Final Environmental Assessment

BPA's Hot Springs - Garrison Fiber Optic Project

DOE-EA-1002

Bonneville
POWER ADMINISTRATION

Prepared by:
Bonneville Power Administration

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Introduction

Bonneville Power Administration (BPA) maintains one of the largest and most reliable power transmission systems in the United States. This system provides electricity throughout the Pacific Northwest using a large network of power lines, substations, and control centers. BPA currently controls and operates this system through the use of a telecommunications network of microwave radios.

BPA has identified a need to upgrade this existing operational telecommunications system over the next 15 years. Almost all of the equipment in the existing telecommunications system consists of 1960s-era radio technology. Although this equipment has provided years of reliable service, it cannot accommodate future growth within the power system. To meet future needs, BPA is proposing to upgrade and augment the operational telecommunications system using fiber optics—a technology that uses light pulses, instead of radio or electrical signals, to transmit messages. BPA has prepared a Programmatic Environmental Assessment (Programmatic EA) that addresses this system-wide upgrade.

One of the first proposed sections to be upgraded to fiber optic technology is from BPA's Hot Springs Substation to the Garrison Substation in northwestern Montana. This EA addresses the potential environmental effects of this proposed upgrade.

Proposed Action

BPA is proposing to upgrade its operational telecommunications system between the Hot Springs Substation and the Garrison Substation using a fiber optic system. The project would primarily involve installing 190 kilometers (120 miles) of fiber optic cable on existing transmission structures and installing new fiber optic equipment in BPA's substation yards and control houses.

The existing telecommunications system in this area has only one analog radio path entering and exiting Garrison Substation. In addition, the existing system can be adversely affected by weather conditions, such as rain or fog. This creates a reliability problem because BPA's Power Dispatchers cannot "see" the power system in the Hot Springs - Garrison area when the telecommunications system fails. This makes it difficult to operate and protect the power system in that area.

A number of economic and technical factors were considered when selecting the proposed action, including reliability, equipment availability, data capacity, radio frequency coordination, terrain issues, and installation/construction issues. The only other technically feasible alternative for upgrading the system is the use of digital microwave radios. The high capacity analog radios currently used in the BPA system are

no longer available. Satellite communication systems are not suitable for relaying and other time-critical circuits because of inherent delays associated with the signal's travel between the earth and the satellites.

Description of Activities

The fiber optic system would be comprised of two major components—the fiber optic cable and the telecommunications equipment, which includes the transmitters and receivers. BPA would attach the fiber optic cable to existing transmission structures along the Hot Springs-Garrison line. On existing H-frame wood poles, a special metal fitting would be installed below the power lines. The fiber optic cable would then be attached to the pole using this new fitting. When fiber optic cable is attached to lattice steel towers or steel structures, the cable positioning would usually be below the conductors, at the waist of the structure. In a few cases, the fiber optic cable would simply replace an existing groundwire at the top of the structure.

Stringing the fiber optic cable would generally be accomplished using ground-based pulling machines. Helicopters would be used to string the cable in environmentally sensitive areas or where ground access is a problem. The cable would be installed in approximately 5-kilometer (3-mile) segments, each requiring a stringing area of approximately 0.1 hectare (0.25 acre) in size. Stringing areas would be located within the existing rights-of-way, at existing structures. No ground disturbance would be necessary in these areas, but vegetation could be damaged by equipment driving onto the site for a short period of time. It is expected that installation of cable and connector brackets would proceed at a rate of approximately 11-16 kilometers (7-10 miles) per week.

Staging areas would also be needed to store the equipment and construction materials. Two staging areas have been identified along the line—one near Missoula, the other near Hot Springs Substation. Both sites have previously been used as staging areas and would not require any vegetation clearing or changes in existing land use. The associated communications equipment, which is used to convert the electrical signals to and from optical signals, would be placed on telecommunications racks in the Hot Springs, Rattlesnake, and Garrison substation control houses. No ground disturbing activities would be required for these installations.

Environmental Issues

The following sections summarize some of the potential environmental effects associated with the proposed actions.

Land Use/Recreation. The Hot Springs-Garrison line crosses approximately 82 kilometers (51 miles) of Flathead Indian Reservation, 4.8 kilometers (3 miles) of U.S. Bureau of Land Management (BLM) land, 4 kilometers (2.5 miles) of Lolo National Forest Service land, 1.2 kilometers (0.75 mile) of Deer Lodge National Forest Service land, and the rest private lands. A variety of land uses occur along this project route, including residential/commercial, recreational, and agricultural uses.

BPA plans to install the new fiber optic cable on existing transmission line structures and would use existing access roads. Using the existing rights-of-way for all project construction would be consistent with the existing land-use designation. Cable installation activities could adversely affect nearby residents and commercial establishment because of noise and dust. Construction activities could also adversely affect some dispersed recreational activities (i.e., hiking and fishing) because of noise and visual intrusion. However, any impacts associated with construction activities would generally be isolated and would last only a short time. No long-term impacts are expected as a result of this project since operational and maintenance activities would be conducted as part of the on-going maintenance activities in these areas.

Soils/Geology. The project area is characterized by steep mountains, canyons, and broad intermountain valleys. Adverse impacts to earth resources could result when the ground is disturbed by road improvements or vegetation clearing. Because this project would not involve any new roads, major road improvements, or new poles, these types of impacts would be greatly reduced.

The potential for greatest impact occurs at the 40 sites where pulling and tensioning equipment is needed. Impacts would be short-term and limited to localized disturbance of soil and vegetation caused by equipment traffic and operation. The pulling or tensioning site located west of Cramer Creek (tower 82/4) is on a steep, poorly vegetated slope that is susceptible to erosion. This pulling site would either be moved to a more stable location, or other mitigation would be employed to minimize impacts.

Vegetation. Vegetation in the project area can be classified into four major types: steppe, forested, riparian, and agricultural. Adverse impacts to vegetation would primarily be caused by vehicular traffic and pulling and tensioning equipment. Any impacts are expected to be low and short-term since existing roads and/or rights-of-way would be used by ground vehicles. Areas where vegetation would be crushed and/or uprooted would be reseeded.

Wetlands/Floodplains. No direct impacts to wetlands are expected as all wetlands would be spanned and no new access roads are proposed. Slight, short-term impacts could result from soil disturbance caused by vehicular traffic, but these impacts would be further reduced through use of erosion-control devices.

There are 26 transmission structures currently located within areas designated as 100-year floodplains. Three of these structures (24/8, 25/2, and 9/14) are identified as pulling and tensioning sites. Overall impacts to these areas would be low and of short duration as there are no new roads or structures proposed for these areas. Although some soil and vegetation could be disturbed by construction activities, all three sites are currently used for agricultural production and would be returned to their original condition following construction.

Water Resources. The project would cross 35 perennial streams, including the Flathead River, Little Bitterroot River, Clark Fork River, and Rattlesnake Creek. More than 150 intermittent stream beds would also be crossed. The project would have negligible effects on water quality since construction activities would be limited to minor modifications on existing transmission structures and stringing of fiber optic cable. No new structures or access roads would be needed, and except for the potential replacement of an existing culvert, no construction activities would occur within any streams. The project would not introduce, nor facilitate the introduction of contaminants into ground water resources.

Fish and Wildlife. Construction activities could temporarily disturb wildlife within the rights-of-way and adjacent habitat areas. Any effect, however, is expected to be minor because of the temporary nature of the construction activities. Consultations with State, Tribal, and Federal wildlife biologists have resulted in the identification of several big-game wintering areas, primarily elk and mule deer. Construction activities within these areas would not be allowed during the time period from December 1 through April 30 to avoid adverse impacts. In addition, no construction activities would be allowed within 0.8 kilometer (0.5 mile) of any occupied osprey nest between March 15 and August 15. There are two bald eagle nests approximately 0.8 kilometer (0.5 mile) from the construction area. BPA would not allow construction within a 0.8 kilometer (0.5 mile) zone from March 1 to August 15 in this area.

Installation of the fiber optic cable across rivers and streams could create a collision hazard for birds if the cable was attached above the conductors. However, the only location where this would occur is at the river crossing on the Flathead River. To avoid creating a new collision hazard, the fiber optic cable would replace the existing groundwire at this location. The cable would also be marked with aviation marker balls or an equivalent system.

No impacts to fish or other aquatic resources are expected as there is no clearing or major road building proposed. One culvert may need to be replaced or the stream forded, depending on the time of year construction would take place. Necessary permits for the culvert replacement would be obtained and BPA would abide by the permit requirements to avoid any impacts.

Threatened, Endangered, and Sensitive Species. The U.S. Fish and Wildlife Service (USFWS) has identified the bald eagle (*Haliaeetus leucocephalus*), peregrine falcon (*Falco peregrinus*), gray wolf (*Canis lupus*), grizzly bear (*Ursus arctos*), and water howellia (*Howellia aquatilis*) as Federally listed wildlife and plant species that

may occur in the project area. In compliance with Section 7 of the Endangered Species Act, BPA prepared a biological assessment to determine whether any of these species, or their habitat, may be affected by the proposed action. Results of the biological assessment was sent to USFWS for concurrence on September 26, 1994. It is BPA's opinion that this project is not likely to adversely affect these species. In an October 17, 1994 letter, USFWS concurred with BPA's determination that the project is not likely to adversely affect any threatened or endangered species.

In addition to the Federally listed species, there are two wildlife species listed as sensitive species by the State of Montana and the Lolo National Forest that may be present along the project route. These species are the flammulated owl (*Otus flammeolus*) and blackbacked woodpecker (*Picoides arcticus*). Neither of these species or their habitat would be adversely affected by the project.

Visual Resources. Construction and operation of the fiber optic system could have both short- and long-term effects on visual resources. Short-term visual impacts could occur when construction activities are visible from sensitive viewpoints. Long-term impacts could result from the presence of the new fiber optic cable. The fiber optic cable itself is only approximately 1.3 centimeters (0.5 inch) in diameter, which is smaller than the existing conductors. Because the new cable would be attached to existing structures, visual impacts would be low and non-significant. This is because the initial impact of the structure has already been imposed on the landscape, and the incremental increase of visual elements would not be noticeable to the casual observer.

Cultural Resources. Cultural resources can be adversely impacted by construction activities and from visual intrusion. A survey of cultural resources was conducted along the southern portion of the Hot Springs-Garrison transmission line corridor. This survey included an area of approximately 109 kilometers (68 miles) from the Garrison Substation to the southern border of the Flathead Indian Reservation. An additional 85 kilometers (53 miles) were not surveyed due to ongoing negotiations with the Confederated Salish and Kootenai Tribes of the Flathead Nation. Additional information on cultural resources within the northern segment of the project will be submitted by BPA to the appropriate review agencies as soon as it is available.

The survey identified several cultural resources within the project corridor. However, no impacts to cultural resources are expected as result of the project. BPA plans to avoid any sites that are potentially eligible for inclusion in the National Register of Historic Places (NRHP). The Section 106 process of the National Historic Preservation Act (NHPA) has been implemented but has not yet been completed . All steps in the process will be completed to the satisfaction of the Montana State Historic Preservation Officer (SHPO). Should any as-yet unidentified cultural resources be discovered during project development, steps would be undertaken to preserve the resources as they currently exist until they can be assessed for NRHP eligibility.

Chapter 1

Introduction

1.1 BACKGROUND

Bonneville Power Administration (BPA) maintains one of the largest and most reliable power transmission systems in the United States. This system provides electricity throughout the Pacific Northwest using a large network of power lines, substations, and control centers. BPA currently controls and operates this system through the use of a telecommunications network of microwave radios.

BPA has identified a need to upgrade this existing operational telecommunications system over the next 15 years. Almost all of the equipment in the existing telecommunications system consists of 1960s-era radio technology. Although this equipment has provided years of reliable service, it cannot accommodate future growth within the power system. To meet future needs, BPA is proposing to upgrade the operational telecommunications system using fiber optics—a technology that uses light pulses, instead of radio or electrical signals, to transmit messages. BPA has prepared a Programmatic EA that addresses this system-wide upgrade (BPA 1994).

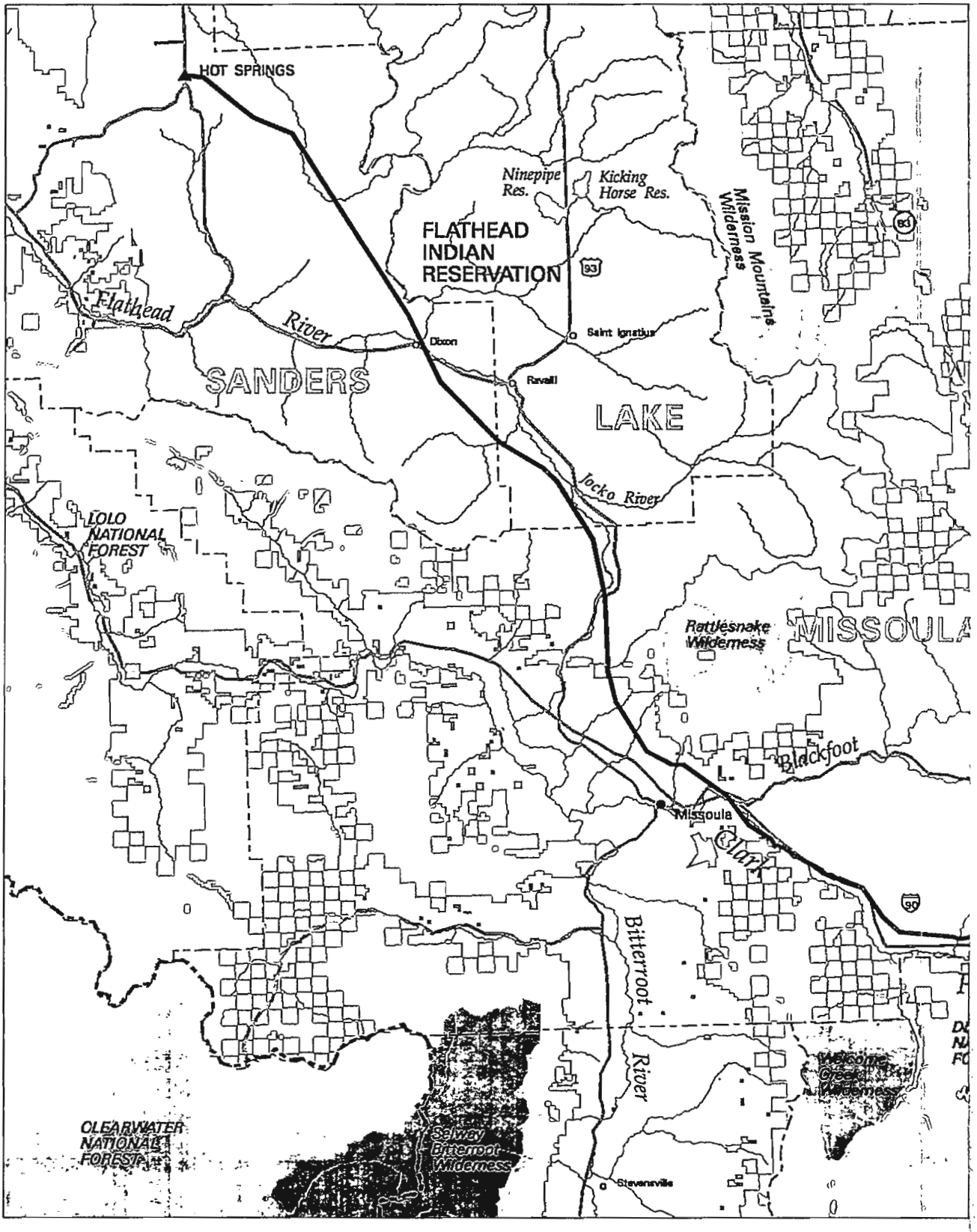
One of the first proposed sections to be upgraded to fiber optic technology is from BPA's Hot Springs Substation to the Garrison Substation in northwestern Montana (Figure 1-1). This project would involve adding 190 kilometers (120 miles) of fiber optic cable to existing transmission structures and adding telecommunications equipment within the existing substation yards and buildings.

