Environmental Assessment

Wolf Point, MT - Williston, ND
Transmission Line Rebuild

Western
AREA POWER
ADMINISTRATION

DOE/EA-1401

August 2003

SUMMARY

INTRODUCTION

The Western Area Power Administration (Western) is a power marketing administration charged with marketing the Federal Government's portion of the electricity generated by power plants operated by the Bureau of Reclamation, U.S. Army Corps of Engineers, and the International Boundary and Water Commission. Western, a Department of Energy agency, owns and operates an existing 115-kilovolt (kV) transmission line between Fort Peck, Montana, and Williston, North Dakota. Western's Upper Great Plains Customer Service Region operates and maintains this transmission line.

Western proposes to rebuild a 95-mile segment of the transmission line between the Wolf Point Substation, west of Wolf Point, Montana, to the Williston Substation, west of Williston, North Dakota. Western intends to improve transmission reliability and to extend the useful life of the line by replacing existing wood-pole H-frame structures, insulators, ground wires, and conductor to meet 230-kV design standards. In addition, a new 230-kV substation would be constructed adjacent to the existing substation at Williston, North Dakota, to handle increased transmission load.

PURPOSE AND NEED

The existing transmission line between Wolf Point, Montana, and Williston, North Dakota, was placed in service in 1949 and has exceeded its useful service life. Frequent repairs and continued maintenance of the line will become more expensive and customer interruptions will persist due to aging structures and conductor. Ongoing operational and maintenance problems coupled with power system simulation studies, demonstrate the need for improvements to serve area power loads.

The purpose of the proposed action is to upgrade the facility to meet Western's mission of providing safe, reliable electricity. A 230-kV design would reduce annual losses, provide flexibility for the future, and allow for future system needs. This Environmental Assessment (EA) addresses impacts associated with project implementation, including installation of 230-kV conductor.

SUMMARY OF PROPOSED ACTION

Western proposes to rebuild a 95-mile segment of an existing 115-kV transmission line between Wolf Point, Montana, and Williston, North Dakota to 230-kV design standards and construct a new 230-kV substation adjacent to the existing Williston, North Dakota, substation.

The proposed rebuild would generally occur within the existing right-of-way (ROW), except for two short reroutes, beginning in 2003 and continuing through 2011. Construction would not occur in a sequential manner but rather in shorter segments selected on a priority basis.

Western would replace existing wood-pole H-frame structures, insulators, and ground wires with 230-kV design standard components. A 24-count fiber optic overhead ground wire would also be strung on the line. The fiber optic cable would replace one of the existing overhead ground wires.

New wood-pole H-frame structures would be the most likely structures installed at existing and new structure locations. Existing wood-poles would be pulled from the ground and new holes would be augured to dimensions that accommodate new structures. Approximately eight structures per mile would be required. Depending on terrain, total disturbance at each structure location would be approximately 100 feet by 100 feet (10,000 square feet).

Western proposes to reroute the existing line at two locations to straighten alignment and reduce the overall number of structures. Approximately five miles of new easement would be required for the reroutes. Reroutes would also avoid ranches, housing, highway ROW encroachments, and sensitive areas such as wetlands.

Relocation of structures within the existing ROW would also occur at several locations. Relocations typically involve moving a structure up or down the line to improve alignment, reduce the overall number of structures, and avoid sensitive areas or buildings.

Additional disturbances would occur at tensioning and/or splice sites associated with placement of new conductor. New conductor would be pulled and tensioned from several locations along the transmission line route. Heavy, truck-mounted winches that also carry reels of conductor and cable would be used for pulling and tensioning work. Disturbances associated with pulling/tensioning are generally located a short distance from the structures in the existing ROW. In some cases, this work would occur outside the existing ROW but typically would not disturb more than 10,000 square feet. All disturbed areas associated with the rebuild of the line would be restored to pre-construction condition.

PROJECT ALTERNATIVES

No components of the proposed action were determined to have impacts requiring an alternative to eliminate or reduce impacts. Therefore, the only alternative to the proposed action discussed in detail in this EA is the no action alternative. Minor issues and impacts identified in Chapter 3, *Affected Environment and Environmental Consequences*, are addressed with specific references to environmental protection measures and standard practices that avoid environmental impacts.

NO ACTION ALTERNATIVE

Under the no action alternative, the proposed action would not be implemented. The existing Wolf Point-Williston 115-kV line would be maintained and operated at its current level. Construction of a new 230-kV substation near Williston, North Dakota would not be necessary. Deteriorated structures and fatigued hardware on the existing line would be repaired or replaced when required.

SUMMARY OF IMPACTS

PHYSICAL RESOURCES

SOIL

Potential impacts to soil include soil compaction, temporary erosion from runoff due to compaction, and temporary loss of vegetation in areas disturbed by construction activities. Because of the gentle relief in the Project area, soil loss potential due to erosion would be low.

AIR RESOURCES

Impacts to air quality resulting from the proposed action include increased total suspended particulates from vehicle movement and soil disturbance during construction activities, and emissions of nitrogen oxides, hydrocarbons, carbon monoxide, and sulfur dioxide from construction and maintenance vehicles. These impacts would be short-term, and would not exceed state and federal air quality standards.

WATER RESOURCES

Construction activity would increase erosion locally, which may affect surface water quality. Western would implement standard mitigative measures to prevent sediment-laden water from reaching streams. The transmission ROW is located outside the Missouri River floodplain. However, in local areas the existing ROW lies within floodplains associated with the Poplar River, Wolf Creek, and Big Muddy Creek where it crosses these drainages. Impacts to water resources resulting from implementation of the proposed action would be minimal.

BIOLOGICAL RESOURCES

Vegetation

Impacts to vegetation include removal and reduction in growth and productivity in areas disturbed by construction activities. Construction activities that may adversely affect vegetation include excavation and soil removal, backfilling and compaction, tree removal, disturbance from vehicular travel, new road and trail construction, and structure removal and disposal. Vegetation communities most sensitive to disturbance are wetlands and drainages along the Missouri and Poplar Rivers. Impacts to resources such as cropland, Conservation Reserve Program (CRP) land, pastureland, native prairie, and rangeland would be minimal. Impacts would be mitigated through revegetation and erosion control practices.

Wetlands

Disturbance to wetlands resulting from the Project would be minimal and result primarily from removal of existing structures located in wetlands. Where possible, structure placement and associated construction activities would occur outside wetland boundaries. The Montana Department of Environmental Quality (MDEQ) and U.S. Army Corps of Engineers (USACE) regulate excavation and filling of wetlands. Where disturbance is unavoidable, the USACE would require Western to obtain the appropriate permits for disturbance to jurisdictional wetlands.

Wildlife

Direct and indirect impacts to wildlife resulting from implementation of the proposed action would be minimal to overall populations. No adverse impacts are anticipated to big game, game birds, small mammals, carnivores, reptiles, amphibians, or most birds. Waterfowl, shorebird, and raptor mortality may occur from collisions with transmission lines, but these losses would be reduced from existing levels by installing bird flight diverters in areas where potential for collision is high.

Threatened, Endangered, Proposed, and Sensitive Species

No threatened, endangered, proposed, or sensitive plant or animal species have been

recorded in the Project area and no impacts are predicted. Piping plovers, least terns, bald eagles, and whooping cranes migrate through the area but potential for adverse impacts is low.

SOCIAL RESOURCES

Personnel from the Upper Great Plains Region would be used to rebuild the transmission line. The Project would provide continued employment in the industry and secondary jobs in retail and service sectors, and continued payments in lieu of taxes to local jurisdictions.

Land Use

Impacts to land use would be primarily related to agricultural practices, since other types of land use would be avoided by rebuilding the transmission line in the existing ROW. Proposed re-routes of the ROW would affect existing agricultural uses locally. Impacts to agriculture would be both short- and long-term.

By using the existing ROW, no additional long-term impacts are anticipated. Impacts to existing land uses and agricultural practices would be reduced by siting structures in previously disturbed areas, or in areas where agricultural practices have been modified.

Some long-term impacts would occur along proposed re-route areas. These impacts are expected to be minimal, as they would occur in similar type land use areas as the existing ROW.

Visual Resources

Portions of the existing line parallel within ¼-mile U.S. Highway 2 for about 22 miles. This near foreground distance for a high number of viewers (highway travelers) would result in high Project visibility, while remaining portions of the line that occupy middle-ground views (½-mile to 1 mile from the highway) have moderate to low levels of Project visibility.

Electrical Effects

It is unlikely that exposures to the electric and magnetic fields from the proposed project would have adverse effects on biological systems, based on the low levels of electric and magnetic fields from the proposed line.

Cultural Resources

A cultural resource investigation of the Project area was conducted to meet the requirements of Section 106 of the National Historic Preservation Act of 1966. The literature review examined the 95-mile transmission line between the Wolf Point, Montana and Williston, North Dakota substations. The field survey examined 83 miles of the existing line, encompassing a 200-foot wide area centered on the existing 115-kV line, for a total of 2,012 acres. The survey also examined proposed reroute areas and two locations for possible relocation of the Williston Substation.

The survey identified 20 cultural resources within the Project area. One site is recommended as eligible for listing on the National Register of Historic Places (NRHP) and four sites do not have any recommendation for eligibility. The remaining resources are isolated finds and by their nature, are not eligible for the NRHP. Eligible and potentially eligible sites would be avoided.

Environmental Justice

During the continuing course of this consultation process, concerns expressed by the potentially affected Tribes have been addressed, including the consideration of possible reroute locations, the avoidance of culturally or historically important resources, the inclusion of tribal monitors during cultural resource inventories, and the consideration and avoidance of sacred sites, ceremonial use areas, and possible traditional cultural properties. No potential impacts to human health or the environment have been identified during the analysis or during consultation that would constitute discrimination of or disproportionate impacts to low-income, minority, and subsistence populations as a result of the proposed Project.

FINAL ENVIRONMENTAL ASSESSMENT
WESTERN AREA POWER ADMINISTRATION

WOLF POINT, MT – WILLISTON, ND
TRANSMISSION LINE REBUILD

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CHAPTER 1
INTRODUCTION

The Western Area Power Administration (Western), a Department of Energy (DOE) agency, is responsible for marketing the Federal Government's portion of electricity generated by power plants operated by the Bureau of Reclamation (BOR), U.S. Army Corps of Engineers (USACE), and the International Boundary and Water Commission (IBWC). Western markets and delivers reliable, cost-based electricity within a 15-state region of the central and western United States.

Western owns and operates an existing 115-kilovolt (kV) transmission line between Fort Peck, Montana, and Williston, North Dakota. Western's proposed Williston to Wolf Point Transmission Line Rebuild Project (Project) consists of rebuilding a 95-mile long segment of the transmission line between the Wolf Point Substation west of Wolf Point, Montana, to the Williston Substation west of Williston **(Figure 1-1)**. Western intends to improve transmission reliability and to extend the line's useful life by replacing existing wooden H-frame structures, insulators, ground wires, and conductors with components that meet 230-kV design standards. In addition, a substation meeting 230-kV design standards would be constructed adjacent to the existing Williston Substation to handle projected increased transmission load. The system would continue to be operated at 115 kV after the line rebuild and until the construction of the 230-kV Williston Substation.

In accordance with Section 102(2) of the National Environmental Policy Act (NEPA) of 1969, 42 U.S.C. 4332, and DOE NEPA Implementing Procedures (10 CFR part 1021), Western prepared this Environmental Assessment (EA) to address actions and effects of the proposed Project. Western is serving as lead agency in preparing this EA for the proposed Project.

This document follows the Council on Environmental Quality (CEQ) regulations to implement procedural provisions of NEPA (40 CFR 1500-1508), and intends to disclose impacts on the quality of the human environment resulting from the proposed Project. If Western determines that impacts would be significant, it must prepare an Environmental Impact Statement (EIS). If not significant, Western would complete a Finding of No Significant Impact (FONSI).

This EA describes the components of, reasonable alternatives to, and environmental consequences of upgrading the existing 115-kV transmission system with new 230-kV transmission system components. This EA is divided into several chapters, the contents of which are summarized below.

Chapter 1 describes:

- Purpose of and need for the action
- The role of Western as the Project proponent and lead Federal agency
- Roles and responsibilities of other participating agencies
- Public participation in the EA process

Chapter 2 provides:

- Description of the proposed action
- Alternatives to the proposed action including no action
- Environmental protection measures (best management practices) that would be followed during construction of the proposed Project

Chapter 3 describes:

- Existing or potentially affected environment in the Project area
- Potential direct, indirect, and cumulative impacts to the affected environment associated with the proposed action

Chapter 4 provides a list of persons and agencies consulted and a list of the document's preparers.

Chapter 5 provides a list of references cited in developing the EA.

