, such camp shall be located at a place approved by the authorized representative of the Secretary of Agriculture, and such representative shall have authority to require that such camp be kept in a neat and sanitary condition.

(9) To comply with all federally-approved rules and regulations of the Secretary of Health, Education, and Welfare governing the emission of pollutants into the air from activities which are embraced in this lease or permit.

(10) To comply with all the rules and regulations of the Secretary of Agriculture governing the national forests or other lands under his jurisdiction which are embraced in this lease or permit.

(11) Unless otherwise authorized, prior to the beginning of operations to appoint and maintain at all times during the term of this lease or permit a local agent upon whom may be served written orders or notices respecting matters contained in this stipulation, and to inform the authorized representative of the Secretary of Agriculture, in writing, of the name and address of such agent. If a substitute agent is appointed, the lessee or permittee shall immediately so inform the said representative.

(12) To address all matters relating to this stipulation to Regional Forester, Intermountain Region, at 324 25th Street, Ogden, Utah 84401, who is the authorized representative of the Secretary of Agriculture, or to such other representative as may from time to time, be designated, provided that such designation shall be in writing and be delivered to the lessee or permittee or his agent.

Signature of Lessee

SURFACE OCCUPANCY STIPULATION

1. Lessee agrees not to enter upon the lease area or disturb the surface for exploration or drilling purposes until either:

- (a) An inventory of archeological, paleontological, and historical sites is made by the surface management agency or its designated representative, or
- (b) Lessee has made or caused to be made an inventory of all archeological, paleontological, and historical sites in those areas of the lease subject to development, occupancy, or surface disturbance. The survey must be made by a qualified archeologist acceptable to the surface management agency and the results of this survey provided to the surface management agency. Costs of this survey will be borne by the lessee. After inventory by either lessee's archeologist or the surface management agency reasonable conditions of use will be prepared to protect the sites or salvage objects of antiquity in accordance with the Antiquities Act of June 8, 1906 (34 Stat. 225; 16 USC 431), and the Historical Sites Act of August 21, 1935 (49 Stat. 666; 16 USC 461-467). Costs of salvage of artifacts will be borne by the lessee and all objects of antiquity salvaged will remain the property of the U.S. Government.

2. No occupancy of the surface in the following areas is authorized by this lease. The lessee may employ directional drilling to develop the mineral and/or energy resources under these areas, provided that such drilling or other works will not disturb the surface area or otherwise interfere with their use by the surface management agency. The areas to be excluded from surface occupancy unless specifically approved in the operating plan are:

- (a) Within 500 feet on either side of the centerline of any and all roads and/or highways within the lease area.
- (b) Within 200 feet on either side of the centerline of any and all designated trails within the lease area.
- (c) Within 500 feet of the normal high waterline of any and all streams, lakes, ponds, and reservoir located within the lease area.

- (d) Within 400 feet of any and all springs within the lease area.
- (e) Within 400 feet of any improvements either owned, permitted, leased, or otherwise authorized by the surface management agency.

UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

SURFACE DISTURBANCE STIPULATIONS

Management Agency (name)	Address (include zip code)
U.S. Department of Agriculture Forest Service Regional Forester Intermountain Region	324 25th Street Ogden, Utah 84401

1. Notwithstanding any provision of this lease to the contrary, any drilling, construction, or other operation on the leased lands that will disturb the surface thereof or otherwise affect the environment, hereinafter called "surface disturbing operation," conducted by lessee shall be subject, as set forth in this stipulation, to prior approval of such operation by the Area Geothermal Supervisor in consultation with appropriate surface management agency and to such reasonable conditions, not inconsistent with the purposes for which this lease is issued, as the Supervisor may require to protect the surface of the leased lands and the environment.

2. Prior to entry upon the land or the disturbance of the surface thereof for drilling or other purposes, lessee shall submit for approval two (2) copies of a map and explanation of the nature of the anticipated activity and surface disturbance to the District Engineer or Geothermal Supervisor, as appropriate, and will also furnish the appropriate surface management agency named above, with a copy of such map and explanation.

An environmental analysis will be made by the Geological Survey in consultation with the appropriate surface management agency for the purpose of assuring proper protection of the surface, the natural resources, the environment, existing improvements, and for assuring timely reclamation of disturbed lands.

3. Upon completion of said environmental analysis, the District Engineer or Geothermal Supervisor, as appropriate, shall notify lessee of the conditions, if any, to which the proposed surface disturbing operations will be subject.