1.2 PURPOSE AND NEED

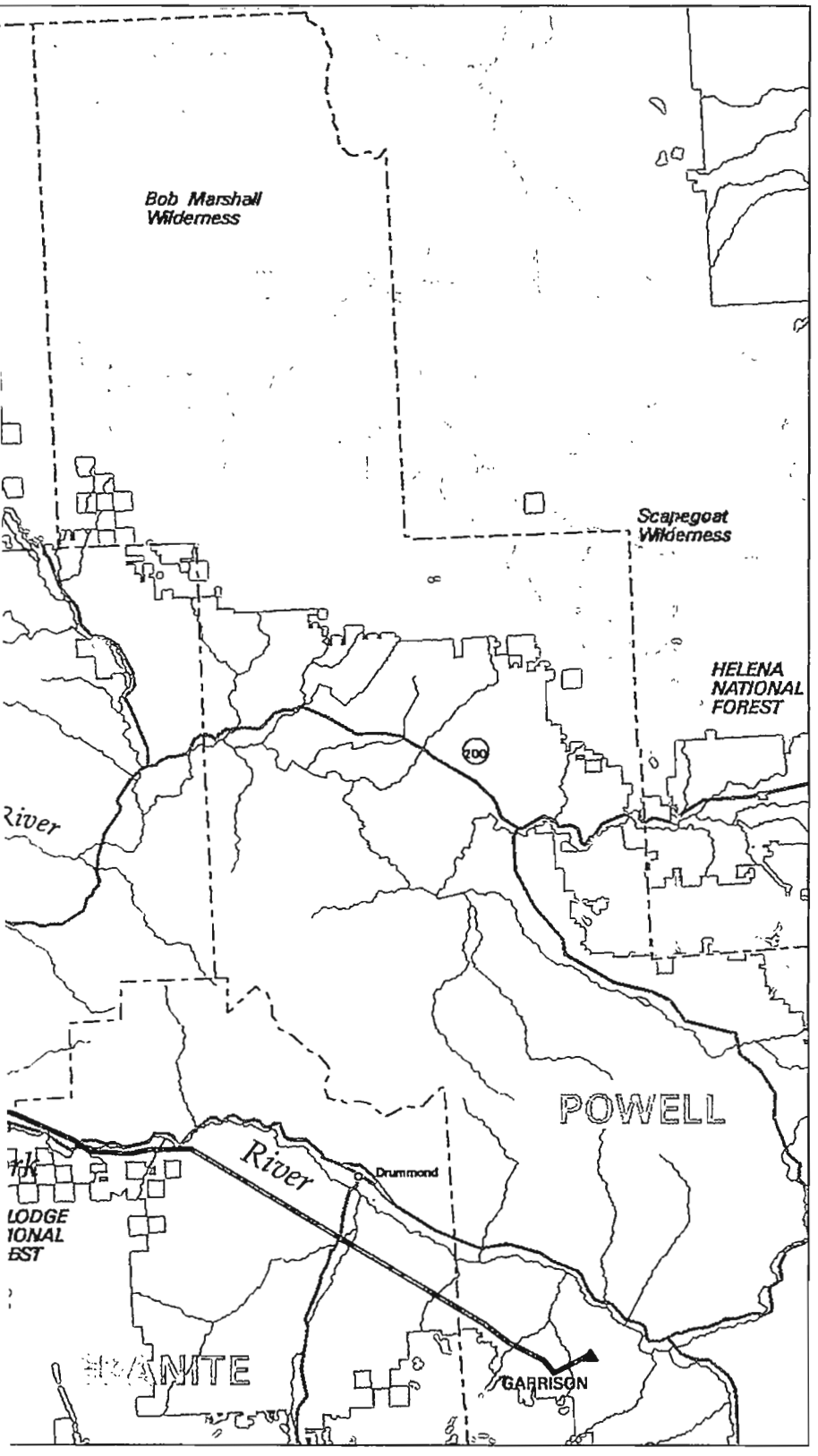
BPA needs to improve reliability of the operational telecommunications system from Hot Springs to Garrison Substation. The purpose of this project is to augment the existing analog microwave system from Hot Springs to Garrison with fiber optic equipment (cable and transmitters/receivers).

The existing telecommunication system has only one analog radio path entering and exiting Garrison Substation. In addition, the existing system can be adversely affected by weather conditions, such as rain or fog. This creates a reliability problem because BPA's Power Dispatchers cannot "see" the power system in the Hot Springs-Garrison area when the telecommunications system fails. This makes it difficult to operate and protect the power system in that area. The addition of the proposed fiber optic route would create a second telecommunications path out of Garrison Substation that is immune to weather disturbances. (Additional details regarding the need and purpose for upgrading the operational telecommunications system are provided in the Programmatic EA.)

FIBER OPTICS PROJECT: H



ot Springs - Garrison



LEGEND

- Proposed Fiber Optics Cable Location
- Substation
- National Forest
- Wilderness Area
- Indian Reservation

KILOMETERS
0 5 10 15 20

MILES
0 5 10 15 20

Location Map

Figure 1-1

Chapter 2

Alternatives Including the Proposed Action

2.1 NO-ACTION ALTERNATIVE

The National Environmental Policy Act (NEPA) requires that a no-action alternative be considered as a possible alternative. Under this alternative, BPA would not upgrade its telecommunications system from the Hot Springs Substation to the Garrison Substation. Instead, the existing system would remain the only one in use. This existing system is subject to weather outages and does not meet BPA's reliability criteria which requires two telecommunication paths between every major substation. Based on these factors, the no-action alternative would not meet the needs for the proposed project. Under certain conditions, the no-action alternative would lead to an operational telecommunications interruption or system failure in this area.

A system failure could result in damage to power circuit breakers or other equipment, costing hundreds of thousands of dollars. This could result in lost revenues while the damaged equipment is being repaired or replaced and the transmission line is out of service. In addition, Garrison Substation is an important east-west transmission tie that brings power in from the east to serve loads in the more populated areas of the Pacific Northwest. Having this line out of service could result in serious impacts on serving the loads of the Pacific Northwest.

2.2 ALTERNATIVES CONSIDERED AND ELIMINATED FROM DETAILED DISCUSSION

There are several possible alternatives for upgrading the operational telecommunications system in the Northwest Montana area. One option would be to replace the existing analog radios with new analog radios. Analog microwave radios form the backbone of BPA's current operational telecommunications system. Although these radios have provided years of reliable service, they are no longer being manufactured and cannot be purchased. In addition, analog radios and associated microwave systems are susceptible to weather conditions which can affect the system reliability. (See the Programmatic EA for a detailed discussion of this and other factors.) Therefore, the continued use of analog radios is not considered a feasible alternative.

A second alternative for increasing the system reliability would be to augment the existing analog system with a new digital radio system. Simply switching the system from analog radios to digital radios would not solve some of the system reliability problems inherent in the use of microwave radios. This area is particularly sensitive to extreme weather conditions which can affect the microwave system (analog or digital) and potentially shut down BPA's operational telecommunications in this vicinity.

In order to increase reliability in this area, seven digital microwave sites would be needed. This would require that new radios be added at Hot Springs and Garrison Substations and at five additional mountaintop repeater sites. These sites would be located on high points to provide a line of sight and reduce signal interference. Sites would

be approximately 0.4 hectare (1 acre) or larger in size and would require the removal of all vegetation that could either fall into the equipment or interfere with the signal. One of these sites would also need a new access road, which would remove more vegetation and alter existing land use.

Although an environmental analysis has not been prepared for this second alternative, it is anticipated that the environmental costs for the additional microwave sites would be much greater than the proposed addition of fiber optic cable on BPA's existing structures. Furthermore, the reliability and capability of the system would still remain a problem. Therefore, these this alternatives is eliminated from further consideration.

In addition to attaching the fiber optic cable to the existing transmission lines, the possibility of burying the fiber along BPA right-of-ways was investigated. However, most of BPA's easements do not give BPA the right to use the land under the transmission line for anything except the tower structures and access to those structures. Therefore, burying the fiber optic cable along the existing right-of-ways would be outside the current easement authority and was rejected as an option. In addition, buried cable is less reliable than aerially installed cable due to the likelihood of cable breaks due to excavation.

2.3 PROPOSED ACTION

Project Overview

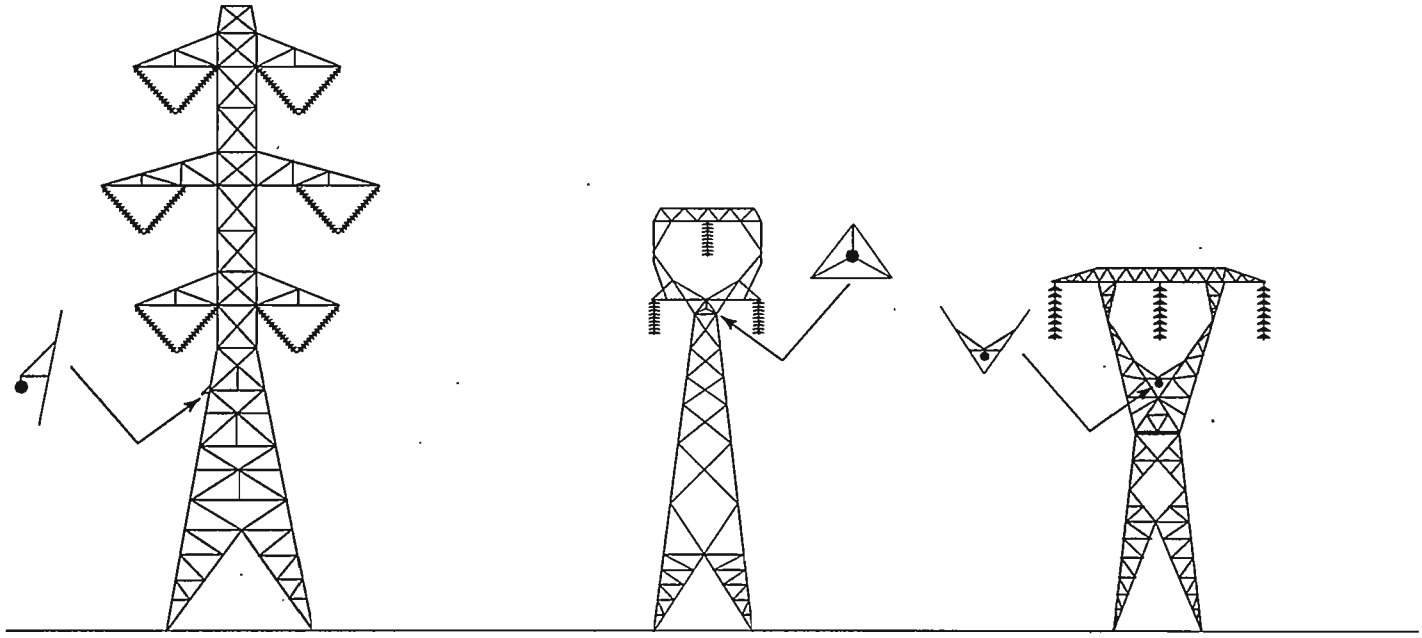
BPA proposes to upgrade the operational telecommunications system between the Hot Springs Substation and Garrison Substation by installing a fiber optic system. This upgrade would help provide BPA with a reliable, secure system that has the capacity to meet BPA's future operational needs.

The fiber optic system would be comprised of two major components—the fiber optic cable and the telecommunications equipment, which includes the transmitters and receivers. BPA would attach the fiber optic cable to existing transmission structures along the 190-kilometer (120-mile) Hot Springs-Garrison line. This line crosses approximately 82 kilometers (51 miles) of Flathead Indian Reservation, 4.8 kilometers (3 miles) of BLM land, 4 kilometers (2.5 miles) of Lolo National Forest Service land, 1.2 kilometers (0.75 mile) of Deer Lodge National Forest Service land, and the remainder is on private lands.

A number of economic and technical factors were considered in selecting the proposed action, including reliability, equipment availability, data capacity, radio frequency coordination, terrain issues, and installation/construction issues. The only other technically feasible alternative for upgrading the system is the use of digital microwave radios. The high capacity analog radios currently used in the BPA system are no longer available and satellite communication systems are not suitable for relaying and other time-critical circuits because of inherent delays associated with the signal's travel between the earth and the satellites.

Fiber optic systems are well suited to carry high speed data signals. Their data carrying capacity is much greater than microwave radio systems, and no radio frequency licensing is required. These factors make fiber optic technology an attractive alternative to radio-based communications.

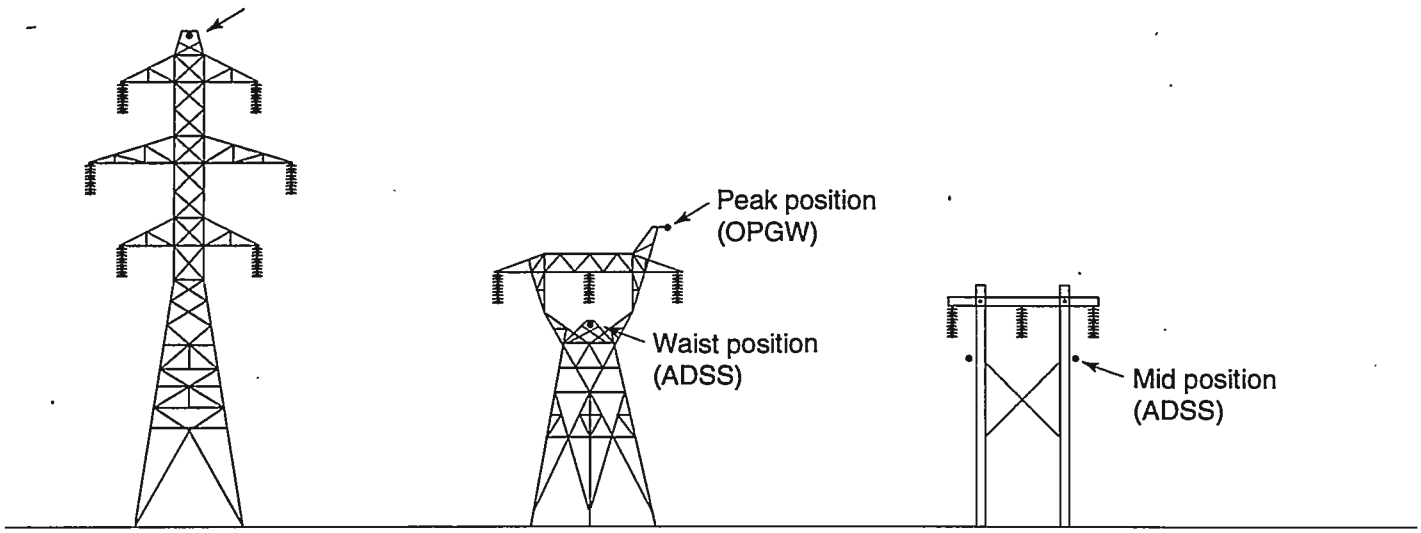
Fiber optic systems also offer cost-saving advantages. Economic analyses conducted for the Hot Springs-Garrison project indicate that while the initial cost of a fiber optic system would be higher than an equivalent radio system, the life-cycle cost would actually be lower. This lower cost is due, in part, to not having to develop and maintain five new mountaintop radio repeater stations, including one site without an existing access road. Furthermore, the majority of the fiber optic system cost is in the purchase and installation of the cable. If later upgrades in capacity are required, only the communications equipment at each end of the fiber optic cable would need to be replaced or upgraded. Since the communications equipment is a small portion of the total system cost, the long-term costs are greatly reduced.



500 kV steel lattice
double circuit
average height 56 m
(160 ft)

500 kV steel lattice
single circuit
average height 38 m
(110 ft)

500 kV steel lattice
single circuit
average height 31 m
(90 ft)



230 kV steel lattice
double circuit
average height 42 m
(120 ft)

230 kV steel lattice
single circuit
average height 24 m
(70 ft)

230 kV H-Frame Wood
single circuit
average height 21 m
(61ft)

Figure 2-1
Proposed Modifications to Towers to Accomodate
BPA's Hot Springs - Garrison Operational Fiber Optic Project

Long-term costs are also reduced because of the life expectancy of the cable. The major cost of a fiber optic system is the cable, which has a minimum life of 25 years. The major costs of a radio system are the radios, which have an expected life of 17 years. Maintenance costs of the radio system are also estimated to be approximately 2.5 times higher than the maintenance costs of a fiber optic system. The cost analyses were based on total internal use of the fiber optic system for the control, monitoring, protection, and operation of the power system. No commercial considerations were included.

Should BPA determine, at a future date, that it has legal and regulatory authority to lease temporary excess fibers, BPA may enter into one or more commercial arrangements. Any commerical venture would be designed to help recover costs associated with the installation of the operational fiber optic system. In any case, protecting the operation of the power system and the operational telecommunications system will be the highest priority, and any potential venture will be scrutinized to determine if it is a good business decision.

Description of Activities

Cable Types and Required Structure Modifications

Two different types of fiber optic cable would be used for this project. *All dielectric self supporting* (ADSS) cable would be used for the majority of this project. ADSS is a light-weight cable approximately 1.6 centimeters (5/8 inch) in diameter. It consists of 36 fibers and an outer protective sheath of black plastic. ADSS is a nonmetallic cable with exceptional mechanical strength.

The second cable type proposed for use is *Optical groundwire* (OPGW). This cable has an outer metallic sheath that protects the optical fibers located at the core. OPGW resembles the metallic groundwire that is used on existing transmission towers for a short distance on either side of BPA's substations. The existing groundwire is used to defuse electrical surges and lightning strikes that could damage electrical equipment. OPGW would have limited use on this project and would only be used to replace existing groundwire at certain locations.