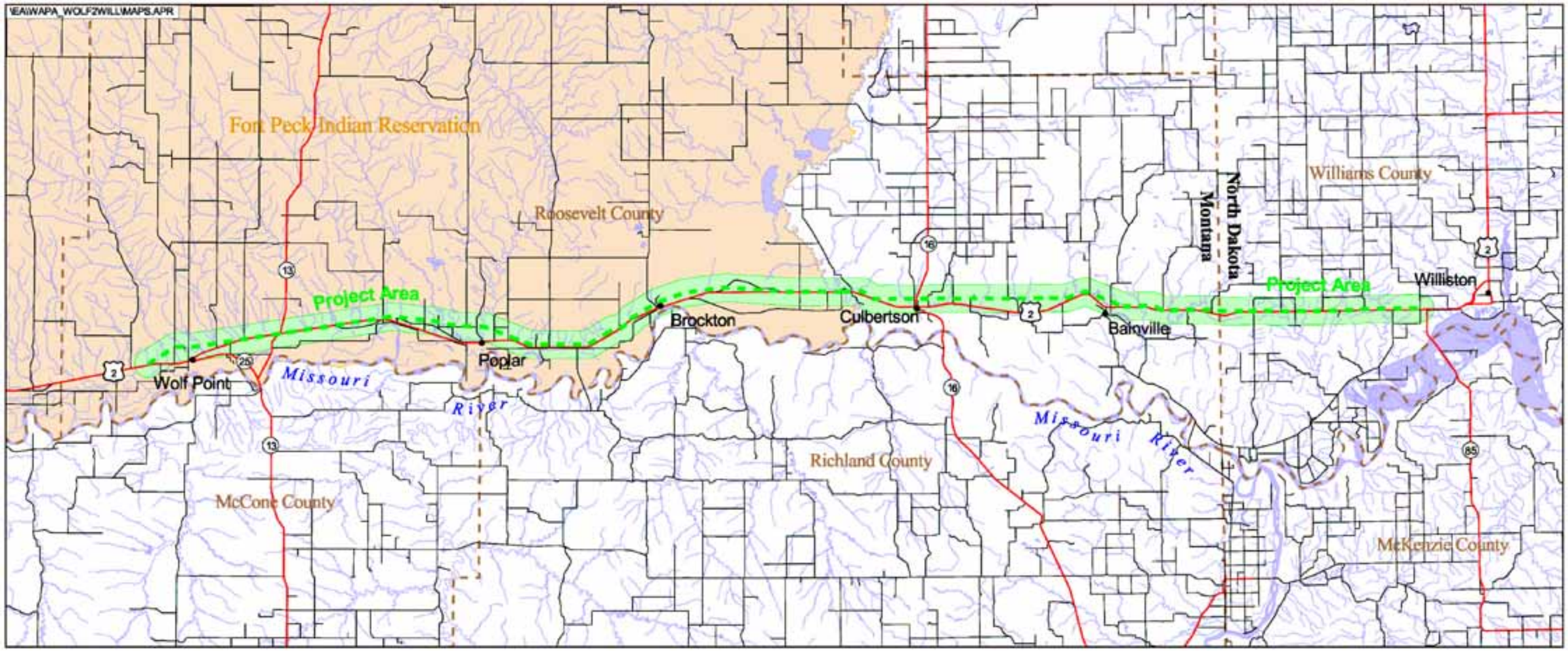
PURPOSE OF AND NEED FOR ACTION

The existing 115-kV transmission line between Wolf Point, Montana and Williston, North Dakota was placed in service in 1949 and is approaching the end of its useful service life.

Transmission structure components, including shell-rotted poles and cross-arms, will require replacement over the next several years regardless of the proposed upgrade. These frequent repairs and continued maintenance of the 53-year old line will become increasingly expensive, and customer service interruptions will persist as the transmission line continues to age.

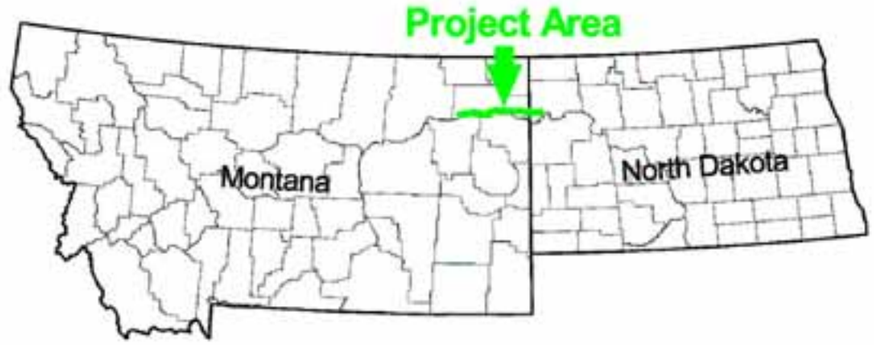
Western's mission is to provide safe and reliable electricity to its customers. Several aspects of reliability in the electrical industry include the following:

- Equipment: Since 1996, the majority of 14 outages that occurred on the Williston to Wolf Point line section resulted from equipment failures. Improvements in equipment through technology and manufacturing processes have increased reliability of transmission facility equipment, such as breakers, transformers, and insulator strings, and have reduced outage rates due to equipment failures. In addition, studies indicate the average forced outage rate for 230-kV lines in this region to be about 1.24 outages per 100 miles of line per year from 1991 to 2000 (Mid-continent 2001).). This compares to about 2.33 outages per 100 miles per year for the Wolf Point to Williston 115-kV line. This improved reliability of a 230-kV line over the 115-kV line generally results from increased spacing of conductors, increased insulation levels, and stronger transmission structures.
- Weather: Lightning induced flashover typically results in an outage when the plasma produced by the lightning stroke on the overhead ground wire drifts into the conductor, trips breakers, and interrupts the current. Industry standard Basic Insulation Levels (BIL) voltage is generally derived as a function of defined voltage surge levels – the higher the operating voltage of the line, the higher the required BIL voltage. BIL ratings of higher voltage equipment (i.e., 230-kV vs. 115-kV) tends to reduce the probability of a lightning induced flashover.



Legend

- Project Area
- 1 Mile Project Buffer
- Towns
- Highways
- County Roads
- County Boundaries
- Indian Reservations
- Rivers and Streams
- Lakes and Reservoirs



2560212-200 October 31, 2001

Location Map
Wolf Point to Williston Environmental Assessment
Western Area Power Administration
Montana and North Dakota
FIGURE 1-1

- Congestion: Changes in electrical loads and generation result in congestion on transmission lines and substation equipment. System studies have indicated that outages on Western's 230-kV transmission lines in eastern Montana overload the existing 115-kV Williston to Wolf Point line by 115 to 120 percent of normal (Missouri Basin Systems Group 1998; Western 2002). Western has been required to restrict Fort Peck Dam generation during recent outage conditions because of limited line capacity. By upgrading the Wolf Point to Williston transmission line to 230-kV design standards, Western would improve transmission reliability by preparing to convert to 230-kV operation when the need arises. The rebuild would provide future load-serving needs in the area while maintaining generation levels at Fort Peck Dam should an outage occur elsewhere in the eastern Montana transmission system.

- Maintenance: Improvements to equipment technology and capacity would reduce transmission line congestion and, as a result, allow Western to plan outages for routine maintenance. Regular and planned maintenance leads to improved system reliability.

In summary, upgrade of the 115-kV Williston to Wolf Point line to 230-kV design standards would provide increased reliability by reducing forced outages, and provide flexibility to accommodate future system needs. This EA addresses impacts associated with Project implementation, including installation of new conductors.

The cost for the proposed Project is estimated at $12.4 million. This includes building the transmission line to 230-kV specifications and installing new overhead ground wire, fiber optic overhead ground wire, and larger conductors. It would be difficult to estimate the costs of not upgrading the line because the primary purpose is to improve reliability, reduce annual losses, and provide for future system flexibility and expansion as new generation is constructed in the region. These intangible costs are not easily quantified. For example, the cost of slowly degrading reliability over time due to increased outage rates may be different for different customers. The cost may be high for a generator and low for a retail customer. Certainly, maintenance costs could increase into the future if no action is taken. Western believes the incremental cost to upgrade the existing 115-kV Williston to Wolf Point line to 230-kV capacity would be cost effective by preventing system losses that presently occur.

AUTHORIZING ACTIONS

Western's proposal may be approved only after a determination of whether an action is a major Federal action significantly affecting the quality of the human environment, as required by NEPA. Western's options consist of the proposed action as described, which includes environmental protection measures to avoid or mitigate effects of the proposed action, and a no action alternative.

In addition to Western, other Federal, state, and local agencies have jurisdiction over certain aspects of the proposed action. Table 1-1 provides a listing of agencies and their respective permit/authorizing responsibilities.

PUBLIC SCOPING

Western provided a public scoping period to allow an early and open process for determining the scope of issues and concerns

related to the proposed action (40 CFR 1501.7). Western mailed a scoping letter that included a proposed Project summary to local individuals, affected landowners, and businesses; as well as organizations listed on the Upper Great Plains Region mailing list. A Notice of Floodplain/Wetlands Involvement was published in the Federal Register on August 1, 2001 (FR Vol. 66, No. 148/Wednesday, August 1, 2001, pg. 39753). Publication of this notice in the Federal Register initiated a 15-day comment period for the proposed floodplain action that accepted comments through August 15, 2001.

The EA for Pre-Approval Review was distributed for review to Federal, state, Tribal, and local agencies that have jurisdiction or permitting authority for the proposed Project, and affected landowners on January 22, 2003. Interested agencies and individuals were asked to provide comments to Western by February 21, 2003. Substantive comments received have been incorporated into this EA and considered in Western's determination on whether an EIS is required.

Table 1-2 contains a summary of public and agency comments concerning the proposed action. This table also refers to sections of this EA that respond to substantive issues raised during the comment period.

TABLE 1-1
Permit/Authorizing Responsibilities

Authorizing Action	Responsible Agency
Plan of Operations/Rights of Way	Western Area Power Administration (Western)
Line work	North Dakota Department of Transportation
Facility siting	North Dakota Department of Health (NDDH; Environmental Health Section)
Montana Major Facilities Siting Act	Montana Department of Environmental Quality (MDEQ)
Montana Water Quality Act (318 permits)	MDEQ
Utility occupancy agreement	Montana Department of Transportation (MDT)
Montana Stream Protection Act (124 permits)	Montana Department of Fish, Wildlife, and Parks
Easement grants and road crossing permits	Roosevelt County, Fort Peck Tribes
Review and approval of weed control plan	County Weed Control Boards (North Dakota and Montana)
National Environmental Policy Act	Western
National Historic Preservation Act	Western; Montana Historic Preservation Office; North Dakota Historic Preservation Office, Fort Peck Tribes
Native American Graves Protection & Repatriation Act	Western
American Indian Religious Freedom Act	Western
Floodplain	U.S. Army Corps of Engineers (USACE); U.S. Fish & Wildlife Service (USFWS), U.S. Natural Resources Conservation Service (NRCS), Montana Department of Natural Resources and Conservation (DNRC), Western
Clean Water Act (Section 404 Permit)	MDEQ and USACE
Stormwater Discharge Permits	NDDH and MDEQ
Solid and/or Hazardous Waste Disposal	MDEQ
Safety Plan	Occupational Safety & Health Administration (OSHA)
Endangered Species Act of 1973; Migratory Bird Treaty Act; Bald Eagle Protection Act	USFWS and Western

TABLE 1-2
Scoping Summary

Issue	Response
Payment for Right-of-Way.	Beyond the scope of this document.
Need for additional capacity on this line segment and system to which it is connected.	Chapter 1 – Purpose and need
Height of new structures.	Chapter 2 – Proposed Action
Evaluate potential for spread of noxious weeds during construction activities.	Chapter 3 – Affected Environment and Environmental Consequences
Evaluate potential for disruption to farming activities during construction.	Chapter 3 – Affected Environment and Environmental Consequences
Describe potential effects to wildlife during structure upgrade and restringing.	Chapter 3 – Affected Environment and Environmental Consequences
Evaluate impacts related to soil compaction, soil mixing, and soil erosion during construction, restringing, and maintenance activities.	Chapter 3 – Affected Environment and Environmental Consequences
Potential conflicts with highway projects.	Chapter 3 – Affected Environment and Environmental Consequences

CHAPTER 2
PROPOSED ACTION AND ALTERNATIVES

Western is one of four power marketing administrations within the U.S. Department of Energy. Western's transmission system carries electricity from 55 hydropower plants operated by the BOR, USACE, and the IBWC. Western also markets the United States' 547-MW entitlement from the coal-fired Navaho Generating Station near Page, Arizona. Together, these plants have a capacity of 10,600 megawatts.

PROPOSED ACTION

Western proposes to rebuild a 95-mile segment of an existing 115-kV transmission line between Wolf Point, Montana, and Williston, North Dakota to 230-kV design standards **(Figure 1-1)**. In addition, a new substation meeting 230-kV design standards would be constructed adjacent to the existing substation near Williston. The transmission line rebuild would occur within a 200-foot construction right-of-way (ROW) beginning in 2003 with completion by 2011. The operational ROW would be maintained at a 100-foot width. Construction would not occur in a sequential manner but in shorter segments selected on a priority basis.

The proposed Project includes reroutes of the existing line at two locations to straighten alignment and reduce the overall number of structures. Approximately five miles of new easement would be required for the reroutes. Reroutes would also avoid ranches, housing, or highway ROW encroachments, and sensitive areas such as wetlands and floodplains. Reroute locations are shown on **Figures 2-1** and **2-2**.

Relocation of structures within the existing ROW would also occur at several locations. Relocations typically involve moving the structure up or down the line to improve alignment, reduce the overall number of structures, or avoid sensitive areas or buildings. Proposed relocations would eliminate encroachment of structures and guy wires onto the U.S. Highway 2 ROW.

Additional disturbance would occur along new access roads and at tensioning and/or splice sites. New conductor would be pulled and tensioned from several locations along the transmission line route. Heavy, truck-mounted winches that also carry reels of conductor and cable would be used for pulling and tensioning work. Disturbance associated with pulling and tensioning is generally located a short distance from the structures in the existing ROW. In some cases, this work would occur outside the existing ROW but typically would not disturb more than 10,000 square feet at each structure site. All disturbed areas associated with the rebuild of the line would be restored to pre-construction condition.

PROJECT COMPONENTS

Western designs, constructs, operates, and maintains transmission systems in accordance with the National Electrical Safety Code, U.S. Department of Labor Occupational Safety and Health Act (OSHA) Standards, and Western's Power System Safety Manual for maximum safety and protection of property. The proposed Project includes replacing existing wood-pole H-frame structures, insulators,

conductor, and ground wires with 230-kV standard components. The proposed Project also includes constructing an addition to the Williston Substation. The following sections describe the system components that would be rebuilt or replaced.