Said conditions may relate to any of the following:

- (a) Location of drilling or other exploratory or developmental operations or the manner in which they are to be conducted;

- (b) Types of vehicles that may be used and areas in which they may be used; and
- (c) Manner or location in which improvements such as roads, buildings, pipelines, or other improvements are to be constructed.

Form 3109-5
(August 1973)
Revised

Serial No. _____

Further Planning Area Stipulation

The following described lands embraced in this lease were identified in the Roadless Area Review and Evaluation (RARE II) decision document as requiring further planning:

Future planning may identify all or part of these lands as suitable for wilderness, and the lands so identified may ultimately be designated as wilderness. Information made available to the Forest Service regarding discoveries of mineral deposits on these lands will be considered in the planning process and may be key factors in the land allocation.

Any terms of this lease to the contrary notwithstanding, the following terms shall apply to the above described lands:

1. Only exploration activities for the purposes of discovering and disclosing the extent of mineral deposits is allowed, until development and production operations are specifically concurred in by the Forest Service based on a land management plan and/or a specific environmental analysis of an operating plan.

2. Exploration plans must be specifically approved by the Geological Survey and concurred in by the Forest Service, except that geophysical exploration plans will be approved by the Forest Service. The Forest Service will agree to reasonable access for conducting necessary exploration operations.

3. Any lands covered by this lease which Congress designates as wilderness shall become subject to the provisions of the applicable wilderness legislation, and the Secretary of Agriculture's regulations and Forest Service policies pertaining thereto.

4. The lessee will be responsible, as he deems necessary to protect his interest, for initiating requests to the Geological Survey for suspension of lease terms, rental, or minimum royalties. The Forest Service does not intend that the inclusion of this stipulation be constructed as a basis to deny a request for suspension.

5. Until these lands are allocated to non-wilderness purposes, by a land management plan or specific environmental analysis and decision, mineral-related operations are subject to the following terms:

a. Construction of access ways and operation sites will not be permitted in areas of extremely high environmental sensitivity where such construction would cause serious and irreparable environmental damage.

b. Access way construction will be permitted only where existing access ways are inadequate or other methods of access are impractical.

c. Access ways will be built to a standard no higher than required for safe passage of equipment and support personnel, and to protect surface resources.

d. The access ways and other areas of operation will be reclaimed, as soon as they have served their purpose, to a condition as near as practical to the surface condition existing prior to the authorized use of the lands.

This stipulation is hereby accepted.

Date

Signature

APPENDIX B

REVISIONS FROM THE PRELIMINARY COPY

C

C

Revisions From Preliminary Copy:

Page 2 - Added footnote citing authority for Forest Service's role in leasing procedure.

Page 7 - Cited authority for tiering of environmental analysis and/or impact statements.

Page 11 - Added sentence giving the distance between the Conda KGRA and the Island Park KGRA and Old Faithful Geyser in Yellowstone National Park.

Page 13-14 - Paragraphs concerning Worm Creek and Mount Naomi Roadless Areas were rewritten because of a legal error. (See letter from R. Jackson, Forest Supervisor, Bridger-Teton National Forest in Appendix C.)

Page 14 - "b. Geology" - Geologic age was added for each potential oil- and gas-bearing strata mentioned.

Page 19. Added a paragraph about Research Natural Area.

Pages 24 and 25 - Under "Alternatives Considered," some changing of wording to be more legally correct.

Page 25 and 26 - Under "Management Requirements and Constraints - Item "A" deleted Mount Naomi Roadless Area (4-758) and Worm Creek Roadless Area (-179). Added a new Item B, adding special considerations for Worm Creek Roadless Area. Old Item B and C are now Items C and D. Item C has added phrase saying that stipulations are revised to conform to the Geothermal Steam Act.

Page 28 - Deleted Items 4-9 inclusive.

Page 30-31 - Under "Water" added phrase citing Geothermal Resource Orders aimed to mitigate interstrata flow of ground water. Added a paragraph each for Elk Valley, Marsh, Montpelier Reservoir, and Wetlands.

Page 31 - Under "C. Fisheries," added two sentences to explain why poisoning of a fishery would be very unlikely.

Page 35 - Under "Forest Service Expenditures," corrected years.

Page 36 - Under "Evaluation of Alternatives," minor change in wording to be more legally correct.

Maps - Changed to reflect revisions on pages 13 and 14 of text.