BPA's power system already has a large network of steel structures and wood poles to support the power lines. BPA proposes to attach the new fiber optic cable to these existing structures. On existing H-frame wood poles, the ADSS cable would be attached to the side of one of the poles, below the power lines. In order to accommodate the new cable, workers would need to attach a single metal fitting (hardware) to the wood pole below the power lines. In most cases, these modifications would be completed using standard construction equipment, such as BPA line trucks. Some of the work would also be completed by hand and it would require construction personnel to climb the poles to install the hardware.

On the steel lattice towers, the ADSS cable would be located at the waist or central area of the structure (Figure 2-1). As noted earlier, ADSS would be used for majority of this project. OPGW would only be used for one Flathead River crossing and for approximately 1.6 kilometers (1 mile) on either side of the Rattlesnake Substation near Missoula. When OPGW is used, it would simply replace the existing groundwire which is always located in the peak position or top of the structure, above the existing conductors. All activities would be conducted on existing rights-of-way and would utilize existing access roads. Helicopter installation may be used to install either type of cable at various locations on the structures.

Cable Spicing

Cable installation would involve approximately 40 splicing locations along the project route. Splice sites would be located where the ends of two reel lengths of cable come together and are fused to form a continuous connection for the beam of light, from transmitter to receiver. The splice locations are determined by the length of cable on the reel. Each reel can hold as much as 6 kilometers (4 miles) of cable, with the average reel holding about 5 kilometers (3 miles). Therefore, splice locations would be approximately every 5 kilometers (3 miles) along the project route (Table 2-1).

At each splice location, a splice box containing the two cable ends would be attached to the transmission structure. No clearing of vegetation would be required at these locations, but some vegetation may be crushed when trucks are driven into the area. The ground disturbance at each site would involve an area approximately 15 meters by 45 meters (50 feet by 150 feet) in size. The total combined area involved for all 40 sites would be approximately 2.8 hectares (7 acres). Existing access roads would be used to reach the structure sites. Some minor grading and leveling of the existing access roads may be necessary, but will be avoided whenever possible.

Each splice site would require a tensioning and pulling machine—a device located on the back of a flatbed truck or a small trailer-mounted unit. The typical stringing setup would include a truck that holds the reel at one end, and a truck tensioner that pulls the sock line followed by the fiber optic cable to the other end.

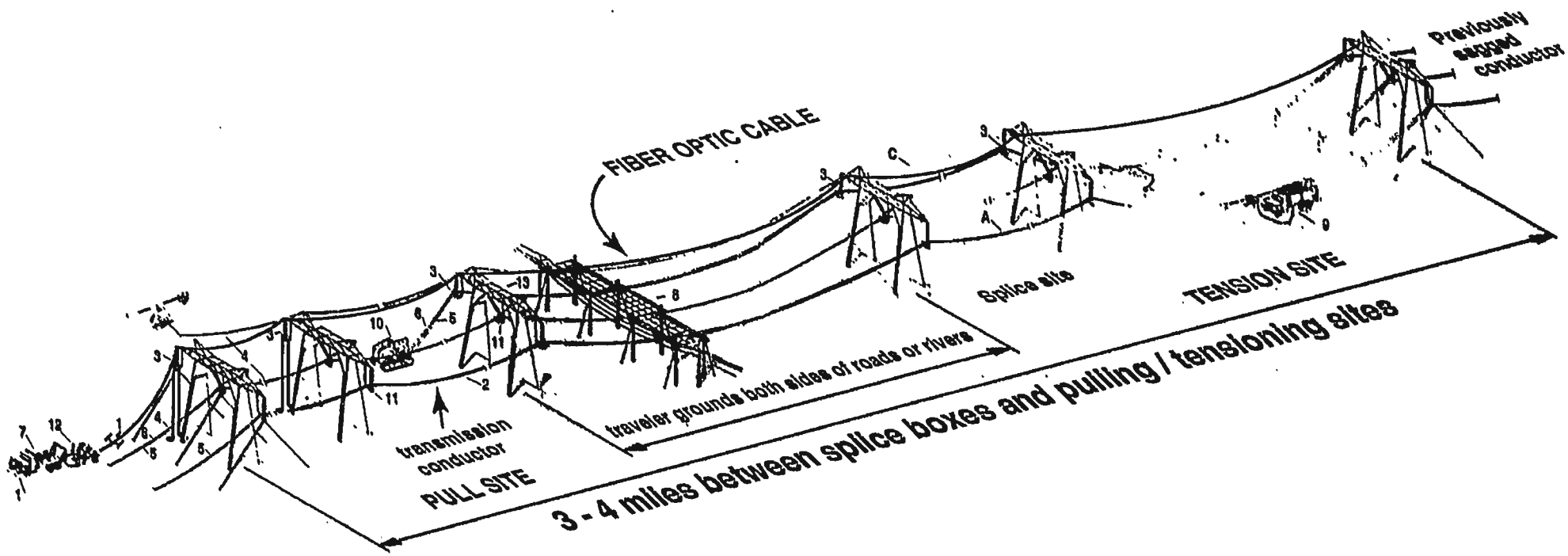
Cable Installation

The cable installation would be accomplished in several steps. First, a line maintenance person would drive to each structure along the line and add the appropriate hardware that would hold the cable on the structure. This hardware would be placed at or below the conductors under most circumstances (other than when replacing the existing groundwire, which is located above the conductors). A structure would be accessed and modified using a line maintenance vehicle. A splice box would also be added to a structure about every 5 kilometers (3 miles) along the project route. No more site disturbance is expected than would occur under normal maintenance procedures. Some minor road work is anticipated between Highway 93 and the southern boundary of the Lolo National Forest. Work in this area would likely consist of incidental blading to repair minor rutting. This type of work would take place as part of BPA's normal transmission line maintenance activities.

After the hardware is added to the structure, a traveller (pulley) would be added to hold the sock line. The sock line is a small cable used to guide the fiber optic cable through the travelers and is used to pull the cable through the length of the transmission line. The sock line would either be flown to each structure by helicopter or driven from structure to structure using either the existing access roads or the existing right-of-way. The mode of stringing will be determined by available access related to topography in the area and environmentally sensitive areas. A person on the structure would insert the sock line into the traveler so that the fiber optic cable could be pulled through all of the structures and tensioned properly. The amount of time workers would spend at each structure would be very brief, as cable installation is expected to proceed at a rate of 11-16 kilometers (7-10 miles) per week. This would include the time required to attach the hardware on each structure, flying and attaching the cable, and splicing the ends of the cable at splice sites (Figure 2-2).

Additional project activities may involve replacing one culvert that has been washed out along an existing access road. This culvert is on an intermittent stream and may not be necessary, depending on the time of year that the project activities would take place. Some boulders have fallen onto the access roads in the area between the Interstate 90 freeway crossing at Clinton to 21 kilometers (13 miles) south of Clinton. These boulders may need to be removed and access roads regraded or slightly leveled, but no vegetation would be removed from these existing access roads.

The Flathead River crossing near Dixon (at transmission mile 25) would require replacing one of the existing groundwires, which is located on top of the towers, with OPGW cable. Marker balls would be placed on the cable at this site. Other river crossings would be spanned using ADSS on a lower position on the tower and would not require any additional marker balls.



1.	Anchor	9.	Bullwheel Tensioner	A.	Typical Stringing Arrangement
2.	Conductor	10.	Crawler Tractor	B.	Typical Installation of Pilot Lines with Helicopter
3.	Traveler Ground	11.	Traveler		
4.	Pilot Line / Sock Line	12.	Reel Winder		
5.	Pulling Line	13.	Transmission Structure		
6.	Connector Link				
7.	Bullwheel Puller				
8.	Crossing Structure				

Figure 2-2
Composite for the Installation of Aerial Fiber Optic Cable

TABLE 2-1

HOT SPRINGS - GARRISON
Splice Locations and Reel Lengths

REEL No.	SPLICE @ STR.	STR STATION	HORIZ. DISTANCE	REEL LENGTH	REEL WEIGHT	CABLE
	HOT SPRINGS					
1	SSDE	8774+14	18,700'	19,250'	3371	AC036M6611CC6 ADSS
2	4/6	186+00	9,920'	10,250'	2189	AC036M6611CC6 ADSS
3	6/4	285+20	14,601'	15,050'	2819	AC036M6611CC6 ADSS
4	9/2	431+21	18,079'	18,650'	3292	AC036M6611CC6 ADSS
5	12/5	612+00	18,750'	19,350'	3384	AC036M6611CC6 ADSS
6	16/2	799+50	19,046'	19,650'	3423	AC036M6611CC6 ADSS
7	19/6	1089+25	16,500'	17,000'	3075	AC036M6611CC6 ADSS
8	22/7	1254+25	10,350'	10,700'	2248	AC036M6611CC6 ADSS
9	24/8	1357+75	3,475'	4,000'	2900	80mm2/591 OPGW
10	25/2	1392+50	13,204'	13,600'	2629	AC036M6611CC6 ADSS
11	27/11	1524+50	17,151'	17,700'	3167	AC036M6611CC6 ADSS
12	31/2	1696+00	19,558'	20,150'	3489	AC036M6611CC6 ADSS
13	34/8	1891+58	16,367'	16,900'	3062	AC036M6611CC6 ADSS
14	38/1	2055+25	18,375'	18,950'	3331	AC036M6611CC6 ADSS
15	41/5	2239+00	18,925'	19,500'	3403	AC036M6611CC6 ADSS
16	45/1	2428+25	18,725'	19,300'	3377	AC036M6611CC6 ADSS
17	48/6	2615+50	19,193'	19,800'	3443	AC036M6611CC6 ADSS
18	52/2	2956+20	18,555'	19,150'	3357	AC036M6611CC6 ADSS
19	55/7	3141+75	15,015'	15,500'	2878	AC036M6611CC6 ADSS
20	58/6	3291+90		7,650'	4777	80mm2/591 OPGW
21	RATTLESNAKE SSDE			7,000'	4442	80mm2/591 OPGW
22	60/5	3413+00	15,365'	15,850'	3533	AC036M6611CG9 ADSS
23	63/4	3566+65	17,062'	17,600'	3830	AC036M6611CG9 ADSS
24	67/1	3737+27	17,293'	17,850'	3872	AC036M6611CG9 ADSS
25	70/2	3908+35	16,298'	16,800'	3694	AC036M6611CG9 ADSS
26	73/4	4071+33	16,896'	17,450'	3804	AC036M6611CG9 ADSS
27	76/2	4242+00	15,662'	16,150'	3584	AC036M6611CG9 ADSS
28	79/3	4398+62	15,708'	16,200'	3592	AC036M6611CG9 ADSS
29	82/4	4555+70	16,245'	16,750'	3685	AC036M6611CG9 ADSS
30	85/4	4895+55	17,127'	17,650'	3838	AC036M6611CG9 ADSS
31	88/2	5066+82	14,937'	15,400'	3456	AC036M6611CG9 ADSS
32	91/4	5215+80	17,187'	17,750'	3855	AC036M6611CG9 ADSS
33	94/5	5387+67	18,376'	18,950'	3331	AC036M6611CC6 ADSS
34	98/4	5571+43	18,582'	19,150'	3357	AC036M6611CC6 ADSS
35	101/8	5757+25	19,300'	19,900'	3456	AC036M6611CC6 ADSS
36	105/5	5950+25	18,975'	19,550'	3410	AC036M6611CC6 ADSS
37	109/2	6140+00	17,375'	17,900'	3193	AC036M6611CC6 ADSS
38	112/5	6313+75	16,925'	17,450'	3134	AC036M6611CC6 ADSS
39	115/5	6483+00	14,710'	15,150'	2832	AC036M6611CC6 ADSS
40	(G-T)119/1 SSDE	2+50 Ah 57+75	12,477'	12,850'	3024	AC036M6611CG9 ADSS
	GARRISON					
41	Restoration Cable			20,150'	4262	AC036M6611CG9 ADSS

TOTAL AC036M6611CC6 ADSS = 438,500'

TOTAL AC036M6611CG9 ADSS = 218,450'

TOTAL 80mm2/591 OPGW = 18,650'

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Staging Areas

Staging areas would be needed to store equipment and construction materials. These areas could also be used for refueling equipment and performing maintenance. Staging areas would require approximately 0.4 hectare (1 acre) of land. Two staging areas have been identified along the line, one near Missoula, the other near the Hot Springs Substation. Both sites have previously been used as staging areas and consist of a graveled area that has been fenced to protect equipment during storage. Using these two sites would eliminate the need to clear vegetation from the site and would not change the existing land use.

Telecommunications Equipment Installation

The telecommunications equipment would be installed on telecommunications racks in the Hot Springs, Rattlesnake, and Garrison substation control houses in substation yards. The link between the telecommunications equipment and the fiber optic cable would consist of an optical cable coming down from a splice box (located on a tower that is either located near the edge of or within a substation yard), into the existing substation yard duct system, and then into the control house cable tray system. The equipment would fit within an area approximately the same size as a home stereo system, and would require no additional ground-disturbing activities.

Boosting and Clarifying the Fiber Optic Signal

Over distance, the fiber optic cable signal may become weak and distorted. Consequently, optical amplifiers or regeneration stations may be required every 70-80 kilometers (45 to 50 miles) to boost the signal. Optical amplifiers are used to simply increase the strength of the light signal as it is transmitted from one substation to another. Regeneration stations, also called repeater stations, actually convert the optical signal to an electrical signal, reshape it to its original form to eliminate data errors, and then convert it into a new optical signal. Optical amplifiers or regeneration equipment would be placed in existing substations. This would help avoid any ground-disturbing activities and related environmental impacts.

Clearing Associated with Long-Term Maintenance

There should be little or no vegetation clearing required for a fiber optic cable since routine transmission line maintenance already keeps the corridor open. BPA's clearing operations would remove trees and high-growing brush that could be hazardous to the fiber optic cable within and adjacent to the right-of-way. Generally, trees that would grow within about 6 meters (18 feet) of the cable during a 15-year period would be removed. Low-growing brush and trees that would not become a hazard to the cable would remain. Other trees on or off the right-of-way that could fall into the cable, called "danger trees," would also be removed. This maintenance practice would be consistent with on-going maintenance procedures for clearing vegetation that could affect existing power lines.

Future Actions

Future projects may include replacing the existing analog radio system with fiber optic cable from Hot Springs Substation north to the Kalispell area, and west through the Troy and Libby areas and into Spokane, Washington. This radio replacement is currently scheduled for the 1997-98 time period. In addition, the existing analog radio system that currently terminates at Garrison Substation is due for replacement in approximately the year 2000. The decision to install fiber optics on either or both of these routes has not been made, but is being discussed.

Chapter 3

Environmental Consequences

3.1 LAND USE/RECREATION

Affected Environment

Land Use

The project is roughly divided between the Clark Fork River valley east of Missoula and the Flathead River and its tributaries northwest of Missoula in the Rocky Mountains of northwestern Montana. The corridor traverses major ridge systems, stream canyons, valleys, and foothills in an area surrounded by the Flint Creek, Garnet, Sapphire, and Mission mountain ranges. All of the area is situated west of the Continental Divide.

The route from the Garrison Substation to Hot Springs is 190 kilometers (120 miles) in length and crosses a diverse landscape. The area near the Garrison Substation has many old mines that have greatly modified the landscape. Approximately 10 kilometers (6 miles) to the west, the terrain becomes highly dissected and is forested. The transmission line crosses about 1.2 kilometers (0.75 mile) of the Deer Lodge National Forest in this area.

Just west of Dunkleburg Creek, the landscape transitions into dry, rolling hills. This area is sparsely populated and most of the land is privately owned and used for grazing or other agricultural purposes. Except for where the Flint Creek valley is crossed (irrigated agricultural land), this land type and use continues for about 30 kilometers (19 miles) until it reaches the Clark Fork River near Bearmouth.

In the next 56 kilometers (24 miles), the transmission line skirts the south slopes of the Garnet Range and follows the Clark Fork River and Interstate 90 into Missoula, crossing about 4.8 kilometers (3 miles) of BLM land on the way. Land use in this section is dominated by agriculture, timber, and rural residential on privately owned land. There are small communities along this stretch and the population density increases the closer you get to Missoula. West of Missoula, the line goes northwest through steep forested terrain, crossing about 4 kilometers (2.5 miles) of Lolo National Forest land and enters the Flathead Indian Reservation near Evaro. The line crosses about 82 kilometers (51 miles) of the Reservation. The terrain changes from steep forested terrain on the south end of the Reservation to dry rolling hills from about Arlee, until it enters the Hot Springs Substation. On the Reservation, the land near the line is sparsely populated and is used for agricultural crop production and grazing.