TRANSMISSION LINE STRUCTURES

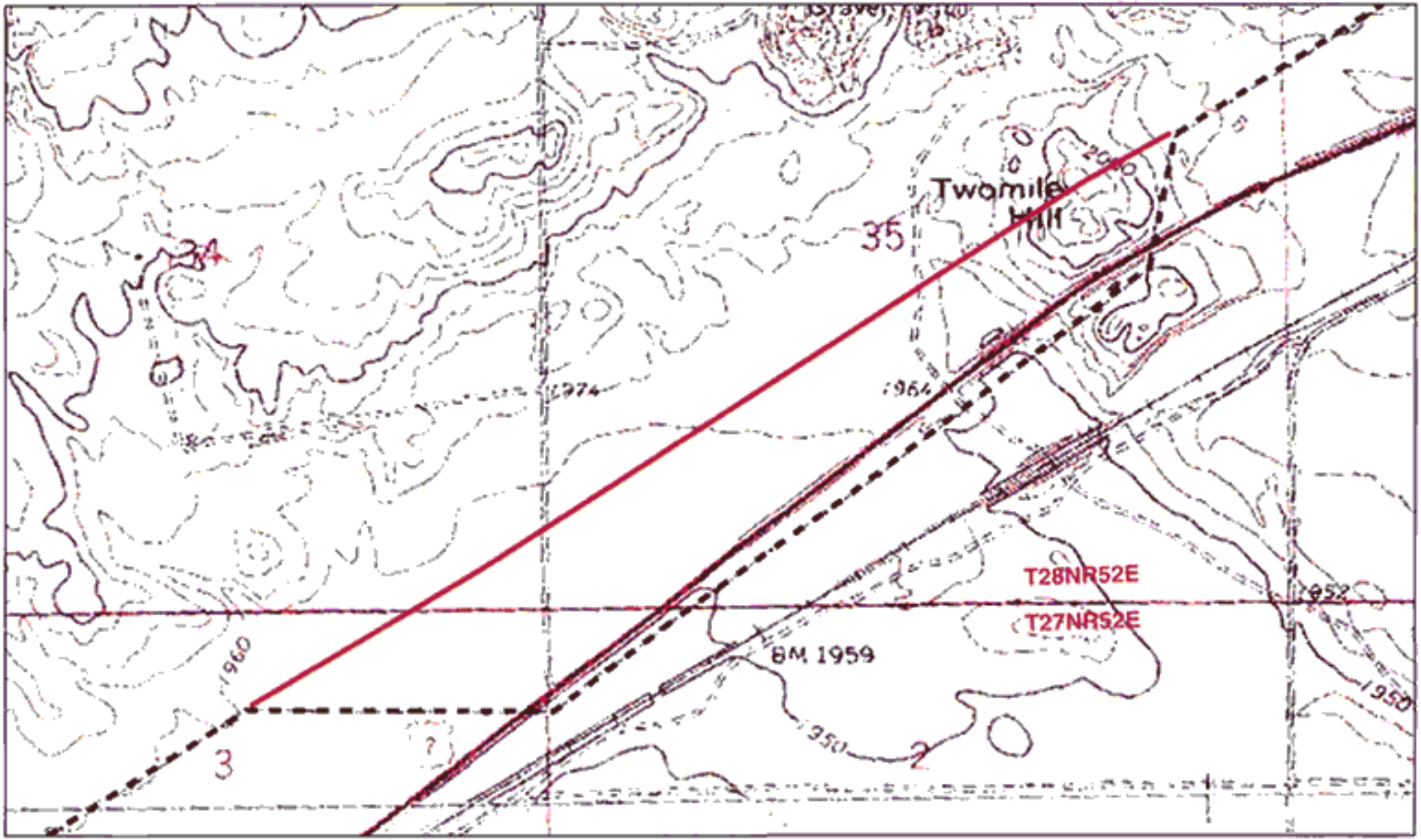
During the planning process, Western considered three structure types for rebuilding of the 95-mile line: wood-pole H-frame, steel-pole H-frame, and steel single-pole. Wood-pole transmission line structures have a 100-percent replacement factor in 45 years compared to steel-pole structures that have a three percent replacement factor in 50 years. However, wood poles have about a 50-percent lower initial cost, are more available, simple to install, and, in emergencies, can be easily modified or replaced to reduce outage time. Although the Williston to Wolf Point line section would be primarily constructed with wood-pole H-frame structures, Western may choose to incorporate steel structures as part of the upgrade, and to evaluate the potential for steel structure use elsewhere in the region.

The wood-pole H-frame structure is a proven structure type at the 230-kV level of service. The design offers increased span lengths compared to a single wood-pole structure, thereby decreasing the number of required structures. **Figure 2-3** illustrates a typical wood-pole H-frame structure proposed for the Project.

The proposed wood-pole H-frame structures would incorporate 230-kV design standard insulators, hardware, and ground wires to provide nearly corona-free operation, as well as reduce audible noise and radio and television interference. On the typical suspension structure, three insulator strings would be hung from each structure. Each string would have 12 individual insulators. One overhead galvanized steel ground wire, about three-eighths inch diameter, would be installed on one side of the top of the structure for lightning protection. A second ground wire carrying a 24-count fiber optic cable for communications would be installed on the other side.

New, replacement wood-pole H-frame structures would be installed within the existing ROW. Existing wood poles would be pulled from the ground.

New holes would be augured to dimensions to accommodate new structures. New poles are typically set in the ground 10 percent of the pole's length plus two feet (i.e., an 80-foot pole would be buried 10 feet). Spacing between poles of the proposed 230-kV H-frame structures is about 23 feet, or about 10 feet wider than the existing 115-kV structures. Approximately eight structures per mile would be required. Depending on terrain, total disturbance at each structure location would be about 10,000 square feet. Characteristics of the proposed wood-pole H-frame support structures are summarized in **Table 2-1**.



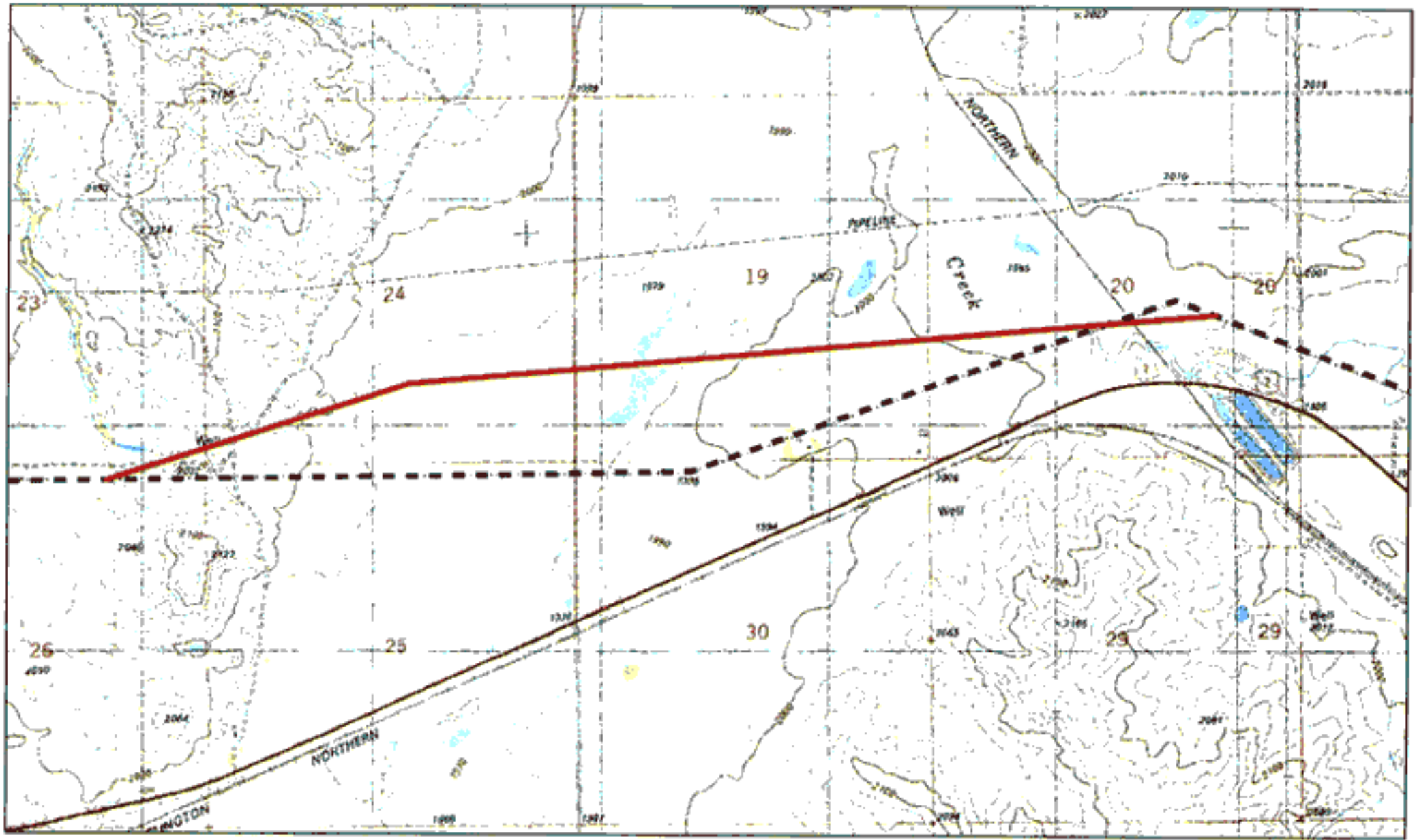
N

0 1,020
Feet

2560212-200 May 29, 2002

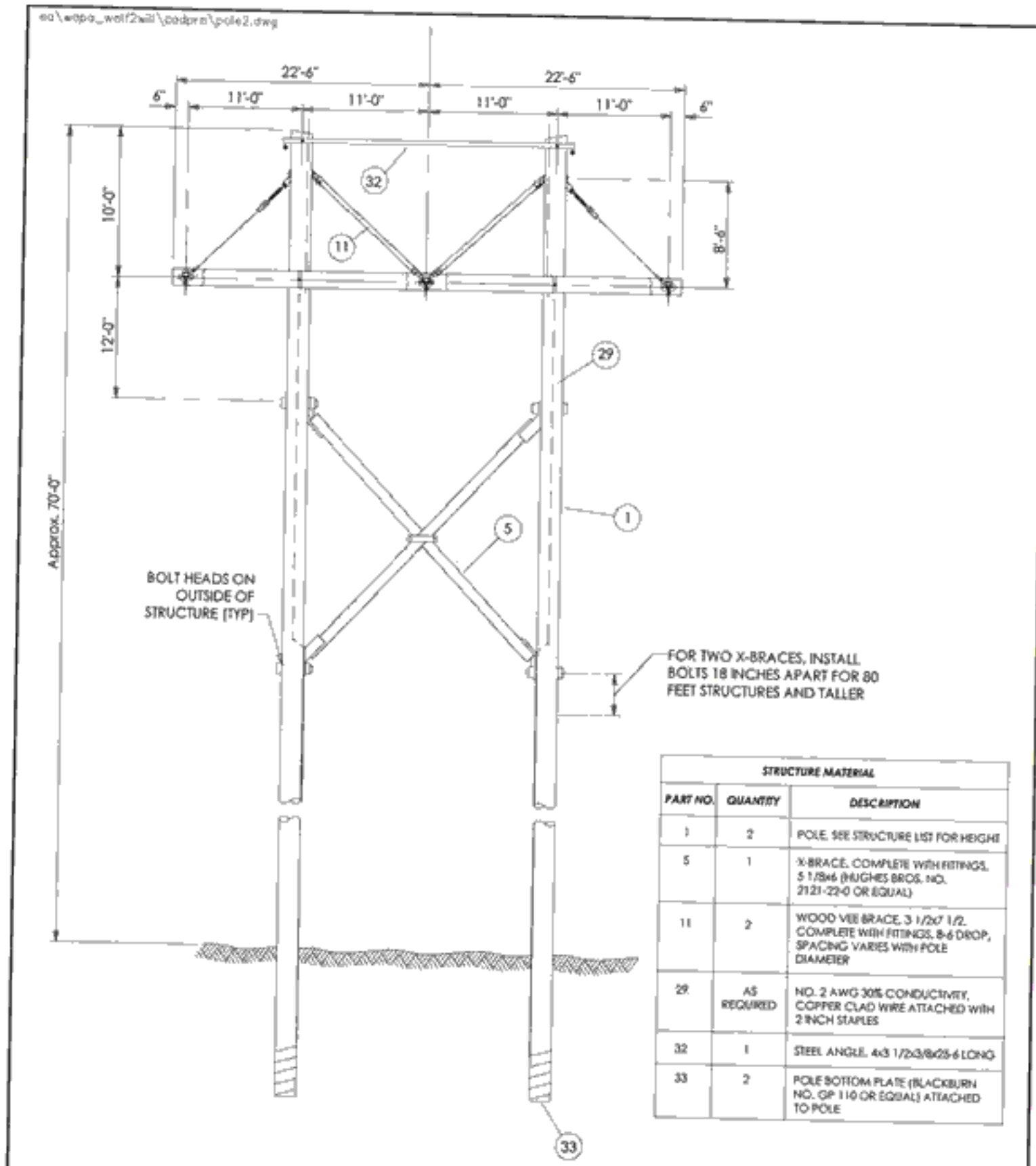
Reroute
Existing Line

Reroute Map (Structure 71/2 - 72/7)
Wolf Point to Williston Environmental Assessment
Western Area Power Administration
Montana and North Dakota
FIGURE 2-1



2560212-200 January 2, 2003

Reroute Map (Structure 104/8 108/4)
Wolf Point to Williston Environmental Assessment
Western Area Power Administration
Montana and North Dakota
FIGURE 2-2



STRUCTURE MATERIAL		
PART NO.	QUANTITY	DESCRIPTION
1	2	POLE, SEE STRUCTURE LIST FOR HEIGHT
5	1	X-BRACE, COMPLETE WITH FITTINGS, 5 1/8x6 (HUGHES BROS. NO. 2121-22-0 OR EQUAL)
11	2	WOOD VEE BRACE, 3 1/2x7 1/2, COMPLETE WITH FITTINGS, 8-6 DROP, SPACING VARIES WITH POLE DIAMETER
29	AS REQUIRED	NO. 2 AWG 30% CONDUCTIVITY, COPPER CLAD WIRE ATTACHED WITH 2 INCH STAPLES
32	1	STEEL ANGLE, 4x3 1/2x3/8x25-6 LONG
33	2	POLE BOTTOM PLATE (BLACKBURN NO. GP 110 OR EQUAL) ATTACHED TO POLE

Type HSB-1 230-kV Suspension Structure - Wood
Wolf Point to Williston Environmental Assessment
Western Area Power Administration
Montana and North Dakota
FIGURE 2-3

TRANSMISSION LINE CONDUCTOR

Electrical conductor provides the medium for flow of electrical energy. The circuit configuration and conductor size are shown in **Table 2-1.** The conductor consists of strands of reinforced steel cable encased by aluminum strands. The steel cable provides the tensile strength to support the conductor; the aluminum conducts the electrical current.