C

C

APPENDIX C
LEGAL CITATIONS

C

C

TITLE 2800 - MINERALS AND GEOLOGY

2822.04 - Responsibility of Forest Service. For National Forest System lands which were reserved from public domain lands, the Mineral Leasing Act of 1920 authorizes the Secretary of the Interior to issue leases and permits without the consent of the Secretary of Agriculture. Thus, the Forest Service has no statutory responsibility for issuing or supervising prospecting permits or leases on these lands. Under the Organic Administration Act (16 U.S.C. 551) the Secretary of Agriculture is authorized to make such rules and regulations as are needed to govern the use and occupancy of the National Forests, and to assure their preservation. By agreement with the Department of the Interior, the Forest Service reviews permit and lease applications and makes recommendations to protect surface resources and to prevent conflict with other activities, plans and programs of the Forest Service and other users. Although not required by statute, the Secretary of the Interior generally accepts Forest Service

*- recommendations regarding public domain leasable minerals. The Federal Coal Leasing Amendments Act of 1975 amends the 1920 Act in regard to public domain coal. Under that act, a coal exploration license or lease may not be issued without the consent of the surface managing agency and without including those conditions upon which consent is given. This applies also to the approval of a licensee's or lessee's operating plan.

In contrast to the 1920 Act, the Mineral Leasing Act for Acquired Lands (Act of Aug. 7, 1947) requires consent by the Secretary of Agriculture prior to the leasing of an acquired mineral estate in National Forest System lands. The Forest Service further has the right to specify terms and conditions under which a lease will be issued to protect the surface resources and to provide for their continued use for other program purposes. By mutual consent, the Secretaries of Agriculture and the Interior have extended those terms to all minerals in National Forest System lands subject to the President's Reorganization Plan No. 3 of 1946.

The Geothermal Steam Act of 1970 (30 U.S.C. 1001-1025) requires that geothermal leasing on National Forest System lands be subject to the consent of, and subject to conditions prescribed by, the Secretary of Agriculture to protect the lands for the purpose for which they were withdrawn or acquired. The Secretary of the Interior is not authorized to issue prospecting permits for geothermal resources which might occur in National Forest System lands.

C

C

TITLE 2800 - MINERALS AND GEOLOGY

2822.04a - Chief. The Chief retains the authority to make recommendations--or to give or deny consent--regarding issuance and stipulations for leases, permits, and licenses for mineral deposits in the following National Forest System lands:

1. Lands under formal agreement for the protection of the source of water supplies for towns, cities, or irrigation districts (36 CFR 251.9).
2. Wildernesses designated by Congress. -*
- *- 3. Administration-endorsed wilderness proposals, including RARE II areas recommended for wilderness.
4. Lands designated by Congress as wilderness study areas.
5. Lands designated as recreation areas by the Secretary of Agriculture or the Chief (36 CFR 294.1).
6. Lands designated as Experimental Forests and Ranges or Natural Areas by the Chief (36 CFR 251.23).
7. Lands under permit to the Department of Defense or any unit or agency thereof, including the National Guard.
8. Title III lands scheduled for early transfer to other Federal agencies.
9. Lands under permit or other authorization of use to any other agency of the United States or to State agencies.
10. Lands under Forest Service jurisdiction in Puerto Rico.

2822.04b - Regional Foresters. The Regional Forester will review the Forest Supervisor's recommendations and proposed surface protection stipulations. Thereafter, the Regional Forester will advise the appropriate office of the BLM as to whether the Forest Service recommends (consents to) issuance of the lease, permit or license and will enclose appropriate special stipulations. This authority may not be redelegated to the Forest Supervisors. Within the Regional staff this authority may not be redelegated below the Director having specific responsibility for minerals. Exceptions from this delegation are those listed in FSM 2822.04a.

The Regional Forester may work directly with the area oil and gas, geothermal, or mining supervisor of the Geological Survey in regard to technical matters concerning leases, permits and licenses on lands under his jurisdiction. This responsibility may be redelegated to the Forest Supervisor. -*



TITLE 2800 - MINERALS AND GEOLOGY

2820

*- disposal under the act of June 30, 1950. Because the act authorizes leasing and development subject to conditions similar to those prescribed for like deposits covered by the reorganization plan, the Secretary of the Interior has prescribed the same regulations to the extent they are not inconsistent (43 CFR 3565).

2822.14 - Leasing Activities in Special Areas.

2822.14a - Wilderness. The Wilderness Act of September 3, 1964 (78 Stat. 890) provides that until midnight December 31, 1983, all laws pertaining to mineral leasing apply to Wilderness, to the same extent as applicable prior to the Act (16 U.S.C. 1133(d)(3)). The Wilderness Act does not preclude any activity, including prospecting, for the gathering of information, if done in a manner compatible with the preservation of the wilderness environment. The Forest Service may prescribe reasonable stipulations governing ingress and egress consistent with the use of the land for mineral location, development, and exploration. Also, the Forest Service may prescribe reasonable stipulations to protect the wilderness character of the land consistent with its use for the purposes for which the land is leased, permitted, or licensed. After December 31, 1983, the mineral deposits in Wilderness will be withdrawn from further mineral leasing.