Agriculture

Only a small portion of the land crossed by the project is agricultural farmland. However, these areas are very important to local farming/ranching enterprises. Most agricultural production is located in the Flint Creek Valley south of Drummond and along the Clark Fork, Little Bitterroot, and Jocko rivers. Valley bottomlands, benches, and terraces are cultivated under irrigation to produce hay crops or pasture to supplement rangeland grazing. Hay is the primary crop produced on irrigated cropland. This is used for livestock forage during the winter. Along the proposed project route, irrigation is predominately by surface-gravity methods (flood irrigation) with sprinkler irrigation being used in several other locations.

Environmental Consequences

Land Use

BPA plans to install the new fiber optic cable on existing transmission line structures within the project corridor. Using the rights-of-way for all project construction would be consistent with the existing land use of the rights-of-way as an electrical transmission corridor. Land areas adjacent to the BPA rights-of-way have a variety of land use and zoning designations based on local county and municipal comprehensive plans and zoning ordinances. BPA would, however, structure the project to be compatible with local land use plans wherever practical.

Land use impacts from this project would vary depending on three main factors: (1) the type of land use adjacent to the project corridor; (2) timing of construction activities; and (3) the operation/maintenance activities throughout the life of the project.

Cable installation by either ground-based pulling machines or helicopter in rural residential and urban areas could have an adverse effect on nearby residents and commercial establishments because of noise and dust generation. However, any impacts would be isolated as cable pulling sites would be located every 5 kilometers (3 miles) and would require only 0.1 hectares (0.25 acres) for the equipment. Any impacts would also be short term as the cable installation would proceed at a rate of between 11 and 16 kilometers (7-10 miles) per week.

Upon project completion, operational and maintenance activities are expected to have minimal to no adverse effect on adjacent land uses, due to the current on-going maintenance activities in these areas. The fiber optic cable would be patrolled as part of BPA's regular maintenance program. This maintenance program involves helicopter reconnaissance of the rights-of-way up to four times a year. BPA ground crews also patrol all rights-of-way at least once a year. This requires that access roads be maintained.

Agriculture

Construction activities in agricultural areas could have an adverse effect on adjacent farmland if these activities disrupt the planting, growing, and/or harvesting of crops. In addition, some loss of farmland or rangeland productivity could occur if construction activities result in soil compaction, vegetation removal, soil erosion, or introduction of noxious weeds. Because BPA would use existing access roads and rights-of-way, any impacts to agriculture are expected to be minor, localized and of short duration. Although some damage could occur from placing equipment on the vegetation, the damage should be minor because equipment would be present for only a short period of time. The project would not increase the amount of land removed from production within the transmission corridor.

This proposal is in compliance with the Farmland Protection Policy Act (7 U.S.C. 4201 et. seq.) because:

- No farmland would be removed from production. Fiber optic cable would be strung on existing transmission structures and no new roads would be constructed.

- The project would not cause the conversion of adjacent or remaining farmlands to nonfarm use.

- Existing on-farm investments would not be affected.

- The project would not impact existing farm support services.

Recreation

No direct impacts on the quality or quantity of recreational opportunities would occur. Impacts on dispersed recreational activities such as hiking, fishing, and hunting opportunities would be limited to visual and noise impacts occurring from construction activities. Any impacts would be temporary and localized.

Mitigation Measures

Land Use

Mitigation measures include avoidance, minimization, and compensation. All construction activities would be kept within the existing rights-of-way as much as possible to avoid the acquisition of new right-of-way. Attempts would also be made to minimize the size of the areas affected by the construction activities. This is especially important in agricultural areas where portions of the right-of-way are often used for production. In these areas, timing of construction activities can be used to mitigate potential adverse effects.

The following mitigation measures apply to the installation of the fiber optic cable in rural residential, urban, and industrial areas:

- Construction vehicle trips in and out of the construction areas would be coordinated and scheduled away from "rush-hour" periods to minimize general traffic disruption when appropriate.

- Noise and dust problems generated by construction would be mitigated through standard construction procedures, such as the use of properly muffled construction equipment and approved dust control methods.

Agriculture

Construction activities would be coordinated with farm/ranch operators to minimize impacts to crops and inconvenience to agricultural operations. Construction would be conducted when fields are dry and/or frozen to minimize soil compaction. Farm and ranch operators would be compensated for any damage and assisted in controlling weeds and restoring productivity to compacted soils.

The following mitigation measures apply to the installation of fiber optic cable in agricultural areas:

- Procedures for cleaning and washing equipment would be implemented to prevent the spread of noxious weeds.

- Soil compacted by construction activity would be loosened by tilling, or farmers would be compensated for this activity.

If economic impacts cannot be avoided, some compensation to farmers who experience losses as a result of the project would be necessary. Proposed compensation measures are as follows:

- Farmers would be compensated for crop damage or lost productivity caused by the construction activities.
- Farmers would be compensated for land permanently removed from productive use by project construction.

3.2 SOILS/GEOLOGY

Affected Environment

The project is located within the Northern Rocky Mountain physiographic province. The project area is characterized by steep mountains, canyons, and broad intermountain valleys. Soils have developed on a variety of parent materials and landforms. Soils in the Little Bitterroot, Flathead, Jocko, Missoula, and Flint creek valleys have developed in semi-arid basins on floodplains, undulating terraces, benches, and foothills. These soils formed under grassland vegetation on soils developed primarily in alluvium and sediments deposited by ice-age Lake Missoula. Mountainous areas are crossed between Dixon and the Missoula valley. East from Missoula to the Flint Creek valley, the project is located on steep side-slopes and level bottomlands of the Clark Fork Canyon. Soils in mountainous areas have primarily developed on materials derived from meta-sedimentary rocks including argillite, silite, and quartzite.

Environmental Consequences

Construction and maintenance activities can affect soil productivity and physical characteristics if soil or vegetation is disturbed. Since no new roads, major road improvements, or poles are required for this project, ground disturbance and associated impacts would be low. Existing access roads would be used for this project and cable would be strung using either ground vehicles or helicopters.

The potential for greatest impact occurs at the 40 sites where pulling and tensioning equipment is needed. Impacts would be short-term and limited to localized disturbance of soil and vegetation caused by equipment traffic and operation. The impacted area would be approximately 45 meters by 15 meters (150 feet by 50 feet) in size. Soils could be compacted and vegetation damaged resulting in localized increases in erosion, run-off rates, and possible off-site transport of sediment.

The pulling or tensioning site located west of Cramer Creek (tower 82/4) is on a steep, poorly vegetated slope that is susceptible to erosion. This pulling site would either be moved to a more stable location, or other mitigation would be employed to minimize impacts.

Mitigation Measures

Impacts would be reduced by following BPA's standard erosion-control practices. These practices include (1) installing runoff control devices (e.g., water bars, erosion netting, straw bale dams, slash windows), (2) minimizing access road reconstruction, and (3) revegetating disturbed areas. Disturbed sites would be reseeded as soon as feasible with locally-adapted grasses.

Where it is necessary to improve or add stream course crossings, the culverts or other structures would be designed and installed to provide unobstructed stream flow and minimal change to stream courses. When practical, construction and maintenance activities should be limited when soil is wet to reduce soil compaction, rutting, gullying, and the resultant loss in soil productivity. When agricultural soils are compacted, compensation would be provided to farm operators for subsoiling to restore soil productivity. Specific mitigation measures would be developed once the final design is complete.

3.3 VEGETATION

Affected Environment

Vegetation in the project area can be classified into four main types: steppe, forested, riparian, and agricultural. Within these communities are other small communities associated with shrub-steppe vegetation and wetlands. Much of the vegetation in the project vicinity has been moderately disturbed by grazing and cultivation activities. With these changes, native plant communities and populations of native plant species have declined in quality and distribution. In forested areas, vegetation within the corridor is very different from that outside the corridor. For example, areas outside the corridor that are dominated by ponderosa pine or fir have been replaced by a grass/forb community due to tree clearing and on-going maintenance activities. No threatened or endangered plant species are likely to occur in these areas (see **Section 3.8—Threatened, Endangered and Sensitive Species**).

Steppe. Grasslands cover the benches and rolling hills immediately above the river floodplains in the Flint Creek, Missoula, Jocko, Flathead and Little Bitterroot valleys. Bluebunch wheatgrass, rough fescue, and Idaho fescue are the dominant grass species. In some areas serviceberry and sagebrush can be found near rocky sites. In areas disturbed by grazing or human activity, weedy species, such as cheatgrass and spotted knapweed, have become established.

Forest. Forest communities can be found on mountainous areas from the Flint Creek valley to Missoula along the Clark Fork River and west of Missoula to Dixon. The north facing slopes, where there is more moisture, are dominated by dense stands of Douglas fir. On the south facing slopes, in the drier areas, are stands of ponderosa pine.

Riparian. Riparian areas are found in drainages throughout the area. Large riparian areas are found along the floodplain of the Clark Fork. Here, vegetation is dominated by black cottonwood, willow and paper birch. Shrubs include willow, rose, red-osier dogwood and snowberry. Stands of quaking aspen occur in drainages in higher elevations.

Environmental Consequences

Vegetation

Impacts to vegetation would primarily be caused by vehicular traffic and pulling and tensioning equipment. Impacts are expected to be low and short-term since existing access roads and/or rights-of-way would be used by ground vehicles to reach sites, and ground vehicles or helicopters would be used to string the cable. In areas where vegetation would be crushed and uprooted, the site would be reseeded with a seed mixture appropriate for the area. There would be no clearing associated with the proposed project.

BPA has contacted the U.S. Fish and Wildlife Service (USFWS) and the Lolo National Forest to help determine if there are any threatened, endangered or sensitive plant species in the project area. The USFWS lists *Howellia aquatilis* as a threatened species. This species is found in vernal glacial pothole ponds and oxbow sloughs which are dry by late summer. A biological assessment was prepared to determine any potential impacts on this species (See **Section 3.8 - Threatened and Endangered Species.**)

The Lolo National Forest has indicated that *Grindelia howellii* could potentially occur in habitat along the BPA transmission corridor. However, because no new ground disturbance is planned, the project is not expected to impact this species, or any other threatened, endangered, proposed, or sensitive plant species on U.S. Forest Service (USFS) lands or within the project area.

Overall, project impacts to vegetation would be slight because all activities would occur within existing rights-of-way where natural plant communities have been altered. In areas where the fiber optic cable is attached to existing structures, there would be temporary impacts when plants are uprooted or trampled by construction vehicles.

Noxious Weeds

Disturbed areas, such as transmission corridors, often become infested with undesirable plant species. Undesirable plants (known as noxious weeds) are non-native plant species, such as tansy ragwort, Canada thistle, and spotted knapweed. These plants can compete with native plant communities or crops, and can injure humans, wildlife, and livestock. These species take advantage of recently disturbed soils and lack of competing vegetation to invade recently cleared areas. They can also be inadvertently spread when vehicles travel between infested and uninfested areas during maintenance. BPA would take measures to lessen the spread or introduction of non-native plant species during construction by using standard weed-control practices. These practices include cleaning equipment traveling in and out of weed-infested areas and reseeding disturbed areas with native species.

Mitigation Measures

The following mitigation measures would help reduce potential impacts to vegetation:

- Vegetation disturbance would be minimized to the fullest extent possible.
- Disturbed areas would be revegetated with native plant species (or other suitable species) as soon as possible to reduce weed infestation.
- Standard weed-control practices, such as cleaning vehicles would be used to control the spread of noxious weeds.

3.4 WETLANDS

Affected Environment

Wetlands are extremely important because they provide specific habitat for a variety of specially adapted plants and animals. Due to a historical net loss of wetlands throughout the country, wetlands are now protected by Executive Order 11990 which discourages Federal agencies from developing in wetlands when there is a practical alternative. A Notice of Wetland/Floodplain Involvement was published in the Federal Register on September 23, 1994.

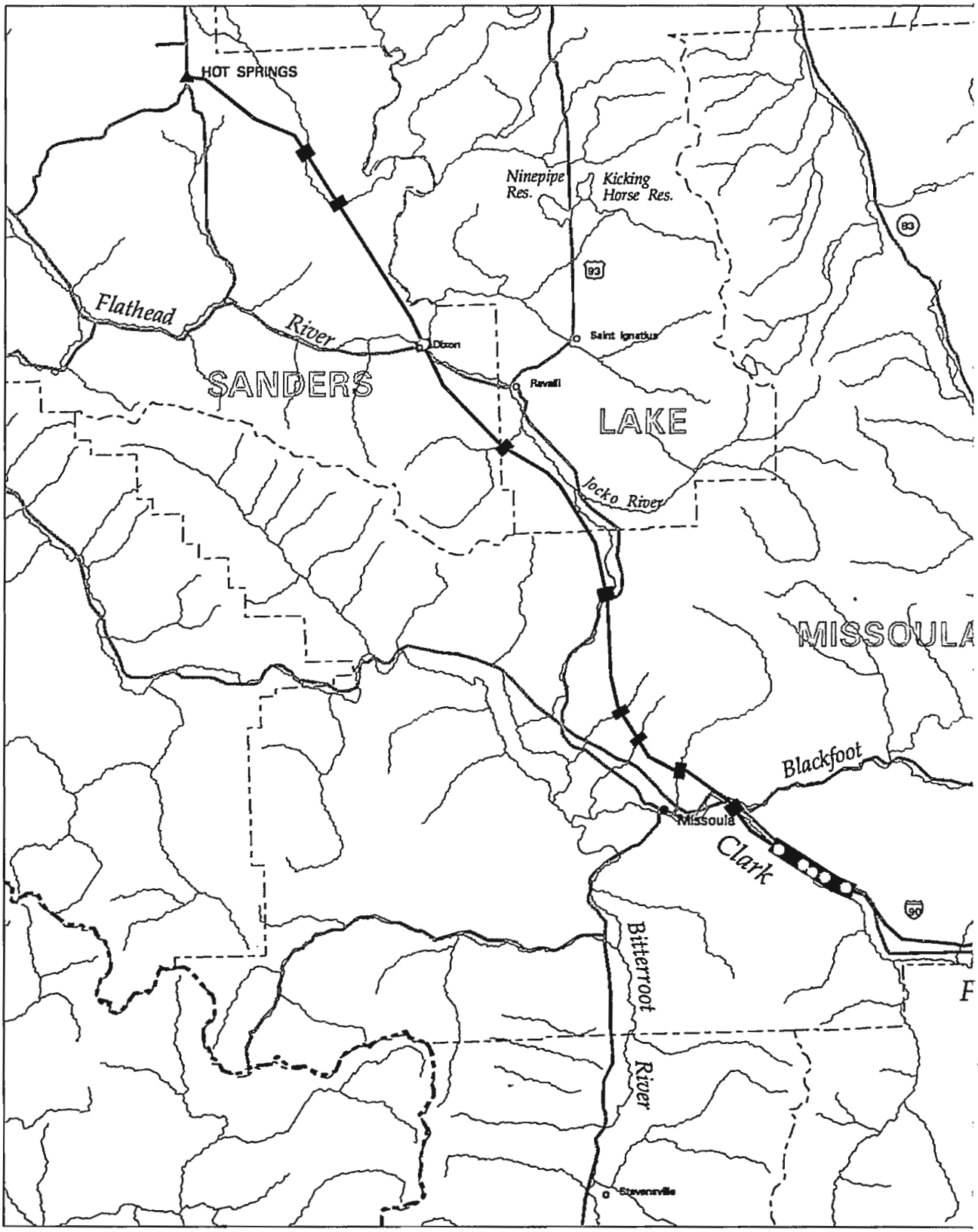
Wetlands within the project area have not been mapped by the USFWS. Therefore, wetlands documented in this report were identified by field observation (see Figure 3-1). Within the transmission line corridor, wetlands can be found in association with various river systems and drainages. Many wetlands found along the Clark Fork River are remnants of old river channels, some isolated during construction of Interstate 90, while others are due to natural shifting of the channels (oxbows). Those wetlands containing large areas of open water are usually dominated on the fringe by black cottonwood, willows, alder, red-osier dogwood, and rose. Others have filled in naturally and are dominated by emergent vegetation, such as cattails and sedges. Small wetlands have formed in a few areas adjacent to small drainages, such as Flint Creek. The vegetation in these wetlands is predominantly willow.