SUBSTATION

Western would construct a new 230-kV substation to handle increased transmission load at one of two potential sites near the existing Williston Substation. Site No. 1 would abut the existing substation on its north side. The footprint for this site would be approximately 400 feet by 500 feet. Site No. 2 lies immediately west of the existing substation across a county road. This site would be centered beneath the existing transmission line and be about 400 feet by 500 feet.

TABLE 2-1
Typical Design Characteristics Wolf Point, MT to Williston, ND Transmission Line

Design Element	Characteristic
Line Length (approximate)	95 miles
Right-of-Way (ROW) Width	200 feet construction/100 feet operational
Thermal Capacity for 230–kilovolt (kV) line	420 Megavolt Ampere (MVA)
Voltage	230,000 volts (230 kV) (Planned operation at 115 kV)
Circuit Configuration	Single circuit, single conductor per phase, horizontal configuration
Conductor Size	954 kcmil (thousand circular millimeters) (1.165") (Existing is 0.783 inch diameter)
Conductor Type	Aluminum conductor, steel reinforced (ACSR) standard mill finish
Overhead Ground Wire	3/8 inch diameter (same as existing)
Fiber Optic Overhead Wire	0.465 inch diameter
Electric field at edge of ROW	1.6 kV per meter (230 kV)
Magnetic field at edge of ROW (thermal limit)	0.09 gauss (230 kV)
Electrostatic short-circuit current limit	5 milliampere (mA)
Structures: type and number per mile	Wood-pole H-frame @ 7.5 per mile
Structure Height	Wood-pole H-Frame: 52' – 88' (65' average)
Length of Span	Wood-pole H-Frame: 400' – 1600'; 700' ruling span.
Minimum Ground Clearance of Conductor	Wood-pole H-Frame: 32' at 60° Fahrenheit
Typical Structure Base Dimensions	Wood-pole H-Frame: 1.5 feet x 23.5 feet
Land temporarily disturbed per site for conductor reel and pole storage yards	2-3 acres
Area required for each structure base	Wood-pole H-Frame: 75 square feet

PROJECT IMPLEMENTATION

Several Project phases, including construction, operation, maintenance, and abandonment would be required to fully implement the proposed 230-kV Project. These are discussed below.

CONSTRUCTION

Western staff from the Montana maintenance office would rebuild the transmission line. Private contractors would likely construct the new substation. Construction would not occur in a sequential

manner; rather, segments in most need of repair and replacement would take priority. The rebuild would involve the approximate number of workers and equipment listed in **Table 2-2**. Construction and rebuild activity other than at proposed reroutes (**Figures 2-1 and 2-2**) would occur within existing ROW and access easements.

TABLE 2-2
Personnel and Equipment Required for Construction

Activity	Personnel	Equipment
Clearing and Grubbing	3-4 persons	Bucket truck, pickup truck
Gate Installation	2-3 persons	1½-ton truck
Material Haul-out	5 persons	Truck tractor with flatbed trailer, digger derek, skid steer loader
Framing	4-6 persons	Crane, 1½-ton truck, pickup truck, 2 skid-steer loaders, track and wheel
Auger	4 persons	2 trailers with pressure diggers, 2 pickup trucks
Erection	6-8 persons	Crane/Rough Terrain Grove 35-ton truck, air compressor, pickup trucks
Stringing	15-25 persons	Reel trailer, tensioner, puller, pickup trucks, digger, aerial man-lift, dozer with winch, winch truck, skid-steer loader
Cleanup	3 persons	1½-ton truck, utility tractor with various attachments

Source: Western 1992

Transmission line construction tasks would include the following:

- *Pre-Construction* – Includes environmental permitting, cultural resource clearance, avian surveys, final transmission structure siting, engineering, design, land procurement, various utility studies, and major procurement. Additional ROW for the proposed reroutes would be acquired under the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Public Law 91-646) and other applicable laws and regulations governing Federal acquisition of property rights.

- *Surveying* – Initial line survey work, consisting of survey control, route centerline location, profile surveys, and access surveys would occur before construction. These surveys would be largely for planning purposes.

- *Access Planning and Preparation* – Crews would gain access from public roads as well as within the transmission line ROW for constructing, operating, and maintaining the line. When possible, access to the ROW would be by existing trails and roads. Trails are generally two-track routes and are not maintained. Access for line construction would be truck travel within the ROW. Therefore, graded surface access roads are not planned or anticipated. Trails would be located at right angles to streams and washes. Existing roads and trails would be left in a comparable or better condition than what existed before construction.

  Gates would be installed where fences cross the ROW. Locks would be installed at landowner's request. Gates not in use would be closed but not locked unless requested by the landowner.

- *Transmission Structure Site Preparation* – Western would remove vegetation, including trees, from a limited area at structure locations if necessary for safe access. Trees would be cut at ground level to provide access within the ROW limits and to allow vehicle access. Stumps and root systems would remain in the traveled surface unless Western or the landowner requests otherwise. A 15-foot wide strip would be cleared for access to structure sites in timbered areas. Trees would be removed from within the ROW if they occur within a 20-foot radius from any transmission structure and to provide 26 feet of vertical clearance under maximum conductor-sag conditions for 28 feet on each side of the centerline. Danger trees are trees outside the ROW limits that could fall within 10 feet of the conductor or any structure including guy wires. Danger trees would be removed if encountered outside of the ROW. Once any vegetation is removed, crews would use a truck-mounted auger to drill holes for structures.

- *Delivery and Assembly* – Framing crews deliver poles, X-braces, cross-arms, insulators, and hardware to structure sites on flatbed trucks then assemble individual structures. During installation, wood poles are set directly in augured holes to a depth equal to 10 percent of the pole length, plus two feet. Crews would backfill holes, compact fill material to prevent structure movement or settling, and spread excess excavation material evenly over the site. Crews would assemble structures and place hardware using man-lift trucks. Guy wires would be screwed into the ground using standard construction practices.

- *Conductor Installation* – After erecting all wood-pole H-frame structures, conductor and ground wires would be installed. Large reels of conductor and overhead ground wire would be delivered to pre-selected pulling and tensioning sites (about every two miles) along the transmission line route. About 10,000 to 16,000 feet of conductor and overhead ground wire would be installed for each pull. **Figure 2-4** provides a diagram of basic wire-handling equipment and technique. Methods used to install conductor and overhead ground wire include using a small line (p-line) attached to the conductor or ground wire to pull the cable through pulleys attached to the insulator strings. Once the conductor/ground wire is pulled the necessary length, it is tightened. This tensioning allows the cable to sag (due to temperature and heat of electricity) enough to comply with the National Electrical Safety Code.

- *Restoration* – All disturbed areas associated with transmission line construction would be restored to pre-construction condition. These efforts typically include gate repair as necessary, revegetation, and waste material removal. On the proposed Project, the pre-existing 115-kV line would also be removed. Existing conductor, insulator strings, and hardware would be removed from the structures. Poles would be pulled from the ground, disposed of using applicable regulations, and former holes backfilled and compacted. Western would provide compensation when there is any damage to property after the existing line is removed or the new line is constructed.

OPERATION

System dispatchers at power control centers direct normal line operations. Dispatchers use Western's facilities to operate circuit breakers, determine the amount of power required to serve the loads and configure the power system accordingly, schedule the proper generation amount, and monitor the power system to ensure reliable service. Circuit breakers also operate automatically to ensure safe transmission line operation.

The transmission line would be designed to limit noise at the edge of the ROW to less than 33 decibels (dBA) during fair weather and 57 dBA during foul weather. Transmission line-produced electric and magnetic fields and the induced current from a conductive object would be limited by design. Normal farming and other activities are permitted on transmission line ROWs if these activities do not interfere with line operation and maintenance or create safety problems for Western or others.

MAINTENANCE

Western's maintenance program for transmission lines includes routine aerial and ground patrols. Aerial patrols are conducted two times per year and as needed after severe wind, ice, or lightning storms to check for damage to conductors, insulators, or structures.

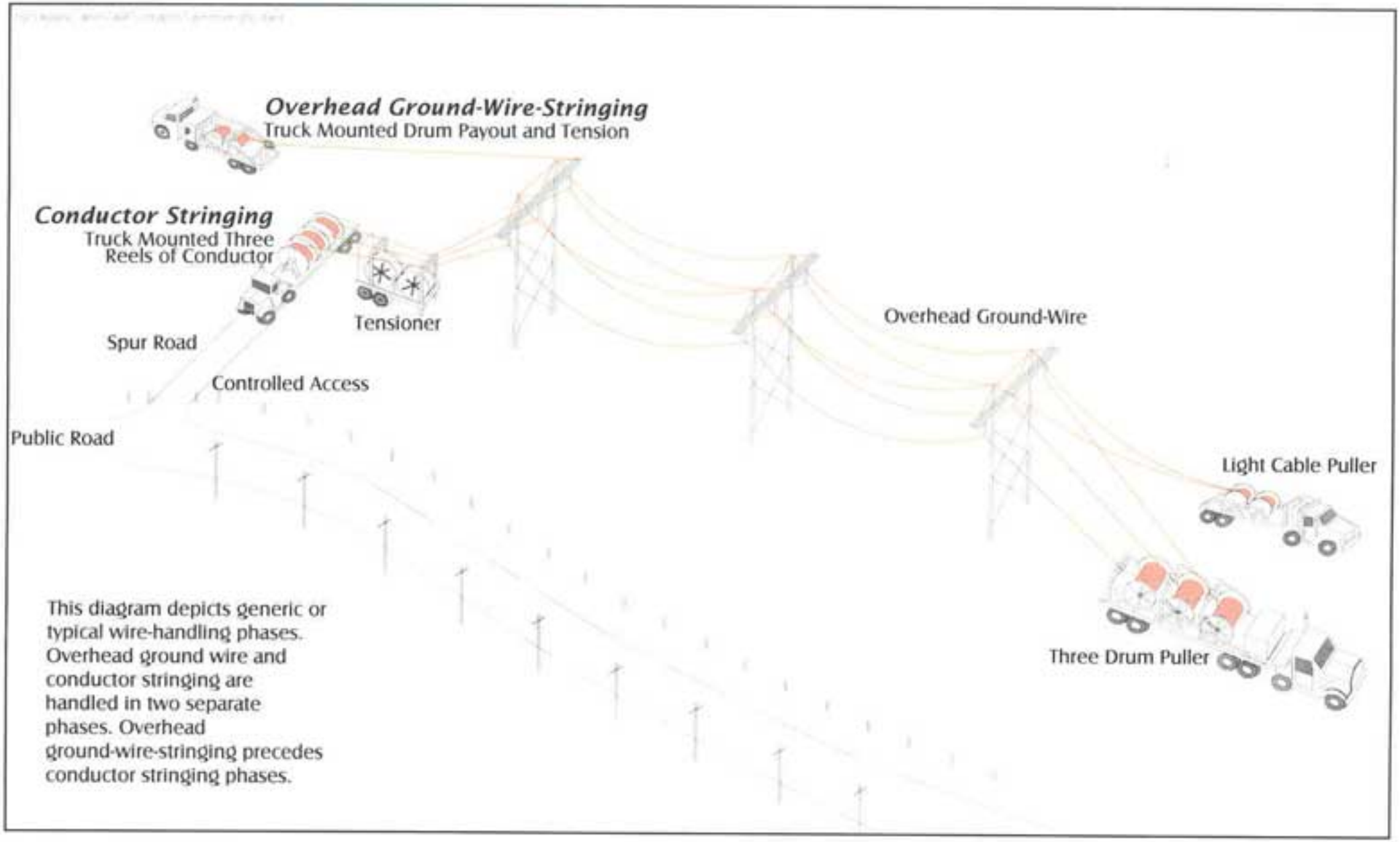
Ground patrols generally occur once a year to detect equipment in need of repair or replacement. Ground patrols and subsequent repair activities are scheduled to minimize crop and property damage when possible. Each year, crews inspect every fifth mile of wood-pole lines, and tighten hardware and bolts. They trim, top, or remove trees that may endanger safe line operation.

Herbicides may be used at structures on the transmission line ROW to prevent undesirable plant growth. Herbicides Western uses would be registered with the Environmental Protection Agency (EPA) under the Federal Pesticide Control Act of 1972 and other Federal and state pesticide regulations. Western would apply these according to label instructions using licensed applicators. Herbicide treatments would occur during the summer and would coordinate with respective landowners and county or Tribal weed management personnel. Vegetation may also be mowed to minimize fire hazard and to enhance the areas around power installations.

For emergency repairs, crews would respond promptly to repair or replace damaged equipment. Western representatives would meet with respective landowners to arrange compensation for damages incurred during emergency repair operations.

ABANDONMENT

At the end of the proposed Project's useful life, when the facility is obsolete, the transmission line structures, conductors, insulators, and hardware would be dismantled and removed from the ROW. If the line and associated ROW were abandoned, Western would relinquish interest in the easement to the underlying ROW's respective landowner/manager. Areas disturbed during abandonment would be restored to match surrounding conditions as practicable.