The Chief will normally recommend or consent to issuance of leases, permits, or licenses where operations can be conducted by methods not requiring surface disturbance, and other impacts are acceptable. However, if surface disturbance would be required, the Chief's recommendation or decision will be based on an evaluation of all environmental and land use values, alternatives for operations, and mineral values. This policy shall also apply to administration-endorsed wilderness proposals and to lands designated by Congress as wilderness study areas. For further direction, see FSM 2323.73 and 2320.3, item (8).

2822.14b - RARE II Further-Planning Areas. Leasing and operations decisions on further-planning areas are guided by *-*



TITLE 2800 - MINERALS AND GEOLOGY

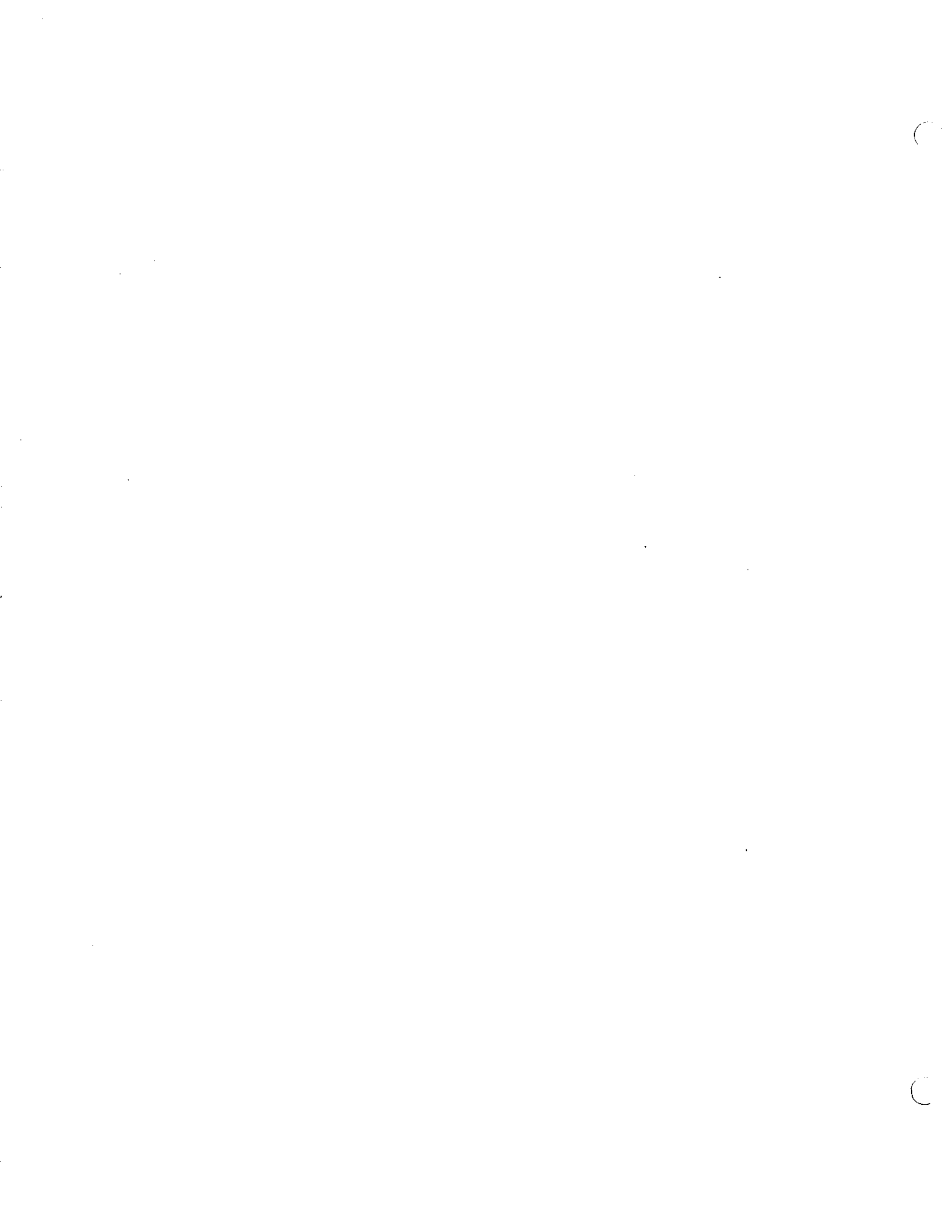
*-the Final Environmental Statement of January 1979. A primary reason for allocating an area to further-planning was the need to gather additional data on which to base a wilderness non-wilderness decision. Therefore, mineral exploration is considered an integral part of the further planning process, but it must be conducted in such a way that a wilderness option is retained or can be restored by reclamation. The need for an environmental impact statement prior to a decision on such areas shall be determined in accordance with the National Environmental Policy Act (FSM 1950).