Environmental Consequences and Possible Mitigation

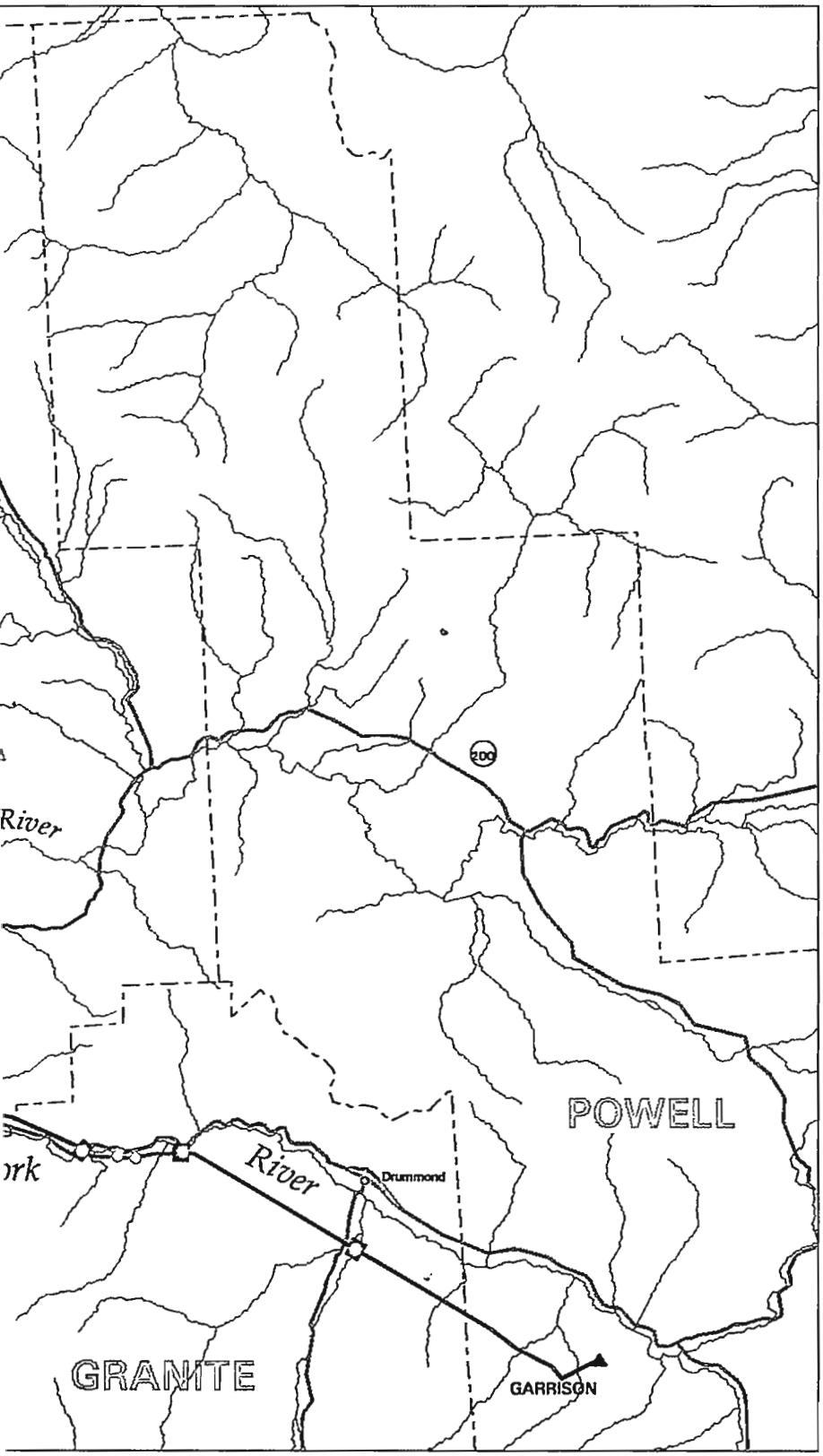
There would be no direct impact to wetlands from the proposed project as all wetland would be spanned and no new access roads are planned. Slight, short-term impacts could occur from soil disturbance caused by vehicular activity, but these impacts would be further reduced through use of erosion-control measures. Further mitigation could include completing work during the dry times of the year. When practical, activities adjacent to wetlands could be conducted in the fall when soils are drier and vegetation is going dormant.

FIBER OPTICS PROJEC

Floodplains



T: Hot Springs - Garrison
and Wetlands



LEGEND

Proposed Fiber Optics Cable Location

Substation

Wetland

100-year floodplain

NOTE: Floodplains mapped by Federal Emergency Management Agency (FEMA) and Confederated Kootenai and Salish Tribes.
Wetlands located by field observation and aerial photography.

N

KILOMETERS
0 5 10 15 20

MILES
0 5 10 15 20

Location Map

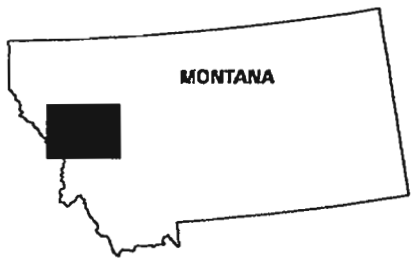


Figure 3-1

3.5 FLOODPLAINS

Affected Environment

Floodplains are important because they provide wildlife habitat, agricultural and forest products, recreation areas, as well as providing a channel for flood waters. Protection of floodplains is necessary to prevent damage to these functions, to protect the human and natural features within them, and to comply with Executive Order 11988 (Floodplain Management).

Floodplains have been designated on Federal Emergency Agency Flood Insurance Maps for susceptibility to flood on a 100- and 500-year basis. The Hot Springs-Garrison transmission line crosses or has structures located in several areas identified as 100-year floodplains (i.e., areas that have a 1 percent chance of being flooded in a given year.) Table 3-1 lists the floodplains that would be crossed as part of this project. A Notice of Floodplain/Wetlands Involvement for this project was published in the Federal Register on September 23, 1994. This section also satisfies the Floodplain Assessment required by the Department of Energy (DOE) (10 C.F.R. 1022).

Environmental Consequences

There are 26 structures located within 100-year floodplains. Of these, three structures (24/8, 25/2, and 9/14) are identified as pulling and tensioning sites. Overall impacts to floodplains would be low and of short duration. The proposed project activities would not alter floodplain characteristics or create the potential for greater loss of property or life during flooding. No clearing would be required. No new access roads or structures would be needed because existing access roads would be used to carry linemen to the tower sites. At pulling and tensioning sites, soils and vegetation could be disturbed by vehicles and machines. However, all three sites are agricultural and would be returned to their original condition following construction activities.

Table 3-1
100-Year Floodplains
Garrison-Hot Springs Fiber Optic Route

River/Creek	County	Legal Description
Clark Fork River	Granite	Section 21, T11N, R14W
Clark Fork River	Granite	Section 15, 22, T11N, R15W
Clark Fork River	Granite	Section 24, T11N, R15W
Clark Fork River	Granite	Section 19, 20, T11N, R14W
Flint Creek	Granite	Section 13, 18, 19, T10N, R12W
Clark Fork River	Missoula	Section 21, 22, T12N, R17W
Clark Fork River	Missoula	Section 18, T12N, R17W
Clark Fork River	Missoula	Section 21, T13N, R18W
Rattlesnake Creek	Missoula	Section 11 (or 2 with line relocation), T13N, R19W
Grant Creek	Missoula	Section 29, 32, T13N, R19W
Butler Creek	Missoula	Section 18, T14N, R19W
Flathead River[1]	Sanders	Section 17, 18, T18N, R21W
Little Bitterroot River[1]	Sanders	Section 12, 13, T20N, R23W
Little Bitterroot River[1]	Sanders	Section 29, 32, T20N, R22W
Valley Creek[1]	Sanders	Section 19, T17N, R20W

[1]Probable 100-year floodplains as mapped by the Confederated Salish and Kootenai Tribes of the Flathead Reservation. Floodplains on the Reservation are not mapped by the Federal Emergency Management Agency.

3.6 WATER RESOURCES

Affected Environment

The project would cross 35 perennial streams, including the Flathead, Little Bitterroot, and Clark Fork rivers and Rattlesnake Creek. More than 150 intermittent stream beds would also be crossed. Relatively shallow groundwater aquifers located in alluvial deposits are present in mountain valleys.

Environmental Consequences

The likelihood and intensity of impacts to surface water resources depends on the amount of disturbance, slope, vegetative cover, soil characteristics, time of season, and susceptibility of disturbed areas to erosion. The project would have negligible effect on water quality since construction activity would be limited to minor modifications on existing transmission structures and stringing of fiber optic cable. No new structures or access roads are needed, and except for possibly replacing one existing culvert, no construction would occur within any streams. Any impacts on surface water quality would be localized, short-term and of low intensity.

The potential for greatest sediment production and transport to streams is within the mountains north of Missoula to Evaro, and the Clark Fork Canyon, where pulling or tensioning sites are required on steep slopes. Any ground disturbance in these areas could caused a localized short-term increase in sediment yields. BPA would follow best management practices to protect water quality in these areas. A number of measures would be used alone, or in combination, to eliminate or minimize adverse effects. These measures would include the use of sediment barriers and prompt re-seeding of disturbed areas with a seed mixture suited to the site.

The project crosses the Environmental Protection Agency - designated Missoula Valley sole source aquifer. The project would not directly introduce, nor facilitate the introduction of contaminants into this aquifer. There would be no impact on ground water resources.

The proposed actions would not exceed water quality standards or discharge pollution into waters. These actions are consistent with the Clean Water Act (33 U.S.C. 1344) and the Federal Water Pollution Control Act (33 U.S.C. 1251 et seq.) and would not require a permit. BPA would consult with the Montana State Department of Fish, Wildlife, and Parks to determine if a 124 Permit is necessary for the culvert replacement. BPA would also consult with the Montana State Department of Health and Environmental Sciences to determine if a short-term exemption from Montana's surface water quality standards is necessary for this project.

3.7 WILDLIFE/FISH

Affected Environment

Wildlife Species

The project area includes four major habitat types that support a wide variety of animal life, including several threatened, endangered, or sensitive species (see **Section 3.8—Threatened, Endangered and Sensitive Species**). Habitat conditions (the kind and amount of food, cover, and water) are the prime determinants of wildlife abundance, both in the number of species and the number of individuals. A description of the major habitat types within the project area are described below.

Forest Habitat. This habitat type, which is dominated by coniferous trees and associated understory vegetation, is found along the corridor between the Clark Fork River and the town of Evaro. South-facing slopes in this area are dominated by an open ponderosa pine-bunch grass association. The north-facing slopes are more densely forested with a mixture of lodgepole pine and Douglas fir. Occasional stands of aspen are found in damp draws. Mammals typically found in forest habitats include mule deer, elk, and red squirrels. Forest birds include sharp-shinned hawks, ruffed grouse, and a variety of woodpeckers, warblers, and other song birds. A variety of reptiles and amphibians are also present.

Bunch Grass/Steppe Habitat. This open and extensive habitat is found along the project route between Garrison Substation and the Clark Fork Valley, and between the town of Evaro and the Hot Springs Substation. A small amount is also found just north of Missoula. Vegetation is generally dominated by an association of grasses and forbs, with some occasional shrubs of various species, such as sagebrush and rabbit brush. Typically, the vegetation is low growing, and in some areas is intersected by agricultural plantings. Mammals typically found in this habitat type include mule deer, coyotes, ground squirrels, and jackrabbits. Birds common to these areas include mourning doves, horned larks, and a variety of sparrows.

Riparian Habitat. This habitat occurs along rivers, streams and other wet areas. These are transitional zones between aquatic and upland vegetation types. Riparian habitat is typically comprised of narrow bands of cottonwood, alder, and willow that occur along the edge of the wet areas. It is a very important habitat type and many wildlife species are dependent upon these areas. Along the project route, riparian habitat can be found along the Flint Creek, Clark Fork, Jocko and Flathead rivers. Many of the animal species identified earlier also utilize riparian habitat. Additional species found in riparian areas include white-tailed deer, beaver, mink, and a wide variety of amphibians. Kingfishers, great blue herons, osprey, bald eagles, and many species of song birds are also regularly found here.

Agricultural Habitat. While not usually considered typical wildlife habitat, the irrigated pastures and hay fields in the Flint Creek Valley and near Hot Springs do provide a temporary food supply utilized by deer, various rodents, and certain birds. However, because these areas do not provide cover except during the growing season, they cannot be considered year-round habitat.

Fish Species

The permanent streams in the project area contain a variety of cold water fish species. Trout, char, whitefish, sculpins are present along with a variety of less conspicuous species. Aquatic insects and amphibians are also present.

The project crosses two major drainages, the Flathead River and the Clark Fork. The Little Bitterroot (crossed twice) is the only major tributary of the Flathead that is crossed. The Jocko is not crossed, but the line is adjacent to the river mouth and two of its tributaries (Valley Creek and Finley Creek) are crossed. The Clark Fork is crossed in three places as well as the following Clark Fork tributaries—Cramer, Ryan, Wood, Antelope, Flint, and Dunkleberg creeks.

Of particular importance and concern to resource managers are bull trout and cutthroat trout. These species are found in several streams within the project area. There are only two important spawning areas within the project area, on Jocko and Finley creeks.

Environmental Consequences

Installing the fiber optic cable on existing towers could temporarily disturb wildlife within the right-of-way and adjacent habitat areas. Generally, any effects from this disturbance would be minor because of the temporary nature of the construction activities. Some direct mortality of wildlife inhabiting the right-of-way could result from equipment operations during project construction. An additional 2.8 hectares (7 acres) of ground is estimated to be used as set up sites for pulling the cable. This is distributed over 40 different sites. No clearing would be necessary, but ground and vegetation could be disturbed when trucks are driven onto the site. Any impact would be minor because few individual animals would likely be present on the existing access roads or pulling sites. Because no clearing or habitat modifications would be done, long-term effects would not be significant.

Consultations with State, Tribal, and Federal wildlife biologists have resulted in the identification of several big-game wintering areas, primarily elk and mule deer (Figure 3-2). The exact time of year that these areas are used varies from year to year. However, the period from December 1 to April 30 would be close for most years. Singular vehicle traffic on the access roads should not pose a problem for animals wintering in these areas. Repeated trips, or trips by multiple vehicles, could cause stress and cause animals to abandon areas within visual

range of the construction activities. Likewise, while a single helicopter trip would not be harmful, repeated trips at low levels (such as pulling cable along the line) could be detrimental under deep snow conditions. If the winter has little snowfall, mild temperatures, and work is conducted early in the season, impacts would be greatly reduced or nonexistent. Proposed mitigation measures would also reduce impacts to nonsignificant levels.

Construction activities could also adversely affect raptors in the project area. Bald eagles and peregrine falcons are of special concern because of their status and limited numbers. Potential impacts to these species are discussed in **Section 3.8—Threatened, Endangered and Sensitive Species**. Ospreys are also a species of concern. The osprey is a common nesting bird found along the major watercourses in the project area. The Flathead, Jocko and Clark Fork rivers all have nesting osprey populations.

Because there would be no vegetation clearing as part of this project, modification of natural osprey habitat would not occur. However, osprey commonly use artificial structures as a nesting substrate. For example, four transmission towers along the Clark Fork River contain osprey nests, including two nests on one tower. During an aerial survey (8/2/94), two of these nests were occupied by adults and young; three nests were not in use (including the two on one tower). No other nests were noted near the line.

Osprey typically occupy their nests from mid-March through mid-August. Because they are federally protected birds, removal of a nest (even if it is not occupied) requires a permit from the USFWS. Installation of the fiber optic cable would not interfere with continued use of the nests if the cable is placed below the nests, and the nest is vacant at the time of installation. The fiber optic cable would be installed below the conductor and nests, and BPA would avoid potential disturbance to nesting osprey by not working within a 0.8 kilometer (0.5 mile) zone of any occupied nest between March 15 and August 15.

Installing the fiber optic cable across rivers and streams could create a collision hazard for birds that fly, forage, and migrate along the rivers, if it were located above the conductor. In almost all documented cases, the overhead groundwire is generally responsible for bird collisions, because the larger conductor is more visible and as birds flare to avoid hitting the conductor, they sometimes collide with the smaller groundwire.

There is only river crossing (Flathead River) where the fiber optic cable would be installed above the conductor. To avoid creating a new collision hazard, the fiber optic cable would replace the existing groundwire at this location. The cable would also be marked with aviation marker balls or an equivalent system. At other river and stream crossings, waterfowl use is low (Herbert 1994) and the fiber optic cable would be placed below the conductor.

Equipment to produce and/or boost the fiber optic signal would be placed in existing substations along the route. No impact to wildlife would result from these activities because no new ground disturbance would be necessary. Operating vehicles and helicopters to maintain the fiber optic cable could result in temporary disturbance of resident wildlife. This impact would be minor because these actions would be part of BPA's on-going maintenance activities and/or are of short duration.

No impacts to fish or other aquatic resources are expected as there is no clearing or major road building proposed. One culvert may need to be replaced or the stream forded, depending on the time of year construction would take place. Necessary permits for the culvert replacement would be obtained and BPA would abide by the permit requirements to avoid any impacts.