Basic Wire-Handling Equipment
Wolf Point to Williston Environmental Assessment
Western Area Power Administration
Montana and North Dakota
FIGURE 2-4

ENVIRONMENTAL PROTECTION MEASURES

Several documents would provide environmental protection guidance to Western during Project construction and operation. These documents include Western's *Construction Standard 13* (Western 2003) Western's *Standard Mitigative Measures for Construction Operation, and Maintenance of Transmission Lines*, North Dakota Department of Health (NDDH) permits, MDEQ permits, USACE permits, and *Raptor-safe* power line construction practices (EEI 1996.) Summaries and/or applicable parts of each of these documents follow. Western has committed to the use of Tribal cultural resource monitors during construction activities within the Fort Peck Reservation. Additional environmental protection would be provided through implementing Project specific resource protection measures, which are summarized below.

WESTERN CONSTRUCTION STANDARD 13

Western's *Construction Standard 13, Environmental Quality Protection* document would provide general guidance for environmental protection during construction of the proposed 230-kV Williston substation (Western 2003). *Construction Standard 13* (**Appendix A1)**, provides several standards including the following:

- *Landscape Preservation (Section 13.3) –* Includes guidance to preserving landscape features, constructing and restoring construction roads, and constructing and restoring construction facilities, such as offices and storage yards.
- *Preservation of Cultural Resources (Section 13.4) –* Provides requirements for treatment and notification of known or discovered cultural sites or artifacts.
- *Noxious Weed Control (Section 13.5) –* Requires a "clean vehicle policy" while entering and leaving construction areas to prevent transport of noxious weed plants and/or seed.
- *Disposal of Waste Material (Section 13.8) –* Requires removing and disposing all waste material generated during construction.
- *Pollutant Spill Prevention, Notification, and Cleanup (Section 13.10) –* Requires measures to prevent spills of pollutants and appropriate response if a spill occurs. Includes any solvent, fuel, oil, paint, pesticide, engine coolant, or similar substances.
- *Prevention of Air Pollution (Section 13.13) –* Ensures that construction activities and equipment operation reduce air pollutant emissions, and that nuisance dust is controlled.

STANDARD MITIGATIVE MEASURES FOR CONSTRUCTION, OPERATION, AND MAINTENANCE OF TRANSMISSION LINES

Western's *Standard Mitigative Measures for Construction, Operation, and Maintenance of Transmission Lines* (**Appendix A)** describes standard impact avoidance and/or mitigative measures that are implemented by Western's maintenance crews prior to and during operation and maintenance of Western's transmission lines. Several of these standard measures are summarized below:

- Limit movement of its crews and equipment to the ROW, including access routes, to minimize damage to grazing land, crops, or property.

- When weather and ground conditions permit, all construction caused ruts that are hazardous to farming operations and to movement of equipment will be obliterated.

- Water bars or terraces will be constructed across all ROW and access roads on hillsides to prevent water erosion and to facilitate natural revegetation.

- Prior to construction, all supervisory construction personnel and heavy equipment operators will be instructed on the protection of cultural and ecological resources.

- Construction crews will exercise care to preserve the natural landscape, and shall conduct construction operations so as to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the work.

- On completion of work, all work areas except access roads will be left in a condition which will facilitate natural revegetation to the maximum practicable extent.

- Construction activities will be performed by methods that will prevent entrance, or accidental spillage, of solid matter contaminants, debris, or any other objectionable pollutants and wastes into streams, flowing or dry watercourses, lakes, or underground watercourses.

- Nuisance to persons or damage to crops, cultivated fields, or dwellings from dust originating from construction activities will be prevented.

- Structures will be located to avoid sensitive vegetation conditions including wetlands where practical, or, to minimize disturbance by crossing them at the least sensitive feasible point.

- Disturbed areas not needed for maintenance access will be reseeded using mixes approved by the landowner or land management agency.

- Erosion control measures will be used on disturbed areas.

- Structure location will be such so as to span narrow flood prone areas.

- Structures will be located, where practical, to span small areas of sensitive land uses, such as cultivated areas. Access routes will be located to avoid sensitive areas or conditions.

STATE AND FEDERAL PERMITS

The proposed Project's construction would require several state and Federal permits. Terms and conditions of these permits would require Western to minimize erosion, conduct reclamation, and maintain air and water quality standards. Anticipated permits include:

- *North Dakota Department of Health and Montana Department of Environmental Quality Storm Water Permits*. These permits require disturbed soils to be stabilized, vegetative cover restored, temporary erosion control measures removed, and all storm water discharges associated with construction activity eliminated.

- *Joint Application for Proposed Work in Montana's Streams, Wetlands, Floodplains and Other Water Bodies*. The Joint Application assures that permits required by several state and Federal agencies (listed in **Table 1-1**) are satisfied by implementing appropriate environmental protection measures during stream, floodplain, or wetland construction activities, and completing adequate reclamation following those activities.

RAPTOR-SAFE POWER LINE CONSTRUCTION PRACTICES

Western would apply *Suggested Practices for Raptor Protection on Power Lines*, developed by the Edison Electric Institute (EEI 1996), Avian Power Line Interaction Committee (APLIC), during design and constructing overhead transmission line power structures and the Williston Substation addition. Appropriate suggested practices from EEI's document are identified below.

- Alternate positions for overhead ground wire should be available for pole top perching.
- PVC (poly vinyl chloride) downwire molding should be installed on ground wire and insulation should be installed on insulator bases and bolts.
- Perch guards should be installed on horizontal insulators.

CULTURAL RESOURCE MONITORING

To avoid and/or mitigate potential impacts to cultural resources, Western would utilize Tribal cultural resource monitors while performing construction near cultural resource sites on the Fort Peck Indian Reservation. Monitors ensure that all known cultural resource sites are avoided as well as ensure that any potential sites discovered during construction are protected and documented appropriately.

RESOURCE PROTECTION MEASURES

The following resource protection measures are designed to avoid potential impacts to environmental resources in the Project area.

SOIL

- Silt fencing, straw bales, and culverts would be used to ensure proper drainage and prevent erosion.
- Construction activities that would result in soil disturbance would not occur during periods of inclement weather or during high wind events.

WATER

- Employees would be trained in proper fuel handling practices to minimize the potential for spills.
- Refueling would take place at secure areas, away from wetlands or drainages.
- Appropriate Federal, state, Tribal, or local regulatory agencies would be notified of any spills.
- If necessary, soil impacted by fuel would be removed in accordance with a remediation plan approved by the regulatory agencies.

VEGETATION

- Any sensitive areas near construction sites would be designated as avoidance areas that would be marked on the

ground. Construction personnel would receive training to avoid sensitive areas.

- Disturbed areas would be reclaimed to pre-construction conditions as site work is complete. Any disturbed native prairie would be re-seeded with a native seed mix appropriate for the soil type.
- Revegetation monitoring would be performed for two years to verify the success of revegetation efforts.
- Noxious weeds would be controlled through implementation of noxious weed control plans approved by appropriate county agencies.

WETLANDS

- Wherever possible, placement of new structures and associated construction activities would occur outside wetland boundaries.
- Where disturbance of wetlands is unavoidable, Western would obtain required permits from USACE and follow any stipulations provided with the permit approvals, including specific wetland mitigation plans.
- Pre-construction planning for road and culvert placement would ensure existing drainage patterns are maintained.

FLOODPLAINS

- Sites for new H-frame structures would be selected to avoid floodplains where practicable.
- To minimize potential impacts to floodplains, construction activity within floodplains would occur during winter when ground is frozen.
- If work in a floodplain is unavoidable, DNRC would be consulted during the site planning stage and, if required, a permit would be obtained and implemented.
- The Floodplain Administrator of each county would be kept apprised of Western's construction activities and any permit requirements.

WILDLIFE

- Western would place approved line marking devices (e.g., flappers) at 16-foot intervals and staggered on each overhead ground wire across the Big Muddy Creek valley, Poplar River, and on sections of line where wetlands occur within the ROW.
- Western would install line marking devices that have been determined to be 80 percent effective in reducing collisions. Western's Avian Protection Program staff would determine the need for and location of marking devices.
- Line marking devices would be used where wetlands occur within ¼ mile of, and on both sides of the ROW.
- A raptor nest survey would be conducted before work on each segment starts, and appropriate timing restrictions adopted if active nests are found.
- Western would consult with state and tribal authorities concerning construction activities near sharp-tailed grouse leks.
- In the event mountain plover is documented in the area, plover nesting areas would be avoided during the spring nesting season.

- In areas identified as sharp-tailed grouse nesting habitat, construction would not occur during April-June to avoid impacts to nesting grouse.

LAND USE

- Western would notify the Federal Aviation Administration of changes in line location, height, and addition of guy wires to new angle structures prior to segments being reconstructed.

VISUAL QUALITY

- Structures would be placed to avoid or span sensitive features whenever possible.

WORKER SAFETY

- Preparation of work plans and specifications would include appropriate performance provisions for worker protection as is required under the OSHA with emphasis on 29 CFR part 1926 – *Safety and Health Regulations for Construction*.

TRAFFIC

- Traffic management and control of the local roadways would be considered in the forward planning and implementation of the proposed Project.

RADIO AND TELEVISION INTERFERENCE

- Western would address individual complaints concerning radio and television interference as needed. Shielding, where practicable, would alleviate interference with electronic monitoring equipment.

HEALTH

- Design requirements to reduce or eliminate induced current and voltages would be used to avoid steady-state current shocks.

- Transmission lines would be designed and constructed to reduce the electromagnetic field to the maximum extent feasible.

CULTURAL RESOURCES

- If a previously unknown site is discovered, any required mitigations would be developed and implemented in consultation with the appropriate state and/or Tribal agency(s). Western will utilize Tribal cultural resource monitoring while performing construction on the Fort Peck Indian Reservation.

- Sites subject to damage from construction activities would be avoided during construction to avoid potential impacts.

PROJECT ALTERNATIVES

This section describes one alternative to the proposed action, the no action alternative. Alternatives considered in this EA are based on potential impacts or issues associated with the proposed action, including those identified during the scoping process. Since no components of the proposed action were determined to have impacts requiring an alternative to eliminate or reduce impacts, the only alternative to the proposed action discussed in detail in this EA is the no action alternative.

Major components of the proposed transmission line Project, their respective functions, and environmental effects of these activities were considered in developing

alternatives. Other alternatives were considered early in the review process. Those alternatives were eliminated because they were either technically or economically infeasible, or they provided no environmental advantage over the proposed action. Alternatives considered but eliminated from further consideration are discussed at the end of this chapter.

NO ACTION ALTERNATIVE

Under the no action alternative, the proposed action would not be implemented. The existing Wolf Point-Williston 115-kV line would be maintained and operated at its current level. Deteriorated structures and fatigued hardware on the existing line would be repaired or replaced when required. The line is more than 50 years old, five years over its expected life.

Repairing or replacing structures with new poles, crossarms, insulators, and ground wires is unsafe and not economical since all the wood poles on the existing line are old and need replacing. The service life of wood poles and wood-pole structures is influenced by several factors. In addition to deterioration, damage from wind and ice storms would require more frequent replacement as the line ages. Over time, all structures would need replacing, requiring more contracts, and duplicating administrative and contractor mobilization costs. Older structures would have higher maintenance costs until replaced. Although this alternative would require no new investment, it would jeopardize the safety of maintenance personnel and the general public, and increase operating and maintenance costs. It would not allow Western to respond to future generation needs in the area.

ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER CONSIDERATION

This section describes two alternatives to the proposed action that were eliminated from further review in the EA. The alternatives were identified during the public scoping process and by Western during review and analysis of the proposed action. The alternatives were considered technically infeasible, unreasonable, or incapable of meeting the purpose of and need for the proposed action.

REPLACE STRUCTURES ON EXISTING 115-KV LINE

Under this alternative, aging structures would be replaced with new, wood-pole H-frame structures and use existing 115-kV conductor until a 230-kV line is needed.

Western decided to replace the existing 115-kV conductor because any upgrade to 230-kV design specifications would eventually require replacing the existing conductor. Replacing the conductor at the same time structures are replaced eliminates the need to return to the line to install a new conductor. Western does not anticipate future costs would decrease for these activities.

RETIRE THE EXISTING 115-KV LINE

Under this alternative, the Wolf Point – Williston 115-kV line would be retired and other transmission improvements would be required to adequately transfer generation from Fort Peck.

This improvement would consist of upgrading the existing 230/115-kV transformer at Fort Peck with a higher-rated transformer because the existing transformer is a limiting factor to the Fort Peck

generation transfer. This alternative does not meet the purpose and need to supply safe, reliable electricity to Western's customers.

CHAPTER 3
AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

INTRODUCTION

This chapter describes the existing environment and potential impacts on resources resulting from construction, operation, and maintenance of the proposed transmission line rebuild, and construction and operation of a substation meeting 230-kV design standards near Williston, North Dakota. The Project area is located in northeastern Montana and northwestern North Dakota (**Figure 1-1**). The "Project area" consists of an existing 95-mile long, 100-foot wide ROW and 200 feet around each structure between Wolf Point, Montana and Williston, North Dakota, and a 400 by 500-foot parcel of land adjacent to the existing substation near Williston.

An environmental impact is a change in the status of the existing environment as a direct or indirect result of the proposed action. Direct impacts are caused by the action and occur at the same time and place. Indirect impacts are caused by the action and occur later or are farther removed in distance, but are still reasonably foreseeable. Impacts can be positive (beneficial) or negative (adverse) and permanent or long-lasting (long-term) or temporary (short-term). Short-term impacts are generally associated with the construction phase of the Project while long-term impacts remain for the Project life and beyond. Measures that would be implemented to reduce, minimize, or eliminate potential impacts are presented in Chapter 2 under *Environmental Protection Measures.*

Figure 1-1 shows the Project area and the general study area for most environmental resource investigations. Study areas for each environmental resource are based on potential direct and indirect impacts from the proposed action. Unless specified otherwise, the study area is an area one-half mile on either side of the ROW.