2822.14c - National Recreation Areas. For each National Recreation Area (NRA), the applicable legislation must be examined to determine its specific requirements concerning leasing. FSM 2806.6 lists the NRA's, gives references, and indicates briefly the relevance to mineral leasing.

2822.14d - National Wild and Scenic Rivers System. The Wild and Scenic Rivers Act (82 Stat. 906, as amended, 16 U.S.C. 1271-1287) provides that, subject to valid existing rights, Federal lands constituting the river bed or bank, or situated within one-quarter mile of the bank of a river specifically designated as a wild river are withdrawn from operation of the mining and mineral leasing laws. When specifically designated as Scenic and Recreation River Areas, Federal lands are not withdrawn from the operations of the various mineral leasing laws by the statute. Proposals for leasing these lands must be carefully evaluated to prevent pollution and unnecessary impairment of the scenery.

Congress may designate rivers and their immediate environs for study to determine if they are suitable for inclusion into the National Wild and Scenic Rivers System. These study areas, averaging 320 acres per mile on both sides of the river, are not normally withdrawn from the mineral leasing acts. Leases, permits, and licenses may be issued with appropriate surface resource stipulations which will essentially preserve the existing characteristics of the study area until a final decision is made.

2822.14e - Custer National Forest. The Surface Mining Control and Reclamation Act of 1977 provides that subject to -*



2822.2 - Withdrawals From Mineral Leasing

2822.21 - Justification and Purposes. Withdrawal (FSM 2806.2) may be requested if mineral leasing would (1) be incompatible with the purpose for which the land is dedicated, used, or reserved from use; (2) destroy or damage the values sought to be preserved; (3) hamper, restrict, or render useless the plans, programs, or functions for which the land has been utilized; (4) nullify major accomplishments and investments; or (5) create intolerable hazards or unjustified risk on lands having or planned for special purposes and programs, such as city watersheds, experimental forests, developed recreation areas, and archaeological sites. -*

*-Withdrawals may be requested in Wilderness and Primitive Areas for the same reasons as for other lands. However, withdrawals may not be requested merely to protect the existing wilderness character within a Wilderness or Primitive Area.

There should be relatively few requests for withdrawals from operation of the mineral leasing laws, because the land and

surface resources ordinarily can be protected by proper stipulations, or because detrimental leasing can be prevented by recommendations or refusal to consent to applications. However, where there are numerous or repeated offers or applications to lease certain lands where leasing would be incompatible with existing or planned uses, it may be advantageous to request withdrawal. It will not, ordinarily, be necessary to request withdrawals of small special areas such as campgrounds, scenic areas, or roadside zones. Use in such areas can be controlled by adverse recommendations, refusal to consent to leasing, or restrictive stipulations.

A withdrawal will preclude leasing within the specified area for those minerals covered. All pending and future applications for the minerals on withdrawn lands will be denied without the right of appeals. The order of withdrawal will be public notification that leasing will not be permitted.

A withdrawal may be sought to prevent renewal or extension of existing leases, if anticipated uses under lease are incompatible with Forest Service plans and programs. For land with existing oil and gas leases, a Secretarial order will not prevent an extension, but extension can be prevented by a public land order withdrawal.

2822.22 - Withdrawal Requests and Procedures. A request for withdrawal from mineral leasing will be forwarded to the Chief the same as a request for withdrawal from the general mining laws (FSM 2760). The application form will be modified to suit the request, and the justification for the request will -*





Public Law 91-631
91st Congress, S. 719
December 31, 1970

An Act

84 STAT. 1876

To establish a national mining and minerals policy.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That this Act may be cited as the "Mining and Minerals Policy Act of 1970".

Mining and
Minerals Policy
Act of 1970.