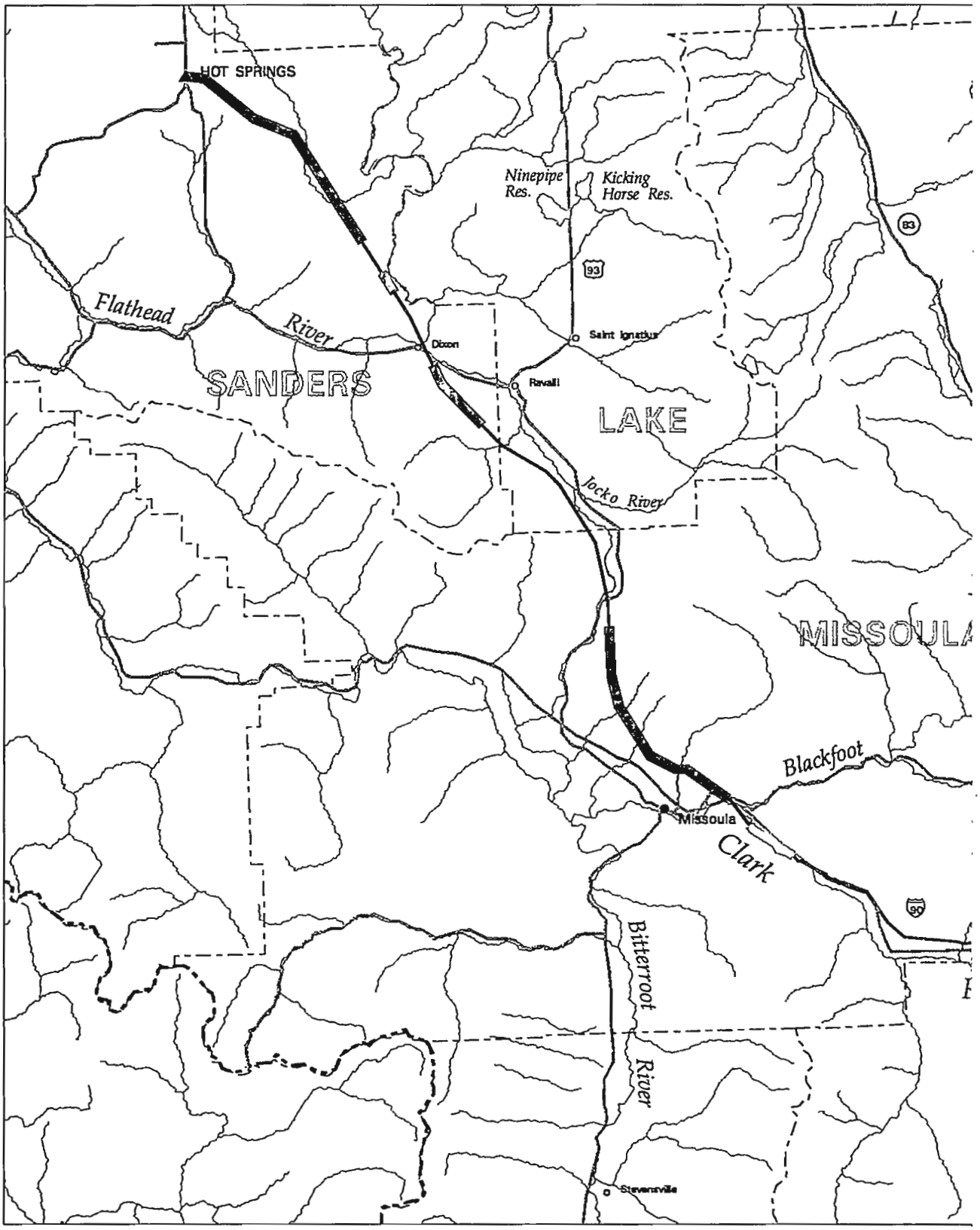
Mitigation Measures

The following measures would be implemented to avoid or minimize impacts to wildlife and fishery resources:

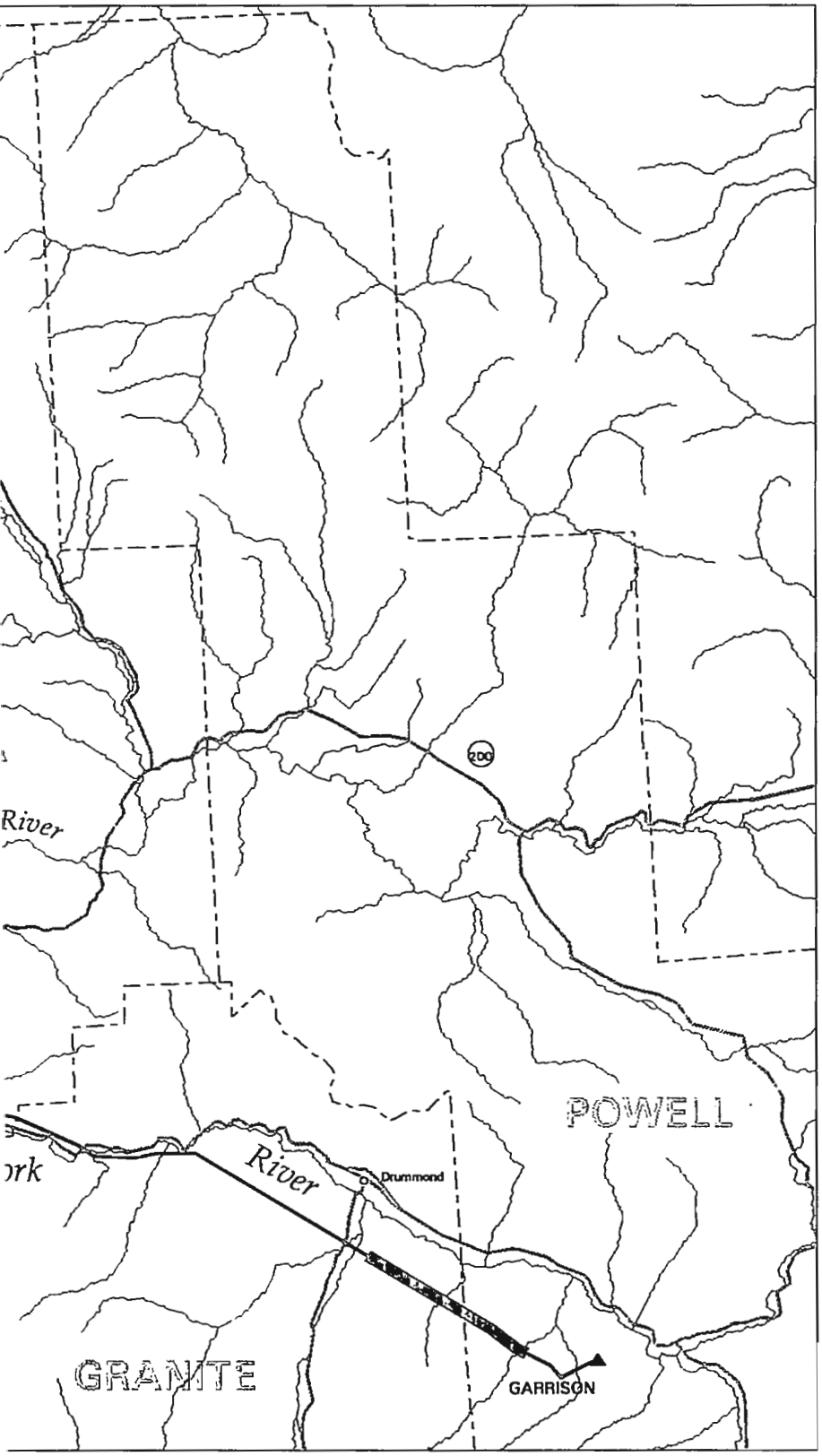
- Clearing vegetation would be kept to the minimum.

FIBER OPTICS PROJEC

Wildlife



T: Hot Springs - Garrison
Use Areas



LEGEND

- Proposed Fiber Optics Cable Location
- Substation
- Big game winter range
- Osprey nesting area

N

KILOMETERS
0 5 10 15 20

MILES
0 5 10 15 20

Location Map

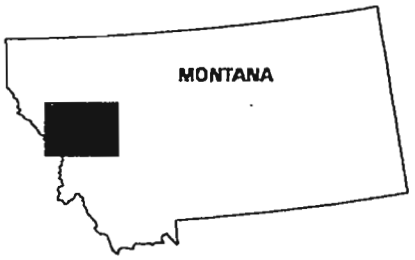


Figure 3-2

- OPGW would replace existing groundwire at the one Flathead River crossing to avoid creating a new collision hazard to birds. Marker balls would also be installed on the cable at this river crossing.

- Construction through big-game winter range would not be allowed during the period from December 1 through April 30. If winter conditions are mild, a waiver may be requested from appropriate agencies.

- No construction would take place within 0.8 kilometer (0.5 mile) of any occupied osprey nest between March 15 and August 15.

3.8 THREATENED, ENDANGERED AND SENSITIVE SPECIES

Affected Environment

The Endangered Species Act of 1973, as amended (16 U.S.C. 1536), requires Federal agencies to ensure that their actions do not jeopardize endangered or threatened species or their critical habitats. Section 7 of this Act requires consulting with the USFWS to determine potential project impacts on threatened and endangered species. In compliance with Section 7 of the Endangered Species Act, the USFWS was contacted about Federally listed threatened or endangered plant and animal species in the project area. A reply from the USFWS (dated August 24, 1994) identified the bald eagle, peregrine falcon, gray wolf, grizzly bear, and water howellia as endangered or threatened species that might occur in the project area (Table 3-3).

Table 3-3
Threatened, Endangered and Sensitive Species

Species	Scientific Name	Federal Status	Montana State Status	USFS Sensitive Species
Peregrine falcon	*Falcon peregrinus*	Endangered		
Bald eagle	*Haliaeetus leucocephalus*	Threatened		
Gray Wolf	*Canis lupus*	Endangered		
Grizzly Bear	*Ursus arctos*	Threatened		
Water Howellia	Howellia aquatilis	Threatened		
Flammulated owl	Otus flammeolus		S*	S***
Blackbacked Woodpecker	Picoides arcticus		S3**	S

* Critically important because of extreme rarity or because of some factor of its biology making it especially vulnerable to extinction.

** Either very rare and local, or vulnerable to extinction throughout its range.

*** Sensitive taxa for which viability is a concern.

In addition to the Federally listed threatened or endangered species, there are also species that are either listed by the State of Montana, or are listed as "sensitive" by the Lolo National Forest that may occur along the project route (Table 3-3). Additional Lolo National Forest sensitive species whose range may be within the project area, but whose habitat types are such that they would not be encountered, are: common loon, boreal owl, harlequin duck, northern bog lemming, big-eared bat, fisher, lynx, wolverine, and Coeur d'Alene salamander.

Environmental Consequences

In compliance with Section 7 of the Endangered Species Act, BPA has prepared a biological assessment to determine whether any of the federally listed threatened or endangered species, or their habitat, may be affected by the proposed action. Results of the biological assessment have been sent to USFWS for concurrence. It is BPA's opinion that this project is not likely to adversely affect these species. (See attached biological assessment.) In an October 17, 1994 letter, USFWS concurred with BPA's opinion that this project in not likely to adversely affect any threatened or endangered species.

The bald eagle occurs in the project area as both a nesting and wintering resident. There are 13 nesting territories (Shelley 1994), and several wintering areas located in the general area. Only 2 nesting areas (the Agency and Milltown Pond nests) are within 3.2 km (2 miles) of the project area. To avoid potential disturbance to these 2 nests, construction activities will not be allowed within 0.8 km (0.5 mile) during the period of March 1 through August 15. No winter communal roost sites are known in the project area.

The two sensitive and State-listed species that might be found in the project area are the flammulated owl and black-backed woodpecker. According to Hillis (1994), the flammulated owl requires low elevation, open, old growth stands of ponderosa pine/Douglas-fir for nesting. No stands of this type of old growth occurs along the project corridor. The black-backed woodpecker requires stands of fire-killed or beetle-killed trees. The project corridor is cleared of vegetation and below the elevational limits in which this species is encountered. Therefore, neither of these species or their habitat would be impacted by the project.

Mitigation Measures

To minimize adverse impacts, BPA would modify the timing of construction activities, if needed, to avoid disturbing any threatened or endangered species.

- No construction would take place within 0.8 kilometer (0.5 mile) of either the Agency or Milltown Pond bald eagle nests sites between March 1 and August 15.

3.9 VISUAL RESOURCES

Affected Environment

The project route includes a wide range of landscape character types (e.g., canyons, mountains, foothills, plains, river valleys, and water bodies). There are varying degrees of scenic quality associated with each of these landscape types. Some of the factors that influence scenic quality include landform, vegetation, water, color, influence of adjacent scenery, scarcity of features, and cultural modifications.

As noted earlier, the proposed activities would be confined to existing transmission line corridors throughout the region. These corridors are found in all of the landscape character types identified above. However, the scenic quality in these areas is already altered by the presence of existing transmission structures, power lines, right-of-way clearing, and access roads.

Environmental Consequences

Several construction-related activities could impact visual resources within the project area. These include (1) upgrading roads for access, (2) temporarily disturbing ground at structure sites for pulling and tensioning the cable, and (3) stringing fiber optic cable on existing structures. Because no new access roads or major vegetation clearing are proposed for this project, any construction-related visual impacts would be localized and of short duration.

Long-term impacts could result from the visual presence of the new fiber optic cable. The fiber optic cable itself is only approximately 1.3 centimeters (0.5 inch) in diameter, which is smaller than the existing conductors. Because the new cable would be attached to existing structures, long-term visual impacts would be low and non-significant. This is because the initial impact of the structure has already been imposed on the landscape, and the incremental increase of visual elements would not be noticeable to the casual observer.

Mitigation Measures

Potential visual impacts can be effectively reduced through mitigation measures that minimize visual contrast, particularly in areas with sensitive viewpoints. Mitigation is applied after identifying the factors contributing to the level of visual impact. Factors influencing impacts are landform and vegetation contrasts that result from construction activities. To reduce adverse visual effects resulting from the project, BPA would minimize vegetation clearing and site disturbance. Areas where construction/installation activities would result in new ground disturbance would be revegetated.

3.10 CULTURAL RESOURCES

Affected Environment

A cultural resources survey was conducted along the southern portion of the Hot Springs-Garrison transmission line corridor, a distance of approximately 109 kilometers (68 miles), from Garrison Substation to the southern border of the Flathead Indian Reservation north of Missoula. An additional 85 kilometers (53 miles) were not surveyed due to ongoing negotiations with the Confederated Salish and Kootenai Tribes of the Flathead Nation. Additional information on cultural resources within the northern segment of this project will be submitted by BPA to the appropriate review agencies as soon as it is available.

The Area of Potential Effect (APE) consists of a right-of-way 37.5 meters (125 feet) wide that defines the Hot Springs-Garrison 230-kV transmission line corridor. No new access road construction is planned as part of this project as only existing road access will be utilized during construction. Visual intrusion resulting from installation of the fiber optics cable is not considered to be part of the APE since the BPA transmission line is already in place and, for most of this corridor, is paralleled by a Montana Power Company transmission line.

Cultural resources identified and recorded during the field investigations within the APE include 27 isolated finds, 11 prehistoric sites, 3 historic sites, and 2 sites with both prehistoric and historic components. Prehistoric sites recorded during the survey include eight lithic scatters, one rock cairn, one campsite, and talus pits recorded as a single site. Historic sites include one runoff dam with a reservoir, one homestead, and one historic railroad grade. The two sites with both historic and prehistoric components consist of cabin/homestead remains and prehistoric lithic scatters.

Nine of the sites recorded during the survey appear to be ineligible for inclusion in the NRHP. Determinations of Eligibility have been completed for those sites. BPA proposes to avoid the other seven sites, which are potentially eligible for inclusion in the NRHP, during construction. The Section 106 process of the NHPA has been implemented but has not yet been completed. However, all steps in the process will be completed to the satisfaction of the Montana SHPO.

Environmental Consequences

Installation of the fiber optics cable would not directly affect any cultural sites recorded within the APE. Temporary diagnostic artifacts and/or items susceptible to relic collection were collected during survey; however, as a general rule, artifacts were left and not collected. None of the isolated finds within the APE appear to be National Register eligible.

Should any as-yet unidentified cultural resources be discovered during project development, reasonable efforts would be undertaken to preserve the resources as they currently exist, until they can be assessed for NRHP eligibility and project related effects, as per Section 106 of the NHPA (16 U.S.C. 470). The agency will determine eligibility and effect in consultation with SHPO, and inform the Advisory Council on Historic Preservation, tribal groups, and/or other interested parties of those determinations, as appropriate.

Mitigation Measures

The plan to avoid cultural sites would specify the restriction of wheel or track vehicles from the site areas for the duration of construction activity. Monitoring by an archaeologist or historian of the site areas during construction would also be completed as part of the avoidance plan for sites potentially National Register eligible, ensuring that no incidental alteration of site areas or deposit would occur during construction.

Should any sites of NRHP eligibility become subject to adverse effect during the course of project development, appropriate mitigation measures would be agreed upon amongst the agency, SHPO, Advisory Council on Historic Preservation, and other interested parties, including tribal groups, as warranted.

3.11 NOISE

Affected Environment

Audible noise is usually measured in decibels (dB) on what is called the "A Scale" (dBA). It models how the human ear perceives sound. Existing ambient noise levels throughout the study area vary depending on location and existing land use. Standard ambient noise levels for rural locations range from 40 to 50 dBA. In urban locations, the standard ambient noise levels range from 50 to 60 dBA. Environmental noise limits applicable to this project are regulated by state and Federal regulations.