Critical elements of the human environment subject to statutes or executive orders that must be considered in EAs include:

- Access and Land Use
- Air Quality
- Cultural Resources
- Farmland (prime or unique)
- Floodplains
- Migratory Birds
- Invasive, Nonnative Species
- Threatened, Endangered, Proposed, and Special Status Species
- Water Quality (Surface/Ground)
- Wetlands/Riparian Zones
- Native American Religious Concerns
- Recreation

Western has analyzed the following critical elements which would not be affected by the proposed action or are not present in the proposed Project area:

- Areas of Critical Environmental Concern
- Paleontology
- Wild and Scenic Rivers
- Wilderness

Western has determined that the following elements of the human environment–although present in the study area–do not need to be analyzed because implementation is regulated to minimize impacts;

- **Worker Safety** - Safety of workers is regulated by the U.S. Department of Labor, Occupational Safety and Health Administration-with emphasis on 29 CFR Part 1926–*Safety and Health Regulations for Construction*, and Western's Power System Safety Manual.
- **Safety Issues Related to Increased Traffic During Construction** - During the transmission line rebuild, worker and public safety due to vehicle traffic would be protected by following the U.S. Department of Transportation, Federal Highway Administration's Manual on Uniform Traffic Control Devices.

PHYSICAL RESOURCES

GEOLOGY AND SOIL

A regional discussion of geology is necessary to understand the geologic setting and resulting soil types in the Project area (**Figure 3-1**). As a result, the following geology discussion includes a broad area, whereas soil discussion includes the Project area.

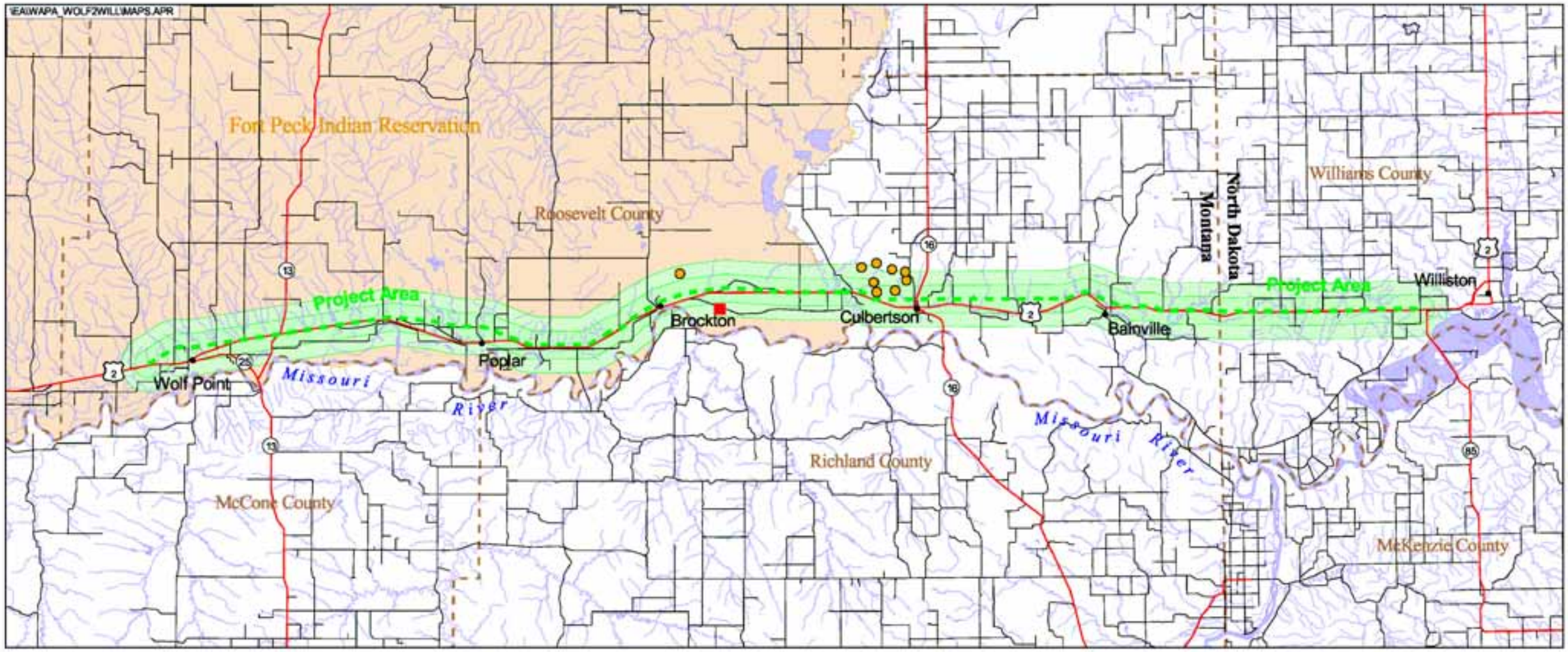
EXISTING ENVIRONMENT

Glaciation has affected the physiography of the Northern Great Plains. Glaciers have retreated and advanced several times in the past two million years. The most recent advance–Wisconsin Glaciation–terminated at the current location of the Missouri River. Thick layers of unsorted sediments, or glacial till, were deposited by these glaciers and created many of the landscape features of the Project area. Since the glacier's retreat, erosion has removed some of the glacial till and exposed the underlying sandstone and shale in some areas.

There are no known deposits of metallic ore in the Project area. Nonmetallic minerals occur, but these minerals are generally found in thin beds.

Eastern Montana is classified as a low potential seismic region (U.S. Army Waterways Experiment Station 1976). No known active tectonic features extend into eastern Montana or northwestern North Dakota.

Elevations in the Project area range from about 1,875 feet above mean sea level (AMSL) along the Missouri River to about 2,200 feet AMSL, though local relief is generally less than 200 feet. Most of the area consists of upland glaciated plains, which are primarily level with some moderate slopes.



Legend

- Project Area
- 1 Mile Project Buffer
- 2 Mile Project Buffer
- Towns
- Highways
- County Roads
- County Boundaries
- Indian Reservations
- Rivers and Streams
- Lakes and Reservoirs
- Sharptail Grouse Leks
- Rare Plant *(Teucrium Canadense)*

N

0 Miles 10

2560212-200 February 12, 2002

Sharptail Grouse Leks and Rare Plant Locations
Wolf Point to Williston Environmental Assessment
Western Area Power Administration
Montana and North Dakota
FIGURE 3-1

Soil in the Project area is typical of the northwestern Great Plains. Surface soil layers are typically fine textured loams that range from silty clay to sandy loam. Soil texture of the deepest soil horizon varies with landscape position. Texture of deepest soil layers found on outwash plains, stream terraces, and alluvial fans is coarse sand, gravelly sand, and sandy loam. Deep layers of clay can be found on floodplains and river valleys, and clay loams are found in areas with substantial glacial till. Upland ridges and till plains are typically fine textured throughout. Soil in the Project area is primarily recent-age sediments, and does not contain large numbers of fossils. There is little outcropping of fossil-bearing strata in the Project area.

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT

Depletion of a paleontological resource or an economically valuable mineral deposit could result in a significant impact on geologic resources. However, due to the lack of fossil-bearing outcrops or economic mineral deposits in the area, which eliminates the potential to deplete paleontological or economically valuable mineral deposits, no direct or indirect impact on geological resources would occur.

An unmitigated loss of highly productive soil could significantly and adversely impact soil resources. Potential impacts on soil would include increased soil erosion by runoff and wind due to loss of vegetation and compaction in work areas. Line construction would be primarily through travel by vehicles within the ROW, which minimizes the potential for soil compaction due to traffic. Soil compaction would be minimal for sandy soils because they do not compact easily.

The upper surface of finer-grained soil could be compacted by construction equipment in some areas, but this effect would likely be short-term due to natural actions of wetting and drying, freezing and thawing, and the physical activity of roots and animals. Impacts on soil would be further mitigated using landscape preservation standards in Section 13.3 of Western's *Construction Standard 13, Environmental Quality Protection*, Western's *Standard Mitigative Measures for Construction, Operation, and Maintenance of Transmission Lines* (**Appendix A**) and environmental protection measures.

Risk of soil erosion due to runoff is low to moderate in most of the Project area because of gentle slopes, but small areas have moderate to steep slopes with greater potential for erosion. As a result of measures to prevent, minimize, and/or reclaim potential soil erosion and compaction, no loss of highly productive soil would result from implementing the proposed action. Thus, there would be no significant impact on soil resources.

AIR RESOURCES

The following section discusses air resources in the Project area and the regulatory status of actions that may affect air resources.

EXISTING ENVIRONMENT

The Project area is rural in nature and air quality is primarily affected by agricultural activities and transportation corridors (i.e., road and rail traffic). Air in the Project area currently meets National Ambient Air Quality Standards (NAAQS). High concentrations of total suspended particulates (dust) occur occasionally during springtime due primarily to wind erosion of

tilled land. However, these concentrations are below NAAQS standards (Fort Peck Tribe Air Redesignation Report 1982, North Dakota Department of Health 2000). Local traffic also produces road dust during dry weather. Other emission sources affecting air quality in the area include agricultural equipment, motorized vehicles, and trains. Due to the sparse human development in the area, these sources are dispersed and have minimal effect on air quality. The portion of the Project area in Montana is within a Class II air quality attainment area, which allows for some alteration of air quality for industrial growth. The MDEQ and the NDDH indicate the proposed action does not require an air quality permit.

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT

A significant impact on air quality could result if state and Federal air quality standards were exceeded during Project construction and operation. Impacts on air quality resulting from the proposed action would include increased total suspended particulates from vehicle movement and soil disturbance during construction activities, and emissions of nitrogen oxides, hydrocarbons, carbon monoxide, and sulfur dioxide from construction and maintenance vehicles. These impacts would be short-term and would be minimized using air pollution prevention standards in Section 13.13 of Western's *Construction Standard 13, Environmental Quality Protection* (**Appendix A**) and *Standard Mitigative Measures for Construction, Operation, and Maintenance of Transmission Lines*. Reduced maintenance along the new line would reduce suspended particulates generated from future maintenance traffic. Dust caused by vehicle movement during construction would be very localized and short term. Vehicles and machinery would be equipped with air emission control devices required by Federal, state, or local regulations or ordinances. The limited construction time is expected to reduce air quality effects to levels below Federal and state air quality standards. As a result, no significant impacts on air resources would occur.

WATER RESOURCES

The following discussions of surface water and groundwater address the Project area and vicinity.

EXISTING ENVIRONMENT

Surface Water

The Project area lies within the Missouri River drainage basin. The Poplar River and Big Muddy Creek are major drainages intersected by the transmission line ROW (**Figure 3-1**). Fort Peck Dam regulates Missouri River flow. Flow varies seasonally and year-to-year, with the average flow below Fort Peck Reservoir at 8,887 cubic feet per second (cfs) calibrated using data from the period 1935 to 1999 (USGS 2002).

Groundwater

Most aquifers in the Project area are located in stream alluvium, glacial outwash sand and gravel, and pre-glacial alluvium. The most readily available groundwater occurs in sand and gravel of the alluvium. Alluvial groundwater levels fluctuate seasonally and can be within several feet of the land surface. Groundwater quality within the same aquifer can vary from location to location. Groundwater in northeastern Montana commonly exhibits high to very high salinity and often cannot be used for

irrigation. However, many local aquifers do yield water suitable for irrigation. High capacity wells have been developed in alluvial aquifers along the Missouri River for municipal supply. Concentrations of iron, sulfate, and total dissolved solids adversely affect the suitability for domestic use in some areas (USGS 1966).

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT

Surface Water

Permits for stormwater discharges associated with construction activities would be obtained from the MDEQ and NDDH, as required. Inadequate implementation of permit requirements could degrade surface water quality and significantly impact surface water resources. Unmitigated soil disturbances during construction could lead to increased soil erosion and sediment transport. Surface water quality could be affected by increasing sediment load if sediment is allowed to reach streams.

Potential impacts on surface water would be minimized and/or avoided according to storm water discharge permits and water pollution prevention standards in Section 13.6 of Western's *Construction Standard 13, Environmental Quality Protection* and Western's *Standard Mitigative Measures for Construction, Operation, and maintenance of Transmission Lines* (**Appendix A**). Impacts on surface water due to sediment loading would be short-term and would decrease to pre-construction levels after reclamation and revegetation efforts are completed. Since stormwater discharge permit requirements would be implemented, environmental protection measures followed, and streams and wetlands avoided, no significant impacts on surface water quality would occur.

Groundwater

A significant impact on groundwater could result if fuel from construction equipment were spilled and the release not remediated. Potential impacts on groundwater would be minimized with spill prevention and remediation measures described in *Chapter 2*. Therefore, no significant impact on groundwater resources would occur during construction and operation.

BIOLOGICAL RESOURCES

VEGETATION

Evaluation of vegetation resources was limited to the Project area and one-mile study area (**Figure 3-1**), considering importance of this resource to wildlife.

EXISTING ENVIRONMENT

The Project area and one-mile study area contain a mosaic of dryland wheat farms and cattle ranches, with many mixed operations. The one-mile study area contains about 122,055 acres. About 54 percent (66,275 acres) of the area is under cultivation (32 percent fallow, 22 percent small grains). The remaining area (49,515 acres) is mostly rangeland (31 percent grasslands/ herbaceous; 9 percent shrubland) primarily located in areas difficult to farm such as draws, dry and sandy areas, and glaciated moraines. Vegetation in this region consists of cropland including CRP, pasture, rangeland, woodlands, and wetlands. A description of vegetation types occurring in the Project area and one-mile study area follows:

Cropland

About 54 percent of the Project area and one-mile study area is cropland. Upland

sites are primarily dryland wheat farms (durum, winter, and spring wheat). About 50 percent of dryland cropland may lie fallow annually. Cultivated bottomlands are usually irrigated and may include small grains, corn, canola, or sugar beets. Cultivated cropland acreage in the vicinity increased substantially in the 1990's (NRCS 1997). Specific acreages of different croplands within the Project area are not available; these also may change from year to year.

Some cropland in the Project area have been enrolled in the CRP. This land is removed from crop production for a specific time period (usually ten years) and planted to some type of soil and water conserving cover; often introduced grasses or a mixture of grasses and legumes. Unless specifically allowed during droughts, livestock grazing is not permitted. In northeastern Montana, about 13 percent of total acreage is enrolled in CRP (NRCS 1997).