SEC. 2. The Congress declares that it is the continuing policy of the Federal Government in the national interest to foster and encourage private enterprise in (1) the development of economically sound and stable domestic mining, minerals, metal and mineral reclamation industries, (2) the orderly and economic development of domestic mineral resources, reserves, and reclamation of metals and minerals to help assure satisfaction of industrial, security and environmental needs, (3) mining, mineral, and metallurgical research, including the use and recycling of scrap to promote the wise and efficient use of our natural and reclaimable mineral resources, and (4) the study and development of methods for the disposal, control, and reclamation of mineral waste products, and the reclamation of mined land, so as to lessen any adverse impact of mineral extraction and processing upon the physical environment that may result from mining or mineral activities.

For the purpose of this Act "minerals" shall include all minerals and mineral fuels including oil, gas, coal, oil shale and uranium.

"Minerals."

It shall be the responsibility of the Secretary of the Interior to carry out this policy when exercising his authority under such programs as may be authorized by law other than this Act. For this purpose the Secretary of the Interior shall include in his annual report to the Congress a report on the state of the domestic mining, minerals, and mineral reclamation industries, including a statement of the trend in utilization and depletion of these resources, together with such recommendations for legislative programs as may be necessary to implement the policy of this Act.

Report to
Congress.

Approved December 31, 1970.

LEGISLATIVE HISTORY:

HOUSE REPORT No. 91-1442 (Comm. on Interior and Insular Affairs).

SENATE REPORT No. 91-390 (Comm. on Interior and Insular Affairs).

CONGRESSIONAL RECORD:

Vol. 115 (1969): Sept. 5, considered and passed Senate.

Vol. 116 (1970): Sept. 21, considered and passed House, amended.
Oct. 14, Dec. 18, Senate concurred in House amendments.



APPENDIX D
PUBLIC RESPONSES



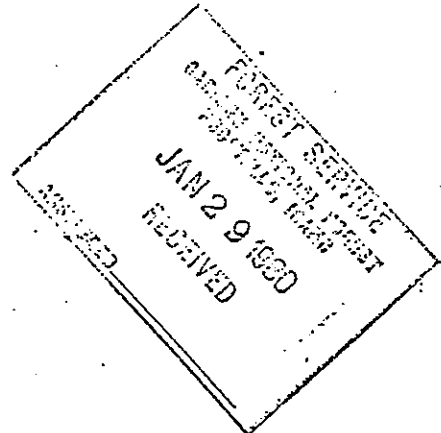


STATE OF IDAHO

DEPARTMENT OF FISH AND GAME

REGION 5
636 PERSHING, SUITE B
POCATELLO, IDAHO 83201

January 28, 1980



Mr. Charles Hendricks, Supervisor
Caribou National Forest
P. O. Box 4189
Pocatello, Idaho 83201

Dear Chuck:

Personnel from our department have recently reviewed your Environmental Assessment for Geothermal Leasing on the Caribou National Forest and feel that requirements to protect fish and wildlife resources during exploration are adequately discussed. We have no additional comments on this subject at this time.

We appreciate the opportunity to review this document in its initial preparation states and also to cooperate with you during its development.

Sincerely,

IDAHO DEPARTMENT OF FISH AND GAME
Robert L. Salter, Acting Director

Bill
Bill Davidson, Supervisor
Region 5

cc: E. B. Connors, Mining Engineer, USFS

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Caribou National Forest
Suite 294, Federal Building
Pocatello, Idaho 83201

2820
1950
March 21, 1980

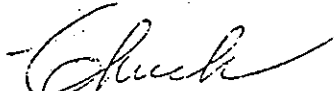


Mr. Bill Davidson
Supervisor
Idaho Department of Fish and Game
636 Pershing, Suite B
Pocatello, Idaho 83201

Dear Bill:

Thank you for the kind remarks in your letter of January 28.
We appreciate the time and effort that you and your people have
contributed to this project.

Sincerely,


CHARLES J. HENDRICKS
Forest Supervisor



United States Department of the Interior

FISH AND WILDLIFE SERVICE

ECOLOGICAL SERVICES

4620 Overland Road, Room 209

Boise, Idaho 83705

CARIBOU NATIONAL FOREST	
February 5, 1980	
Supervisor	<i>CA</i>
Reg. Staff	
Land Staff	
For. Engr.	
Adm. Officer	
Exec. Ldr.	
AA D & R	
AA P & AS	
<i>CA</i>	
Checked by _____ date _____	
Prepared by _____ date _____	
WFO made for _____	

Mr. Charles J. Hendricks
 Forest Supervisor
 Caribou National Forest
 Suite 294, Federal Building
 Pocatello, Idaho 83201

Dear Mr. Hendricks:

This responds to your request for Fish and Wildlife Service review of the Final Environmental Assessment for Geothermal Leasing on the Caribou National Forest. Please refer to our correspondence of January 10, 1980, to you, commenting on the draft EA.