Environmental Consequences

Minor noise impacts would result from activities associated with stringing cable on existing structures and improving access roads. These impacts would be minimal in most areas due to the rural nature of most of the project corridor. There could be a larger effect in areas that have residences near the corridor. However, any construction-related noise would be short-term and typically not result in any serious disturbances to residents.

Noise effects could also result from occasional maintenance traffic. However, these impacts would also be low in intensity and not exceed any state or Federal guidelines.

Mitigation Measures

To minimize disturbance to adjacent land users, construction in urban and residential areas would be limited to daytime hours.

3.12 AIR QUALITY

Affected Environment

National Ambient Air Quality Standards (NAAQS) are established by the U.S. Environmental Protection Agency. The primary standards are required to protect the public health with an adequate margin of safety; whereas secondary standards protect the public welfare.

Air quality throughout the study area generally ranges from good to excellent depending on location and time of year. Higher-elevation areas generally have excellent air quality, while Missoula area may exceed standards for carbon monoxide, and suspended particulates during different periods of the year due to traffic and industrial emissions. Burning crop and forest residues are often the source of particulates during the summer and fall.

Environmental Consequences

Construction activities associated with this project could result in periodic, short-term localized increases in particulate emissions (dust) caused by site disturbance, road improvement and right-of-way clearing. Emissions primarily associated with vehicle exhaust from construction equipment and trucks would be carbon monoxide, nitrogen oxides, sulfur oxides, and particulate matter. Overall, only slight impacts to air quality are expected as a result of this project. These impacts would be short-term and would not exceed any air quality standards.

Mitigation Recommendations

To help minimize adverse affects to air quality, dust abatement practices would be used if dust poses a health, safety or nuisance problem.

3.13 HEALTH AND SAFETY

The proposed action is not expected to have any adverse effect on public health or safety. Fiber optic cable does not carry an electrical current; therefore, it would not produce an electric field or a magnetic field (EMF) that is usually associated with power lines. In addition, the proposed action would not produce any hazardous or toxic materials.

Chapter 4

Consultation, Review and Permit Requirements

4.1 NATIONAL ENVIRONMENTAL POLICY ACT

This EA was prepared pursuant to regulations implementing the NEPA (42 U.S.C. 4321 et seq.), which requires Federal agencies to assess the impacts that their actions may have on the environment. Based on information contained in the EA, a determination will be made that the proposal will either significantly affect the quality of the human environment, in which case an Environmental Impact Statement is required, or that the proposal will not have significant environmental impacts—a Finding of No Significant Impact (FONSI).

4.2 FLOODPLAIN MANAGEMENT

Executive Order 11988 (Floodplain Management) and DOE regulations implementing the Executive Order (10 C.F.R. Part 1022) direct BPA to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains, and avoid direct and indirect support of floodplain development wherever there is a practicable alternative. BPA published a notice of floodplain/wetland involvement for the Programmatic EA in the Federal Register on September 23, 1994.

4.3 WETLANDS PROTECTION

Executive Order 11990 (Protection of Wetlands) and DOE regulations implementing the Executive Order (10 C.F.R. Part 1022) direct BPA to minimize the destruction, loss, or degradation of wetlands; and to preserve and enhance the natural and beneficial values of wetlands. Mitigation for site-specific impacts is discussed in Chapter 3 of the EA. The construction, operation, and maintenance of this project are not expected to affect the long-term survival, quality, or natural and beneficial values of the wetlands involved.

4.4 RECREATION RESOURCES

This project has evaluated whether it affects a component of the National Wild and Scenic Rivers System or the National Trails System; a USFS or Wilderness Area or roadless area; a BLM Wilderness Area or Critical Environmental Concern; a park or other area of ecological, scenic, recreational, or aesthetic importance; or converts property acquired or developed with assistance from the Land and Water Conservation Fund to other than outdoor public recreation uses. Each of the entities involved in controlling or regulating use of these areas would be contacted before construction activities would take place.

4.5 STATE, AREA-WIDE, AND LOCAL PLAN AND PROGRAM CONSISTENCY

BPA is committed to coordinating with state and local jurisdictions to assure that the project would be consistent with their plans and policies. The major applicable state and local regulations and policies are listed below.

Shoreline Management Act. The Shoreline Management Act was implemented to assure orderly development of the state's shorelines in a manner that enhances the public interest and protects against adverse economic impacts. Each local jurisdiction is responsible for developing and administering its own local shoreline master program with goals, policies, and regulations adjusted to fit local conditions.

Local Comprehensive Plans and Zoning. The goal of comprehensive planning is to assure the compatibility of adjacent land uses and to assure orderly development. This proposal would have little impact on surrounding land uses and would be designed to meet all local comprehensive plans and zoning regulations.

4.6 PERMIT REQUIREMENTS

The following summarizes the permit requirements associated with the proposed action:

1. A Section 404 (Federal Clean Water Act) permit may be required from the U.S. Army Corps of Engineers for any dredge and fill operations associated with the proposal.

2. A Corps of Engineers Section 10 (River and Harbor Act) Permit may be required for any structures or work in navigable waters of the Unites States.

3. A National Pollution Discharge Elimination System permit would not be required as there would be no waste discharges into water as part of this proposal.

4. On land under the jurisdiction of either the Secretary of Agriculture or the Secretary of Interior, a Federal right-of-way permit may be required. This permit would be reviewed and approved pursuant to the Federal Land Policy and Management Act (34 U.S.C., Chapter 35).

5. Special use permits may be required from Indian tribes who have tribal rights within the project area. These tribes are being contacted to determine whether special use permits are needed.

4.7 OTHER REGULATIONS NOT APPLICABLE TO THE PROJECT

Other regulations protecting the environment would not apply to this project. The *Resource Conservation and Recovery Act* does not apply because hazardous or solid waste products would not be used for or produced by this project. The project would not be affected by standards under the *Toxic Substances Control Act* because it would not involve the distribution, use, or disposal of toxic substances, including polychlorinated biphenyls. No pesticides would be used on this project, so the *Federal Insecticide, Fungicide, and Rodenticide Act* does not apply. *Energy Conservation at Federal Facilities* under the Energy Conservation Policy does not apply because Federal buildings would not be constructed for this project.

Chapter 5

Persons and Agencies Consulted

Federal Agencies

U.S. Fish and Wildlife Service, Helena and Kalispel
U.S. Forest Service, Lolo National Forest, Missoula
U.S. Forest Service, Deer Lodge National Forest, Missoula
U.S. Bureau of Land Management, Missoula
U.S. Bureau of Indian Affairs

State Agencies—Montana

Department of Fish, Wildlife, and Parks
Department of Natural Resources and Conservation
State Historic Preservation Office

Local Agencies—Montana

Lake County Planning Department
Granite County Planning Department
Powell County Planning Department
Missoula County Planning Department
Sanders County Planning Department

Tribes—Montana

Salish/Kootenai Confederated Tribes of the Flathead Nation

Private Organization—Montana

Montana Power Company

Chapter 6

List of Preparers

The individuals listed below work for BPA unless otherwise noted.

RICHARD ALBRECHT Civil Engineering Technician. Responsible for access road design. Education: Studied Architecture, pre-engineering and continuing education. Experience: Surveying, mapping and access road design; with BPA since 1966.

RANDY ANDERSON RS Anderson & Associates. Responsible for technical writing and editing. Education: B.S. Biology; M.S. Natural Resource Management. Experience: 12 years environmental research, management and technical writing; consultant to BPA since 1990.

BRIAN EMERY Project Engineer. Responsible for technical information regarding transmission facilities. Education: B.S. in Civil Engineering. Experience: 15 years experience in the planning, design and implementation of transmission lines and support facilities.

JERRY GALM Program Director, Archaeological and Historical Services, Eastern Washington University. Responsible for direct cultural resource analysis and preparation of documents. Education: B.A. Anthropology; M.A. Anthropology; PhD Anthropology. Experience: cultural resource field and administrative experience; consultant to BPA since 1981.

GEORGE GREEN Structural Engineer. Responsible for technical information regarding BPA transmission structures. Education: B.S. Civil/Structural Engineering. Experience: 10 years design analysis relating to transmission structures.

PHIL HAVENS Environmental Specialist. Responsible for coordination of wildlife, vegetation and cultural resources analyses. Education: B.S. Biological Science; graduate study in wildlife management. Experience: analysis of timber harvest and transmission line impacts on fish and wildlife; with BPA since 1983.

LESLIE KELLEHER Biologist. Responsible for vegetation analysis. Education: B.A. Biology; B.S. Secondary Education; M.A. Environmental Science and Secondary Education. Experience: general environmental analysis, vegetation analysis, and wetland ecology; with BPA since 1991.

CAROL LARVICK Senior Fiber Optic Engineer/Project Manager. Responsible for providing technical information regarding fiber optic telecommunications systems and managing overall project. Education: B.S. Electrical Engineering. Experience: 10 years as a telecommunications engineer at BPA.

CHARLES LUTTRELL Archeologist II. Responsible for cultural resource analysis and preparation of documents. Education: B.A. Anthropology; B.F.A. Sculpture. Experience: cultural resource management, historic preservation, and archeological excavation and survey in the Pacific Northwest region; consultant to BPA since 1989.

STEVEN PRICKETT Chief, Project Section. Responsible for coordinating the project team subgroup that would retrofit transmission lines with fiber optic cable. Education: B.S. Civil Engineering; M.S. Civil Engineering. Experience: 4 years as a design engineer in the private sector; 13 years of design and management of transmission lines at BPA.

LEROY SANCHEZ Visual Information Specialist. Responsible for graphics coordination in the Division of Facilities Engineering. Education: Graphic Design. Experience: coordination of environmental impact statement graphics, cartographic technical duties; with BPA since 1978.

PHILIP SMITH GIS Specialist/Soil Scientist. Responsible for soils and agriculture data collection and analysis. Education: B.S. Agronomy; M.S. Soil Science. Experience: soils and agricultural analysis; consultant to BPA since 1981.

KEVIN WARD Environmental Specialist. Responsible for NEPA strategy, document coordination, public involvement, environmental interagency/intraagency coordination, project description and alternatives. Education: B.S. Resource Management. Experience: 13 years of resource/environmental planning, environmental analysis, coordination and project management; associated with NEPA at BPA since 1981.

Chapter 7

Glossary and Abbreviations

access roads	Roads constructed to sites in order to construct, maintain and repair transmission line facilities. Access roads are built from scratch where no roads currently exist. Where county roads or other access is already established, access roads are built as short spurs directly to the structure site.
ADSS	All Dielectric Self Supporting. A type of fiber optic cable that is electrically nonconductive.
AHS	Archaeological and Historical Services
alluvial	Pertaining to sediments deposited by flowing water.
anadromous	Descriptive of fish which migrate up rivers from the ocean to breed in fresh water.
analog technology	Technology that operates with numbers represented by continuously varying signals.
APE	Area of Potential Effect
ARPA	Archaeological Resources Protection Act
bandwidth	A range of radio frequencies that is part of the radio frequency spectrum.
BLM	U.S. Bureau of Land Management
BPA	Bonneville Power Administration
conductor	The wire cable strung between transmission towers through which the electric current flows (i.e., power line).
coniferous	Refers to a cone-bearing plant.

crossarms	The crossing member(s) of a wood pole or steel tower that supports the insulators.
cut and fill	The process where a road is cut or filled on a side slope. The term refers to the amount of soil that is removed (cut) or added (fill).
danger trees	Trees (or high growing brush) in or alongside the right-of-way, which are hazardous to the transmission line. These trees are identified by special crews and must be removed to prevent tree-fall into the line or interference with the wires.
decibel (dB)	A measurement of sound or noise.
digital technology	Technology that relies upon numbers expressed as digits.
DOE	Department of Energy
ephemeral	Lasting a very short time.
fiber optics	Technology that uses light signals transmitted in a special cable to communicate between two locations.
EA	Environmental Assessment
easement	A grant of certain rights to the use of a piece of land (which then becomes a "right-of-way").
ecosystem	A community of plants and animals together with its physical environment.
emergent	As used here, a plant that is rooted and has parts extending above a water surface.
endangered species	Those species officially designated by the U.S. Government that are in danger of extinction throughout all or a significant portion of their range.
floodplain	That portion of a river valley adjacent to the stream channel which is covered with water when the stream overflows its banks during flood stage.
fluvial	Of or pertaining to rivers.
FONSI	Finding of No Significant Impact
forb	A herbaceous plant, other than a grass or sedge.
footing	The supporting base for the transmission towers.
glaciation	The alteration of the earth's surface by glaciers.
groundwire (overhead)	Wire that is strung from the top of one tower to the next; it shields the power line against lightning strikes.
herbaceous	Grass and grass-like plants (e.g., forbs, sedges, rushes).

H-frame	Refers to a type of structure, usually made of wood, with vertical poles and horizontal crossarms. When erected, it resembles the letter "H."
hydric	A soil that is saturated, flooded, or ponded long enough during the growing season to develop anaerobic conditions (where molecular oxygen is essentially absent).
insulators	A ceramic or other non-conducting material used to keep electrical circuits from arcing over to ground.
mass movement	The dislodgment and downhill transport of soil and rock materials under the direct influence of gravity. Includes movements such as creep, debris torrents, rock slides, and avalanches.
megawatt (MW)	An electrical unit of power. A megawatt is one million watts.
Miocene	A geologic period of time within the Tertiary Period.
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
noxious weeds	Plants that are injurious to public health, crops, livestock, land or other property.
NRHP	National Register of Historic Places
OAHP	Office of Archaeological and Historic Preservation
OPGW	Optical Groundwire. A type of fiber optic cable that can also be used as groundwire.
permeability (soils)	The rate at which water can move downward through a given soil layer.
physiographic	Of or pertaining to the genesis and evolution of landforms. A physiographic province is a region of similar structure and climate that has a similar geomorphic history.
power grid	An interconnected system of electrical transmission lines.
Programmatic EA	Programmatic Environmental Assessment
pulling site	The site where the machinery used to string the cable is staged.
Quaternary Period	Geologic period extending from the end of the Tertiary Period to present time.
reliability criteria	BPA standards for designing and operating power systems to ensure reliable electrical service.
revegetation potential	The relative ease of re-establishing vegetation on a disturbed site.

right-of-way	An easement for a certain purpose over the land of another, such as a strip of land used for a road, electric transmission line, pipeline, etc.
riparian zone	An area located adjacent to a water body. It may include upland or wetland vegetation.
riverine	Located along or in the banks of a river.
sediment	Solid material, both mineral or organic, that is dislodged, transported, and deposited by water, ice, or wind.
sedimentation	The process whereby sediment is dislodged, transported, and deposited.
SHPO	State Historic Preservation Officer
SONET	Synchronous Optical Network
staging areas	Places along the transmission line corridor where heavy equipment is used to install the fiber optic cable.
structure	As used here, it generally refers to a type of support (e.g., tower or pole) used to hold up transmission, substation, or communications equipment.
substation	The fenced site that contains the terminal switching and transformation equipment needed at the end of a transmission line.
Tertiary Period	The first period of the Cenozoic era, approximately 70 million years ago.
threatened species	Those species officially designated by the U.S. Government that are likely to become endangered within the foreseeable future throughout all or a significant portion of their range.
till	Non-sorted, non-stratified glacial drift consisting of a mixture of rocks and fine material such as clay and silt.
tower	(See **structure** above.)
transformer	Electrical equipment usually contained in a substation that is needed to change voltage on a transmission system.
transmission line	The structures, insulators, conductors, and other equipment used to transmit electrical power from one point to another.
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
VMS	Visual Management System
voice channel	A 4 KHz-wide audio signal capable of transmitting and receiving one telephone conversation.

VQO	Visual Quality Objectives
wetlands	An area where the soil experiences anaerobic conditions because of inundation of water during part of any given year. Indicators of wetland include types of plants, soil characteristics and hydrology of the area.

Chapter 8

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Appendix A
Letter from U.S. Fish and Wildlife Service on Threatened and Endangered Species

United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
100 N PARK, SUITE 320
HELENA MT 59601

IN REPLY REFER TO:

M.03 Bonneville Power Admin. (I)

August 24, 1994

Mr. Phillip D. Havens, Wildlife Biologist
DOE, Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

Dear Mr. Havens:

This is in response to your letter of June 23, 1994, requesting a list of threatened and endangered species for the environmental analysis of your proposed Hot Springs-Garrison Fiber Optic Project in Sanders, Lake, Missoula, Granite, and Powell Counties, Montana. Your letter was received on August 17, 1994.

In accordance with Section 7(c) of the Endangered Species Act (ESA) of 1973, as amended, we have determined that the following listed, proposed and category 1 candidate threatened or endangered (T/E) species may be present in the project area.