Hay and Pasture Land

Hay and pastureland are managed to produce livestock forage, often involving fertilization, weed control, reseeding, and renovation. These areas may be composed of introduced grass monocultures, mixed grass-legume mixtures, or legume monocultures, such as alfalfa or clover. Most of these areas are located in bottomlands and are often irrigated. Hay and pasture land cover about five percent of the Project area and one-mile study area.

Rangeland

About 40 percent of the one-mile study area is rangeland of native prairie, native shrubland, and grassland containing introduced species such as crested wheatgrass. Most rangeland in the Project area occurs on upland sites, in hilly areas, or on sideslopes.

Native prairie in the area supports vegetative stands of native grasses and forb species, and consists of dense, medium height grasslands representing an ecotone between shortgrass prairie in the interior of Montana and the tall grass prairie region of the central United States. Tall grass prairie species include big bluestem, little bluestem, and porcupine grass. Tall grass prairie herbaceous species include scurf pea, prairie coneflower, and false indigo. Other common grassland species typical of short-grass prairie include western wheatgrass, blue grama, needle and thread grass, green needle grass, and bearded wheatgrass. Additional herbaceous species include pussy toes, fringed sage, sedge, prairie junegrass, lungwort, Indian ricegrass, and beardtongue (Kuchler 1968).

Woodlands

About 1,760 acres of deciduous (1,348 acres) and evergreen (412 acres) forest occur in the Project area and one-mile study area. Thickets of boxelder, ash, Russian olive, and Great Plains cottonwood occur along streams, rivers, lakes, springs, and ponds. Associated species include chokecherry, serviceberry, golden current, American elm, Sprengel's sedge, and purple meadowrue. Russian olive, an introduced tree species, is common. Russian olive thickets are dense and often exclude other woody species. Riparian woodlands dominated by cottonwood occur near major waterways (e.g., Poplar River, Big Muddy Creek).

Rare Plant Populations

No threatened or endangered plant species occur in the ROW. Germander (*Teucrium canadense*) is a rare species of special interest to the Fort Peck Tribe. Habitat for,

and one known population of, germander occur near Brockton, outside the Project area and one-mile study area (**Figure 3-1)**.

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT

Significant impacts to biological resources could include: 1) adversely affecting a Federally listed species or designated Critical Habitat; 2) a major loss of economically important plant population; and 3) the loss to any population of plants that would require the species to become listed as endangered or threatened.

Short term direct impacts would include loss of individuals during construction or direct disturbance of species during critical periods in their life cycle. Long term direct impacts would include alteration and/or fragmentation of habitat. Indirect impacts would include providing access to areas not previously accessible. Because the proposed action is rebuilding an existing facility, there would not be any indirect impacts.

Impacts to vegetation would be avoided and/or minimized using practices described in **Appendix A2**, including standards on landscape preservation and conservation of natural resources. Because wetland avoidance and environmental protection measures described in *Chapter 2* would be followed, no economically important plant populations or populations at risk of becoming extinct would result from the proposed action. There would be no significant impact to vegetation resources.

WETLANDS AND FLOODPLAINS

Wetlands are intrinsically important because they can provide important wildlife habitat, and perform hydrologic (e.g., flood attenuation, surface water, ground water recharge) and water quality (sediment retention, pollution control) functions (Novitzki et al., 1997). Due to their importance, the following discussion of wetlands encompasses the Project area and surrounding one-mile study area (**Figure 3-1**). Keeping floodplains clear of obstructions is critical to maintaining drainage efficiency and minimizing the potential for flooding. To address this specific concern, the discussion of floodplains is focused on the Project area.

EXISTING ENVIRONMENT

Wetlands

Wetlands defined by the USACE as 'Waters of the US' (WUS) are subject to jurisdiction under Section 404 of the Clean Water Act of 1973. The USACE has determined that a jurisdictional wetland must have hydric soil, wetland hydrology, and a predominance of hydrophytic vegetation. National Wetland Inventory (NWI) maps (scale 1:24,000) delineate wetlands based on a hierarchical structure that classifies wetlands into systems and classes, with special modifiers added where wetlands have been created or highly modified (Cowardin et al. 1979; NRIS 2001). The NWI mapping identified 13 types of wetlands within one mile of the Project area, as summarized in **Table 3-1**. Most of these wetlands (95 percent) belong to the 'palustrine' system (Cowardin et al. 1979). The NWI maps indicate that wetlands occupy 2,718 acres of about 122,055 acres within one mile of the Project area, or about two percent of the area. Due to this limited occurrence, wetlands are a minor component of the Project area that cannot be displayed effectively at the map scales suited to this EA (i.e., **Figure 3-1**). Avoiding wetlands would be a priority during construction.

TABLE 3-1
Wetlands Occurring Within the Project Area and One-mile Study area

Wetland Type	No.	Acres	Modifiers
Lacustrine, Littoral, Aquatic bed	4	151.3	Semi-permanently flooded, Impounded, Intermittently exposed
Palustrine, Aquatic bed	108	231.1	Semi-permanently flooded, Diked, Excavated, Intermittently exposed
Palustrine, Emergent / Aquatic bed	10	36.7	Semi-permanently flooded, Diked, Excavated
Palustrine Emergent / Unconsolidated shore	10	60.4	Temporarily flooded
Palustrine, Emergent	703	1345.2	Temporarily flooded, Saturated, Seasonally flooded, Semi-permanently flooded, Partially drained, Diked, Impounded, Excavated
Palustrine, Forested	10	15.9	Temporarily flooded, Diked, Seasonally flooded
Palustrine, Scrub shrub	20	39.7	Temporarily flooded, Diked, Seasonally flooded, Excavated
Palustrine, Unconsolidated bottom	10	8.2	Semi-permanently flooded, Excavated, Intermittently exposed
Palustrine, Unconsolidated shore	4	1.3	Seasonally flooded, Excavated
Riverine, Lower perennial, Aquatic bed	1	22.0	Intermittently exposed, Excavated
Riverine, Lower perennial, Unconsolidated bottom	6	287.8	Semi-permanently flooded, Permanently flooded
Riverine, Lower perennial, Unconsolidated shore	23	333.5	Temporarily flooded, Seasonally flooded
Riverine, Intermittent, Streambed	2	147.9	Partially drained
Unmapped	3	36.9	Not digitized due to lack of photography
Total	**914**	**2,717.9**	

Source: Cowardin et al. 1979.

Floodplains

A floodplain is the level ground bordering a stream channel or river that carries overbank flow during flood events. The Project area crosses the floodplains of Wolf Creek, Poplar River, and Big Muddy Creek (**Figure 3-1**). The floodplains of Poplar River and Big Muddy Creek in the Project area are also classified as wetlands or non-wetland WUS on NWI maps. Potential for flooding in the Project area is low due to the location of the transmission ROW and the regulating ability of Fort Peck Dam.

Six structures and associated access roads currently occur within floodplains of these three streams. Three are located in the floodplain of Big Muddy Creek, two in the floodplain of the Poplar River, and one in the Wolf Creek floodplain. Due to the span requirements and the width of these floodplains, replacement structures would be placed at the existing locations and existing access roads would be used for construction, operation , and maintenance.

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT

Wetlands

Permanent, negative alterations of wetland hydrology, function, or water quality would be a significant impact to a wetland. Direct, short-term impacts on wetlands, including damage to vegetation, would result from removing existing structures in wetlands. To protect wetlands during construction, sediment and erosion control measures would be implemented in accordance with project specific environmental protection measures described in *Chapter 2*.

As with any construction activity, fuel, hydraulic fluid, or other regulated materials could be spilled from vehicles or equipment. These events would be minimized by implementing standard practices described in **Appendix A1** regarding pollutant spill prevention, notification, and cleanup. By avoiding wetlands, and implementing permit requirements and construction standards, there would be no increased erosion resulted in sedimentation that filled existing wetlands or caused permanent, negative alterations of wetland hydrology, function, or water quality. Therefore, there would be no significant impact on wetlands from the proposed action.

Floodplains

Significant impacts on a floodplain could occur if a floodplain's water flow characteristics were altered such that property downstream was damaged by the altered flow. Montana Department of Natural Resources and Conservation (DNRC) regulates excavation and placement of fill in floodplains. By using existing access roads and structure locations in floodplains, following permit requirements, and applying the environmental protection measures described in *Chapter 2*, (e.g. construction in floodplains during frozen conditions) surface water flow characteristics of a floodplain would not be altered. Proposed structures would withstand flood events. Therefore, no significant impacts on floodplains would result from the proposed action.

WILDLIFE

Although the evaluation of wildlife resources focused on the Project area (**Figure 3-1**), some regional discussion is included. This is necessary because of the greater mobility of wildlife and the importance of habitat resources outside of the Project area to wildlife.

EXISTING ENVIRONMENT

To develop a list of wildlife species in the Project area, a literature review was conducted, agency personnel interviewed, and a field survey conducted. Additional sources used to refine the species list were Maxim (2000), Butts (1995), Department of Energy (DOE) (1992), Elliott (1998), Holton (1990), Montana Bird Distribution Committee (1996), Montana Natural Heritage Program (MNHP) (2001a,b), Reichel and Flath (1995), and Thompson (1982). Based on species distribution and habitat use, 12 reptiles, 6 amphibians, 40 mammals, and 229 birds may occur or have habitat in the general vicinity of the Project area (Butts 1995).

Sharp-tailed grouse leks have been identified within one mile of the ROW (**Figure 3-1**). Leks have been documented within two miles of the ROW near Brockton and Culbertson, Montana. None have been documented within ¼ mile of the ROW. Nesting habitat for sharptails occurs within the ROW.

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT

Significant impacts to biological resources would include: 1) adversely affecting a Federally listed species or designated Critical Habitat; 2) a major loss of economically important wildlife population; and 3) the loss to any population of wildlife that would require the species to become listed as endangered or threatened.

Short-term direct impacts to biological resources would include loss of individuals during construction or direct disturbance of species during critical periods in their life cycle. Long-term direct impacts would include alteration and/or fragmentation of habitat and electrocutions and collisions. Indirect impacts would include providing access to areas not previously accessible. Because the proposed action is rebuilding an existing facility, there would not be any indirect impacts.

Birds use Muddy Creek drainage as a flyway during spring and fall migration. They also frequent habitats located north of the existing ROW in the Big Muddy Creek drainage (Mulé 2002). There is a possibility for collisions with the lines in these habitats although they are not expected to increase due to the proposed Project. Mortality resulting from line collisions with the existing transmission line has not been documented by Tribal or state wildlife personnel to date (Magnan 2002; Mulé 2002).

There are no sage grouse leks within ¼ mile of the existing transmission line ROW. Due to the lack of sage grouse habitat in the immediate vicinity, no leks are expected.

Impacts on sharp-tailed grouse leks could result from disturbance during the breeding season in April and early May, and to nesting hens during May and early June. However, based on Western's commitment to curtail construction in any sharp-tailed nesting habitat, no impacts to breeding sharp-tailed grouse would occur.

Raptor nest surveys conducted in the area showed no raptor nests occurring within the ROW. Nesting habitat occurs in cottonwood groves found along the Missouri River, generally greater than one mile away from the proposed ROW. Based on Western's commitment to implement timing restrictions to avoid any discovered raptor nests, no impacts to nesting raptors would occur (see *Chapter 2*).

Impacts on big game species are not anticipated. Pronghorn does with fawns could be displaced during late spring and early summer, but impacts are not anticipated.

Disturbance to wildlife from noise, vehicles, and human presence during construction would be localized and of short duration. Bird nests could be destroyed when birds are nesting. However, many of the birds would renest if the first attempt was unsuccessful. No long term impacts associated with operating and maintaining the line would occur to wildlife.

The increased diameter of the fiber optic ground wire would decrease the possibility of collisions by birds. Additionally, Western would mark those spans that cross communication flyways or other areas where bird collisions are likely.

Because impacts associated with construction and operation of the proposed line would be short term or would not likely result in mortality that substantially reduces wildlife populations, direct and indirect impacts on wildlife would not be significant.

THREATENED, ENDANGERED, AND PROPOSED SPECIES

The area of study for special status species was essentially the same as that for wildlife resources with focus on the Project area (**Figure 3-1**).

EXISTING ENVIRONMENT

Federally listed threatened, endangered, and proposed species in western North Dakota and northeast Montana are listed in **Table 3-2**. Life history and distribution of species that could occur near the Project area are discussed below.

Pallid Sturgeon

Pallid sturgeon is found in the Missouri and Mississippi River drainages. The present distribution of this species in Montana includes the Missouri to Fort Benton and the lower Yellowstone River from the mouth of the Tongue River to the confluence with the Missouri (Duffy et al. 1996). Pallid sturgeon prefer turbid, flowing, riverine habitat with rocky or sandy substrate with water depths of four to five meters. Pallid sturgeon have been documented in the main channels of the Missouri River along sandbars on the inside of bends and behind wing dikes. Pallid sturgeon forage primarily on large river suckers (Duffy et al. 1996).

TABLE 3-2
Federally Listed Threatened, Endangered, and Proposed Species in North Dakota and Montana

Species	Federal Classification	ND	MT
Pallid sturgeon (Scaphirhynchus albus)	Endangered	X	X
Piping plover (Charadrius melodus)	Threatened	X	X
Mountain plover (Charadrius montanus)	Proposed threatened		X
Interior least tern (Sterna antillarum athalassos)	Endangered	X	X
Bald eagle (Haliaeetus leucocephalus)	Threatened	X	X
Whooping crane (Grus americana)	Endangered	X	X
Black-footed ferret (Mustela nigripes)	Endangered	X	X

Most documented occurrences of pallid sturgeon have been downstream of the confluence of the Missouri and Yellowstone rivers, though habitat suitable for spawning may be present in the lower Yellowstone River and in the Missouri River above the confluence (Auchly 1999). The Project area lies upstream and north and west of the confluence of Missouri and Yellowstone rivers.