General Comments

While some of our concerns for treatment of fish and wildlife resources in the draft EA were mollified by revisions in the final text, we remain concerned about certain omissions and decisions treated in the final EA. With slight modification we would concur with the preferred alternative "C".

Specific Comments

Pages 23-24. Endangered Species. We commented that the draft EA did not consider grizzly bear and northern bald eagle. The final EA still does not address the occurrence of those species on the forest.

Page 33. We would add the following Class I "Blue Ribbon" streams to the list of geographic areas which will not be recommended for geothermal leasing: Lanes Creek, Diamond Creek, Upper Blackfoot River, St. Charles Creek, and Cub River.

Page 37. The terminology in item 4 "... adequate supply .." remains vague. We feel more specific terminology pertaining to water supply would afford better protection for fish and wildlife values.

Again, we hope these comments will be useful in developing a geothermal leasing program on the Caribou National Forest. Thank you for this opportunity to comment.

Sincerely yours,

Walter D. Ray

Walter D. Ray
Acting Field Supervisor

cc: Richard Forester, Palo Alto
Wm. Spaulding, Env. Washington D.C.
Office of Env. Coordination, Washington D.C.
Chuck Peck, SIRC

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Caribou National Forest
Suite 294, Federal Building
Pocatello, Idaho 83201

2820
1950
March 21, 1980



Mr. Walter Ray
Acting Field Supervisor
U.S. Department of Interior
Fish and Wildlife Service
4620 Overland Road
Boise, Idaho 83705

Dear Mr. Ray:

Thank you for your critique of our Geothermal Leasing Environmental Assessment.

The points made in your review were also made in a letter from Arch Mehrhoff. In the interest of expediency, I am enclosing a copy of my response to him as a means of answer to your comments.

Sincerely,


CHARLES J. HENDRICKS
Forest Supervisor

Enclosure

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Caribou National Forest
Suite 294, Federal Building
Pocatello, Idaho 83201

2800

March 21, 1980



Mr. O'dell Frandsen
District Manager
Bureau of Land Management
940 Lincoln Road
Idaho Falls, Idaho 83401

Dear O'dell:

We appreciate the time and effort that you and your staff extended to coordinate our Geothermal Environmental Analysis with yours.

Thank you for the comments in your letter of January 30.

Sincerely,

CHARLES J. HENDRICKS
Forest Supervisor

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Caribou National Forest
Pocatello, Idaho 83201

2820 Leases and Permits
REPLY TO: 1950 Environmental Statement Process

March 21, 1980

SUBJECT: Geothermal Leasing EA Review



TO: Forest Supervisor, Bridger-Teton National Forest

The two paragraphs that you cited on page 15 were indeed in error. Correction has been made in the revised text. We are grateful to you for this constructive criticism. Thank you.


CHARLES J. HENDRICKS
Forest Supervisor



United States Department of the Interior

FISH AND WILDLIFE SERVICE

AREA OFFICE - IDAHO AND OREGON
4620 OVERLAND ROAD, ROOM 238
BOISE, IDAHO 83705
FTS: 554-1960 / COMM: 208/384-1960

JAN 21 1980

Charles J. Hendricks
Forest Supervisor
Caribou National Forest
Suite 294, Federal Building
Pocatello, ID 83201

Dear Mr. Hendricks *Chuck:*

This responds to your request for Fish and Wildlife Service review of the Draft Environmental Assessment Geothermal Leasing On the Caribou National Forest.

On December 19, 1979, Mr. Charles Peck, Refuge Manager, Southeast Idaho Refuge Complex attended a meeting at your office for purposes of discussing geothermal leasing on the forest. Mr. Peck forwarded his summary of the meeting and comments on the EA to our office for review. His comments have been incorporated in this communication.

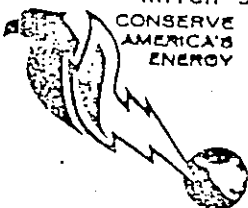
General Comments

We concur with the Caribou National Forest (CNF) conclusion that the present EA cannot reasonably assess potential impacts from specific development efforts, and we support the view that site-specific EARs or EISs be required for each discovery.

We are, however, concerned about any land disturbing activities on generally unstable land types (Cretaceous sandstone and limestone) especially where slopes are steep and adjacent to flowing waters. We would, therefore, urge the forest to restrict entry onto these lands. Lastly, while site-specific evaluation of threatened and endangered species may be adequate, their distribution on CNF lands could be included on maps 3A and 3B.