Listed Species	Expected Occurrence
Grizzly bear (Ursus arctos horribilis)	resident
Gray wolf (Canis lupus)	transient
Bald eagle (Haliaeetus leucocephalus)	resident
Peregrine falcon (Falco peregrinus)	resident
Water howellia (Howellia aquatilis)	unknown

Proposed Species

None

Category 1 Candidate Species

Bull trout (Salvelinus confluentus)	unknown

Please be advised that your proposed project may directly affect several active bald eagle nests along the Clark Fork River, southeast of Missoula and an important linkage/movement corridor for grizzly bears and gray wolves on the Flathead Indian Reservation near Evaro.

Section 7(c) of ESA requires that Federal agencies proposing major construction activities complete a biological assessment to determine the effects of the proposed actions on listed and proposed species and use the biological assessment to determine whether formal consultation is required. A major construction activity is defined as "a construction project (or other undertaking having similar physical impacts) which is a major Federal action significantly affecting the quality of the human environment as referred to in the National Environmental Policy Act" (50 CFR Part 402). If a biological assessment is not required (i.e. all other actions), the Federal agency is still required to review their proposed activities to determine whether listed species may be affected. If such a determination is made, formal consultation with the Fish and Wildlife Service (Service) is required.

For those actions wherein a biological assessment is required, it should be completed within 180 days of initiation, but can be extended by mutual agreement between the Federal agency or its designated non-Federal representative and the Service. If the assessment is not initiated within 90 days, the list of T/E species should be verified with the Service prior to initiation of the assessment. The biological assessment may be undertaken as part of the Federal agency's compliance of Section 102 of the National Environment Policy Act (NEPA) and incorporated into the NEPA documents. We recommend that biological assessments include the following:

1. A description of the project,

2. A description of the specific area that may be affected by the action,

3. The current status, habitat use, and behavior of T/E species in the project area,

4. Discussion of the methods used to determine the information in Item 3,

5. An analysis of the affects of the action on listed species and proposed species and their habitats, including an analysis of any cumulative effects,

6. Coordination/mitigation measures that will reduce/eliminate adverse impacts to T/E species,

7. The expected status of T/E species in the future (short and long term) during and after project completion,

8. A determination of "is likely to adversely affect" or "is not likely to adversely affect" for listed species,

9. A determination of "is likely to jeopardize" or "is not likely to jeopardize" for proposed species.

10. Citation of literature and personal contacts used in developing the assessment.

If it is determined that the proposed program or project "is likely to adversely affect" any listed species, formal consultation should be initiated with this office. If it is concluded that the project "is not likely to adversely affect" listed species, we should be asked to review the assessment and concur with the determination of no adverse effect.

Pursuant to Section 7(a) (4) of ESA, if it is determined that any proposed species may be jeopardized, the Federal agency should initiate a conference with us to discuss conservation measures for those species. Although candidate species have no legal status and are accorded no protection under ESA, they are included here to alert your agency of potential proposals or listings. The Service recommends that you contact the Montana Department of Fish, Wildlife, and Parks to determine the possible effects your proposed project may have on bull trout.

A Federal agency may designate a non-Federal representative to conduct informal consultation or prepare biological assessments. However, the ultimate responsibility for Section 7 compliance remains with the Federal agency and written notice should be provided to the Service upon such a designation. We recommend that Federal agencies provide their non-Federal representatives with proper guidance and oversight during preparation of biological assessments and evaluation of potential impacts to listed species.

Section 7(d) of ESA requires that the Federal agency and permit/license applicant shall not make any irreversible or irretrievable commitment of resources which would preclude the formulation of reasonable and prudent alternatives until consultation on listed species is completed.

Please contact us by mail at the above-referenced letterhead address or call Kevin Shelley at (406) 755-7870 if we can be of further assistance. Your interest and cooperation in meeting our joint responsibilities under the Endangered Species Act are appreciated.

Sincerely,

Kemper M. McMaster
Field Supervisor
Montana Field Office

cc: ES Kalispell Suboffice
Scott Jackson, USFWS, Helena, MT

September 26, 1994

EFBG

Mr. Kemper M. McMaster
Field Supervisor
U.S. Fish and Wildlife Service
100 N Park, Suite 320
Helena MT 59601

Dear Mr. McMaster:

In complying with its responsibilities under the Endangered Species Act of 1973, as amended, the Bonneville Power Administration (BPA) submits to the U.S. Fish and Wildlife Service the enclosed Biological Assessment on the threatened and endangered species listed in your letter of August 24, 1994 (M.03 BPA (I)).

Biological Assessment--Conclusion

It is BPA's opinion that the proposed Hot Springs - Garrison fiber optic project is **not likely to adversely affect** the Federally listed bald eagle, peregrine falcon, grizzly bear, gray wolf, or water howellia.

We would appreciate a written response for our files. Please contact me at (503) 230-3295 if you have questions.

Sincerely,

Phillip D. Havens
Wildlife Biologist

Enclosure

BIOLOGICAL ASSESSMENT

Project Description

The Bonneville Power Administration (BPA) is proposing to install fiber optic cable on its transmission line between its Hot Springs and Garrison substations a distance of about 192 kilometers (120 miles). The project is located in Sanders, Lake, Powell, Granite, and Missoula counties, Montana, and is shown on the attached map.

The cable would be placed on existing transmission line towers for the entire distance. Except where overhead groundwire currently exists, the cable would be placed at the same elevation as the conductors (on wood poles) or about 2.4 meters (8 feet) below (on steel towers). At the crossing of the Flathead River, and for 1.6 km (1 mi.) on either side of the Rattlesnake Substation near Missoula, existing overhead ground wire would be replaced by a similar size wire that combines the fiber optic cable with the overhead groundwire. At the Flathead River crossing, aviation markers will be placed on the line. There would be no change in appearance or amount of wire from the existing situation in those places.

No new access roads would be built, and no vegetation clearing needed. No herbicides or other chemicals would be used.

The length of time to install the cable cannot be precisely known. However, about 16 km (10 mi.) per week might be normal.

Brackets and travellers (pulleys) are placed on the poles by a lineman; then a truck carrying a reel of cable is positioned under the line. A light sock line (which is attached to the fiber optic cable) is pulled to the poles by helicopter or by hand. The sock line is threaded through the brackets and travellers until it reaches the truck-mounted pulling unit. The pulling unit tightens the cable to a specified height and tension. This is repeated for the length of the line. The length of the cable on each reel varies according to specifications, but averages about 4.8 km (3 mi.). Therefore, about every 3 miles there would be an area where a truck, or truck and trailer, with either cable or a pulling unit, would be set up. No ground preparation would be needed, as the sites were selected for their suitability.

Habitat Description

The project traverses the Northern Rocky Mountain physiographic province of Montana. Although BPA's maintenance routine keeps the right-of-way cleared of high-growing vegetation, the surrounding plant communities consist of coniferous forests, riparian, or bunchgrass/steppe types. Intermixed with these are agricultural lands (mostly pasture or hay). Some rural-residential areas are also crossed.

Project Schedule

Environmental documentation completed	Fall 1994
Construction	Fall 1994-Spring 1995

Basis for Assessment

In a letter to BPA dated August 24, 1994, the U.S. Fish and Wildlife Service listed the bald eagle, peregrine falcon, grizzly bear, gray wolf, and water howellia as threatened and endangered species that may occur in the project area.

BPA has evaluated the proposed project to determine possible impacts on these species. This Biological Assessment is based on a review of pertinent literature; discussions with State, Federal and Tribal biologists; review of maps and photographs; and several site visits.

Species Information

Bald Eagle

The bald eagle occurs in the project area as both a nesting and wintering resident. Thirteen nesting territories (Shelley 1994), and several wintering areas are located in the general area. In addition there is a large unoccupied area along the Clark Fork River east of Missoula: It has prime nesting habitat that is expected to attract nesting pairs in the near future (Firebaugh 1994). Of the 13 nesting territories identified by Shelley (1994), only 2 of them are within 3.2 km (2 mi.) of the proposed project. The **Agency Territory** nest is located on an island in the Flathead River about 1 km (0.6 mi.) away from the line; the **Milltown Pond Territory** nest is located adjacent to the Clark Fork River less than 0.8 km (0.5 mi.) from the project. Becker (1994) states that 15-20 eagles winter along the Jocko River, but there are no communal roosts. The same situation exists along the Clark Fork in the project area, according to Firebaugh (1994).

Peregrine Falcon

There are two peregrine hack sites on the Flathead Indian Reservation near the project area: One near Perma where birds were hacked in 1994, and one east of the line north of Charlo, where birds were hacked in 1992 and 1993. Both are more than of 16 km (10 mi.) from the project area. No reproduction has occurred at either site. Migrating birds pass through the project area on their spring and fall migration flights.

Grizzly Bear

The line crosses through an area that is considered as a viable corridor for grizzly travel. This area, about 12 km (7.5 mi.) wide where it crosses the transmission line near the town of Evaro, has suitable forested cover that allow bears and wolves to travel from occupied range to the east of the project area into new and unoccupied territory in the Nine Mile Divide area of Montana.

Servheen documented use in the area in the early 1980's according to Shelley (1994). This corridor is bisected by both the line and Highway 93; the line is never more than a few kilometers from the road as it passes through the corridor. The traffic and development along the highway makes it unlikely that the habitat is used by either bears or wolves for anything other than travel.

Gray Wolf

As with the grizzly bear, the area near Evaro is considered a viable expansion corridor and may have been important in establishing the wolf use in the Nine Mile area. Wolf dispersion would most likely occur in the summer, fall, or early winter.

Water howellia

Water howellia can be found rooted in shallow vernal glacial pothole ponds and oxbow sloughs that usually dry up by late summer. The plant is expected to occur on the Lolo National Forest (USDA Forest Service, 1989), though no habitat was identified in the project area (USDA Forest Service, 1994). In the project area, only the Clark Fork Valley has oxbow sloughs and ponds occurring near the line. These ponds and sloughs have open water year round and are deep and unvegetated in the center, not typical water howellia habitat.

Potential Impacts

Habitat Modification

Only minor amounts of vegetation would be modified where vehicles are driven to pulling sites. Existing access roads would be used, but every 3 miles a truck or truck and trailer would need to be parked under the line to string the fiber optic cable. While the sites were picked for their ability to handle the equipment without modification, the ground cover would be flattened where the equipment is driven. Forty sites will be needed to complete the cable installation on the job. Each site is about 15 by 45 meters (50 by 150 ft), so the total amount of ground disturbance would be about 2.8 hectares (7 acres). As the right-of-way has been kept cleared of trees and tall shrubs, the vegetation that might be temporarily damaged would be grasses, forbs and low growing shrubs. No bald eagle roosting or nesting habitat would be lost, and foraging areas are not usually associated with the type of habitat found on the right-of-way

There is no peregrine nesting habitat nearby so none would be modified. Foraging areas are not typically associated with transmission line rights-of-way.

Grizzly bear and gray wolf habitat would not be modified, except for vegetation flattening on the two pulling sites that would be in the corridor area. As the area of concern is less than 16 km (10 mi.) wide, crews would be in the area less than 1 week. On the current schedule, work in this area would be done between late October and mid-December. No impact on any wildlife species is expected; therefore, the prey of wolves and grizzly bears would not be harmed. No forested cover would be removed.

Water howellia habitat has not been identified in the project area, but, if present, it would not be affected by the project, as all wetlands would be spanned and access roads avoid all ponds and oxbow sloughs.

Although the project crosses the Clark Fork and Flathead Rivers and some of their tributaries, it uses existing structures and no activities would take place in the floodplain. No impacts on water quality or flows are expected.

Direct Mortality

Bald eagles and peregrine falcons will likely avoid the project area during construction. Electrocution would not occur, as the new fiber optic line is not conductive and the spacing of the conductors on the existing power line makes the chances of electrocution extremely remote. Also according to Olendorff, et al., (1981) and Kroodsma (1978), eagle collisions do not seem to be a major problem with either transmission or distribution lines.

At the Flathead River crossing, existing groundwire would be replaced with new fiber optic cable/groundwire and marked with aviation markers. At all other river crossings the fiber optic cable would be at or below the existing conductor height and is not considered a collision hazard.

Because of their limited occurrence in the area, collisions by peregrine falcons are not expected. Also, no previous collision problems with that line have been reported.

Grizzly bear and gray wolves would most likely avoid the project area while people are working there. No firearms are allowed to be carried by BPA employees or their contractors; no camping would be allowed and the crews would be in the area only a week or less. They would be cautioned about leaving food stuffs in any place but a vehicle, in order to reduce possible conflict.

No direct mortality of water howellia is expected to occur, as none of its habitat would be affected by the project.

Visual and Noise Disturbance

Construction activity and noise would be seen and heard by both bald eagles and peregrine falcons if they fly near the line. With the exception of the Agency and Milltown Pond nests, all other eagle nests are more than 3.2 km (2 mi.) from the line, and distance and terrain preclude direct disturbance. The **Agency** nest is located about 1km (0.6 mi) from the line; however, roads and houses are nearer the nest than the line, as is the town of Agency. It is unlikely the limited

work on the line would interfere with the nesting birds, as much more disturbance already occurs closer to the nest site. The **Milltown Pond** nest site appears to be within 0.8 km (0.5 mi.) of the project. Although separated by partially forested land with homes and county roads nearby, if the nest is active BPA will not allow construction to occur closer than 08 km (0.5 mi.) during the period of March 1 through August 15.

No winter communal roost sites are known in the project area. Except near the towns of Dixon and Arlee on the Jocko River, the line is more than a mile from the river and in habitat not usually associated with wintering eagles. Where it is near the river, other disturbance from roads and people already exists. In the Clark Fork Valley, the line is away from the river except between East Missoula and Clinton, and in the Medicine Tree Hill to Bearmouth areas. In these locations, the line is in the flats near the river, but shares the area with the Interstate highway and railroad, as well as with scattered small farms and rural residential areas. It is possible that if construction occurs during the winter, eagles may temporarily move away; however, as only limited people and equipment would be working along the line and as they would be in the area for a short period of time, it is unlikely that the additional disturbance will be detrimental.

Grizzlies and wolves are extremely rare in the project area. In the unlikely event that crews are working in the corridor when either wolves or grizzlies are attempting to use it, the animals would most likely retreat until crews had departed or try to go around and avoid them. As people would be working (hanging hardware) at only a few pole locations at a time, it seems only a remote possibility that visual or noise disturbance would block movement through the corridor.

Conclusion

Due to the limited amount and type of habitat being modified, the distance of the project to the bald eagle nest sites, the timing restrictions on construction, the limited amount of time spent in wintering areas and grizzly and wolf migration corridors and lack of modification of wetland habitat, it is concluded that the proposed project is **not likely to adversely affect** the Federally listed bald eagle, peregrine falcon, grizzly bear, gray wolf, or water howellia.

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USDA Forest Service, Northern Region. 1989. Sensitive Plant Field Guide - Montana. Region 1, RAWE, Missoula, Montana.

USDA Forest Service, Lolo National Forest. 1994. TES Plant Biological Evaluation of BPA Fiber Optics Transmission Line.

Attachment

United States Department of the Interior

FISH AND WILDLIFE SERVICE
ECOLOGICAL SERVICES
100 N PARK, SUITE 320
HELENA MT 59601

IN REPLY REFER TO:

M.03 BPA (I)

October 17, 1994

Mr. Phillip D. Havens, Wildlife Biologist
DOE, Bonneville Power Administration
P.O. Box 3621
Portland, Oregon 97208-3621

Dear Mr. Havens:

This is in response to your letter of September 26, requesting Fish and Wildlife Service (Service) review of the biological assessment for Bonneville Power Administration's (BPA) proposed Hot Springs - Garrison fiber optic project in Sanders, Lake, Powell, Granite, and Missoula Counties, Montana.

The Service has reviewed the biological assessment and concurs with BPA's determination that the project is not likely to adversely affect the threatened grizzly bear (Ursus arctos horribilis), the endangered gray wolf (Canis lupus), the endangered peregrine falcon (Falco peregrinus), endangered bald eagle (Haliaeetus leucocephalus), and endangered water howellia (Howellia aquatilis). We also concur that the project will have "no effect" on the endangered Kootenai River white sturgeon (Acipenser transmontanus).

Finally, the Service does not anticipate any incidental take of listed species as a result of the proposed project. Therefore, pursuant to S402.13(a) of the 50 CFR, formal consultation is not required. If, after public review and comment, the final project design is changed so as to have effects on threatened or endangered species other than those described in the September 1994 biological assessment, a revised biological assessment will need to be prepared. The Service will then issue a letter of concurrence/nonconcurrence on the revised biological assessment.

We appreciate your efforts to ensure the conservation of these threatened and endangered species as a part of your responsibilities under the Endangered Species Act, as amended.

Sincerely,

Kemper M. McMaster
Field Supervisor
Montana Field Office

cc: ES Kalispell Suboffice
Scott Jackson, USFWS, Helena, MT