Specific Comments

Pages 23, 24, 33, and 36. Reference to Threatened or Endangered Species is inadequate. In addition to the peregrine falcon, the northern bald eagle is known to occur on the CNF. Also, Critical Habitat designation for the whooping crane around Grays Lake includes a small amount of CNF which should be exempted from leasing.



Save Energy and You Serve America!

Page 36. Suggest item 3.c.(4) be changed to read, "Known habitat of Threatened or Endangered species when actually occupied." This will provide a general stipulation for whooping cranes, roosting bald eagles, and roaming grizzly bear that occur in unexpected places.

Page 37. Item 4 deals with use of surface waters. In specific cases it may be necessary to prevent any use of surface waters for exploratory drilling purposes. Also, terminology, "...adequate supply..." is subject to broad subjective interpretation. We suggest more specific language in an effort to better protect fish and wildlife values.

The Fish and Wildlife Service shares the following concerns with the Idaho Department of Fish and Game:

- (1) There may be important big game winter ranges that are not identified on maps 3A or 3B; and
- (2) The fishery values of Class I "Blue Ribbon" streams such as Lanes Creek, Diamond Creek, Upper Blackfoot River, St. Charles Creek, and Cub River may be too great to risk geothermal exploration and development, even beyond the standard 500 foot buffer distances.

These items should be carefully investigated.

We hope these comments will be useful in developing a geothermal leasing program on the CNF, and thank you for this opportunity to comment.

Sincerely yours,



L. A. Mehrhoff
Area Manager

cc: Charles Peck, SIRC, Pocatello, ID

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE

Caribou National Forest
Suite 294, Federal Building
Pocatello, Idaho 83201

2820
1950
March 21, 1980



Mr. L. A. Mehrhoff
Area Manager
U.S. Department of Interior
Fish and Wildlife Service
4620 Overland Road
Boise, Idaho 83705

Dear Arch:

We are grateful for your thoughtful review of our Geothermal Leasing Environmental Assessment.

Entry onto areas of unstable terrain or where streams might be jeopardized is adequately controlled, we believe, by the special stipulations 3a and 3b on page 36 and by Standard Stipulation 3109-3 in the Appendix. We try to avoid blanket restriction in order to comply with the National Mining and Minerals Policy Act and to allow all reasonable opportunity for exploration for energy sources.

To reveal, in any way, sightings or habitat of endangered species, we think, would further jeopardize their existence.

Bald eagles have been sighted at various locations on the Forest. Failing to so note was an oversight.

The potential whooping crane habitat on the Forest adjacent to Grays Lake is exempt from leasing in the Environmental Analysis and no change is required.

Item 3c(4) does read as you suggest.

We agree that protection of waters for fish and wildlife is essential, and it is the intent of Item 4 to so protect those waters. However, the conditions are so variable that more specific language would only confuse the issue. The intent is clear. Our policy is to monitor operations on the Forest, which is the effective way to accomplish the desired compliance.

It is acknowledged on page 23 that there may be additional critical habitat that has not yet been identified. You may note on page 35 that a site examination is required before approval of

operating plans. One of the purposes of this examination is to identify any critical wildlife habitat so that it can be afforded the protection needed.

Plans for any exploration effort that may have any significant impact on the surface will require an environmental analysis. Any plans for production will most likely require an environmental statement. It is through these NEPA processes that the fisheries and the water quality of the streams will be assured protection while permitting energy exploration and development to proceed.

Sincerely,



CHARLES J. HENDRICKS
Forest Supervisor

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
Caribou National Forest
Suite 294, Federal Building
Pocatello, Idaho 83201

2820
1950
March 21, 1980



Dr. Ralph Maughan
Idaho Environmental Council
Box 8264
Pocatello, Idaho 83209

Dear Ralph:

Thank you for your review of our Geothermal Environmental Assessment.

Geothermal exploration drilling will be handled under a site-specific environmental analysis--the same as oil and gas drilling is now handled. Any development and production of a geothermal discovery is almost certain to require an environmental impact statement.

A procedure is under consideration whereby the public in general and interested parties such as you will be periodically apprised of environmental assessments and environmental impact statements being prepared or published by this Forest.

At present, several candidate Research Natural Areas (RNAs) are under consideration. Should a geothermal lease application cover any part of an area under consideration, appropriate stipulations will be considered. The probability of such conflict appears remote at this time. Under the National Mining and Minerals Policy Act, and with the present energy crisis, we cannot legally or morally hold geothermal leases in abeyance pending a Forest Management Plan.

Sincerely,

A handwritten signature in cursive script that reads "Charles J. Hendricks".

CHARLES J. HENDRICKS
Forest Supervisor