Piping Plover

Piping plovers are small migratory shorebirds that occupy sand and gravel bars, beaches along major rivers, lakes, reservoirs, ponds, and alkali wetlands. Populations of these birds and breeding sites have declined recently. Inland piping plovers occupy breeding habitat on the Great Lakes and Northern Great Plains from March until August. They spend the winter along the Gulf Coast from Florida to northern Mexico. Threats to species include loss of beach habitat, vehicular and human traffic on beach nesting areas, and modification of river channels and flow that have eliminated nesting habitat on sandbars (USFWS 1988). Currently, breeding piping plovers occur in Montana on sandflats near the west end of Fort Peck Reservoir in Valley County, and on the saline wetlands near Dagmar and Medicine Lake National Wildlife Refuge in Sheridan County (USFWS 1988). Additional breeding areas have been documented in prairie pothole habitats in northeastern Montana, near Medicine Lake (MNHP 2001a). Piping plovers are not known to breed or nest in the Project area.

Mountain Plover

The mountain plover is a medium size, migratory bird endemic to the dry tableland and uplands of the western Great Plains and Colorado Plateau. It nests primarily in disturbed shortgrass prairie sites. Mountain plovers avoid montane landscapes and seek areas of local aridity, disturbance, or short, intensely grazed grass found on prairies. In the Northern Great Plains, most plovers are found on prairie dog towns. Mountain plovers sporadically nest in dry, desert shrub zones west of the shortgrass prairie in similarly disturbed areas. Upland habitat suitable for this species occurs in the central and western portions of the Project area. Mountain plover breeding has been documented outside the Project area, south and west of Glasgow, Montana (MNHP 2001a). Threats to mountain plovers include reduction or elimination of preferred nesting habitat and loss of wintering habitat (USFWS 1999).

Interior Least Tern

Interior least terns forage on small fish, crustaceans, and insects caught while skimming over water or hovering and diving from above (Ashton and Dowd 1991). Distribution of the interior least tern extends from Texas to Montana and from eastern Colorado and New Mexico to southern Indiana. Common nesting habitat includes barren sandbars, once a common feature of river systems, but reduced in recent years by activities that alter natural river flow in these drainages (USFWS 1990). In Montana, breeding interior least terns have been recorded on the Yellowstone River, on islands and shoreline within Fort Peck Reservoir, and on the Missouri River between Fort Peck Reservoir and North Dakota (USFWS 1990). Continued threats to this species in northeastern Montana include beach habitat alteration, water level fluctuations, and human disturbance during nesting season, and flow modification that alters or eliminates nesting habitat on sandbars along the Missouri River.

Bald Eagle

Bald eagles are frequently observed along the Missouri River during winter and spring as transient migrants (MNHP 2001a). Bald eagles prey on fish and waterfowl found on large bodies of ice-free water in winter. Bald eagles also feed on wildlife and carrion. Communal roosts or dense feeding concentrations of bald eagles are not common in this area. Risks to wintering eagles include disturbing winter roosts or roost modification and collisions or electrocutions. Due to the lack of nesting habitat, bald eagles are not known to nest in the Project area (Maxim 2000).

Whooping Crane

Whooping cranes breed in Wood Buffalo National Park, Northwest Territories, Canada, and winter along the Texas coast. Whooping cranes have been known to migrate through the Project area during spring and fall. The species prefers freshwater marshes, wet prairies, shallow portions of rivers and reservoirs, grain and stubble fields, shallow lakes, and lagoons for feeding and loafing during migration. Overnight roost sites usually contain shallow water in which they stand (Ashton and Dowd 1991). This species has been documented as a rare spring migrant at Medicine Lake National Wildlife Refuge (USFWS 1988, TNC 1987). Impacts on whooping cranes include disturbing feeding or roosting sites and reducing or eliminating marsh feeding and loafing habitats.

Black-footed Ferret

The black-footed ferret was once found throughout the Great Plains–from Texas to southern Saskatchewan, Canada–associated with prairie dog colonies. Black-footed ferrets live in prairie dog or other rodent colonies and prey on the inhabitants. Black-footed ferrets breed in early spring and produce a litter of three young. By October, the young ferrets have dispersed. Ferrets are nocturnal and do not hibernate.

The decline of the ferret is related to the decline of prairie dogs, disease (sylvatic plague and distemper), conversion of native grasslands to agriculture, poisoning, and recreational shooting of prairie dogs. The USFWS lists the black-footed ferret as an endangered species and Montana lists it as state endangered (MNHP 2001a).

Species of Special Concern

Although not listed as threatened or endangered under the Endangered Species Act, other species of wildlife, fish, and plants are of concern due to rarity, habitat loss, or threats to population viability (MNHP 2001a,b and NDNHP 2001). Although no regulations require consideration of these species in the analysis, Western includes them in considering state and local interests. These species are discussed in the Biological Resources Report contained in the Project file in Western's Billings, Montana office.

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT

Any adverse effects to endangered, threatened, endangered, or proposed species would be a significant impact.

Pallid Sturgeon

Implementing the proposed action would not affect the Missouri River and, therefore, would have no impact on pallid sturgeon.

Piping Plover

There is no habitat for piping plovers in the vicinity of the ROW, therefore, the plover would not likely be adversely affected by the Project. Piping plovers may fly through the Big Muddy Creek drainage between breeding areas along the Missouri River and Medicine Lake areas. Use of marking devices as described under environmental protection measures in *Chapter 2* and adding fiber optic strands to one of the overhead ground wires would reduce the risk of piping plovers striking the transmission line.

Mountain Plover

Habitat for mountain plovers occurs within the Project ROW, though no plover have been documented in the Project area. There is a chance that a mountain plover could collide with the line or that a nesting individual may be disturbed by pole replacement or line stringing activities. However these impacts would be minimal. As described in the environmental protection measures, Western would avoid areas if mountain plovers are documented during the spring nesting season, minimizing effects on this species.

Interior Least Tern

Least terns have been found in a gravel pit, near the Project area. There is a possibility that least terns fly through the Big Muddy Creek valley between the Missouri River and Medicine Lake areas or cross the line in other places. The risk of least terns colliding with the conductors or overhead

ground wires would be reduced by the increased size of the addition of fiber optics to one of the ground wires and the use of marking devices, as discussed under the environmental protection measures listed in *Chapter 2*. The proposed action is not likely to adversely affect the interior least tern.

Bald Eagle

Bald eagle mortality associated with line strikes has been documented on transmission lines, but it is a rare occurrence. The potential for line strikes with the new line would be less than that of the existing 115-kV transmission line, due to the addition of fiber optics to one of the ground wires and the use of marking devices as described in Chapter 2. The Project is not likely to adversely affect bald eagles.

Whooping Crane

During spring and fall migration, whooping cranes may roost and feed in wetlands near the Project ROW. A remote possibility exists that whooping cranes could collide with the conductors or overhead groundwires. However, due to the addition of fiber optics to one of the ground wires and the use of marking devices as described in Chapter 2, collisions would be minimized. Also, considering the small numbers of whooping cranes that move through the area, the proposed action is not likely to adversely affect the whooping cranes.

Black-footed Ferrets

Black-footed ferrets are associated primarily with large complexes of prairie dog colonies. As there are no prairie dog colonies or black-footed ferrets near the Project area, the proposed Project would not affect black-footed ferrets.

Based on the above, Western determined, in a December 9, 2003, letter to USFWS, that the proposed Project would not affect endangered or threatened fish (pallid sturgeon, bull trout, or Montana arctic grayling); would not affect endangered, threatened or candidate mammals (black-footed ferret, black-tailed prairie dog); and may affect, but is not likely to adversely affect threatened or endangered or proposed birds (piping plover, mountain plover, whooping crane, interior least tern, or bald eagle). Because none of the species of concern would be affected by the proposed action, there would be no significant impacts to sensitive species.

SOCIAL RESOURCES

SOCIOECONOMICS

The socioeconomic setting and potential impacts of the proposed Project were evaluated on a regional basis that included the Fort Peck Reservation and the counties of McCone and Richland, in Montana, and Williams and McKenzie in North Dakota (**Figure 3-1**).

EXISTING ENVIRONMENT

The social character of the Project area reflects the ethnicity and culture of the Fort Peck Reservation and adjoining rural counties of northeastern Montana and western North Dakota. The social environment in the area is typical of rural lifestyles on the Great Plains. Farming and ranching activities provide the dominant social and economic influences.

Williston, located at the eastern end of the Project area, is a major trade center for area residents. This city of 13,500 people offers more services than the small Montana towns along the Project area.

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT

A long-term effect on the area's infrastructure (e.g., schools, hospitals, housing, utilities) could comprise a significant impact on the socioeconomics of the area. This could occur if a large number of workers and their families moved into the area as a result of jobs created by Project construction and operation. However, Western's existing maintenance crews would be used to rebuild the transmission line and continue its operation. Constructing the 230-kV substation near Williston would be conducted by contractors. The influx of Project workers into the city would provide short-term economic benefits to Williston.

The proposed Project would provide continued employment in the electrical industry and existing secondary jobs in retail and service sectors, and continued payment in lieu of taxes for Western's fee-owned lands. Local businesses that could see some short-term increases in revenue during construction and maintenance include concrete and gravel suppliers, motels, restaurants, bars, gas stations, and grocery stores. However, social services would not be impacted due to the short-term nature of the substation construction. Local communities, businesses, and residents would benefit from increased reliability in electric service, and fewer interruptions in service. Due to the short-term nature of construction and its performance primarily by Western's existing maintenance crews, there would be no long-term effects, and therefore, no significant socioeconomics impacts are expected.

LAND USE

The following evaluation for land use is focused on the Project area, but includes some discussion that establishes the regional setting of the proposed Project (**Figure 3-1**).

EXISTING ENVIRONMENT

The existing 95-mile long transmission line segment is located in Roosevelt County, Montana, and Williams County, North Dakota. The existing ROW parallels or is generally within one mile of U.S. Highway 2. The Burlington Northern-Santa Fe Railroad is a second major transportation corridor that also parallels the transmission line ROW in the area.

Land use features are limited to the existing transmission line, the transportation facilities, several small towns, rural residences, and agriculture. The predominant land use within the Project area is agriculture, including cultivated land, pasture, rangeland, and areas set aside under the CRP. Principal crops include wheat and barley. Irrigated land also occurs in lowland areas near the Missouri River.

A network of local secondary roads that provide access to individual farms and ranches intersects the ROW along the entire route. Towns along the route include Wolf Point, Poplar, and Culbertson, Montana. The transmission line ROW is located north of these towns. About 52 miles of transmission line ROW are located on the Fort Peck Indian Reservation. Residential development adjacent to the transmission ROW is rural and dispersed.

The proposed reroute would conflict with two proposed center pivot irrigation systems.

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT

Land use impacts pertain to physical or operational effects of the proposed Project on existing and future land use. A significant impact could result from the uncompensated loss of crop production or foreclosure of future land use. In the Project area, impacts on land use are primarily related to agricultural practices. Potential impacts on agriculture would be both short- and long-term. Short-term effects could include:

- Temporary loss of cropland in work areas
- Restrictions on existing irrigation operations during construction
- Reduced crop yields due to soil compaction
- Increased potential for introduction of invasive weeds

Long-term impacts could include:

- Modification of farming operations near and around structures
- Loss of cropland under and around structures
- Reduced crop yield due to invasive weeds and soil compaction resulting from farm equipment maneuvering around structures
- Modification of routes of aerial applied herbicides and fertilizers
- Alteration of existing or proposed irrigation systems

Impacts on land use would largely be avoided by rebuilding most of the transmission line (95 percent) in the existing ROW. However, short-term disruption of farming activities in the existing ROW could occur locally during construction. Long-term impacts in the existing ROW would be minimized by locating structures in previously disturbed areas, or in areas where agricultural practices have already been modified. Environmental protection measures listed in *Chapter 2* would be implemented to reduce potential impacts on land use due to erosion, soil compaction, and noxious weeds.

Two proposed five-mile reroutes could be affected by both short- and long-term impacts. Land uses along the two proposed reroutes are primarily agricultural and are similar to the existing routes. The primary objective of the reroute for structures 71/2 – 72/7 (**Figure 2-1**) is to eliminate two crossings of Highway 2 and four structures guyed in the highway ROW. The proposed reroute would result in one new county road crossing. Construction costs for the reroute would be lower than for the existing route because the reroute is shorter and requires fewer structures. The primary objective of the reroute for structures 104/8-108/4 (**Figure 2-2**) is to move the line away from a ranch house and buildings. Construction costs for the reroute and existing route would be comparable since they are about the same length and require a similar number of structures.

Short-term impacts on agriculture in the reroutes would be minimized by applying environmental protection measures discussed in *Chapter 2*. Long-term impacts along the reroutes would be minimized by

selecting structure locations with consideration to land use priorities identified by the landowners. Long-term impacts of the reroutes would be at least partially offset by removing the line from the existing routes, thereby returning some land to unrestricted use. ROW agreements would be negotiated with landowners in the reroutes with the knowledge that land use would be affected and any proposed irrigation systems would need to be redesigned or relocated.

Due to avoidance of land use disruption, environmental protection measures identified in *Chapter 2*, and provisions of ROW agreements negotiated with landowners, the proposed Project would not result in the uncompensated loss of crop production or foreclosure of future land use. As a result, no significant impacts on land use would occur.

VISUAL RESOURCES

The following sections describe existing visual resources in the general vicinity of the proposed Project, followed by a discussion of changes to the existing condition that would result from its construction. For this analysis, the visual region of influence was considered to be the one-mile study area (**Figure 3-1**).

EXISTING ENVIRONMENT

Manmade features, such as cultivated fields, roads, highways, railroad, and existing transmission lines have modified landscape character in the Project area. Landscape character types within the Project area include:

- Lowlands, including riparian, wetland, native grass, and cultivated areas
- Upland areas where vegetation diversity is limited to dryland farming and rangeland associated with steeper secondary drainages
- Modified areas within lowlands or uplands that have been previously altered by man-made features

The existing transmission line is parallel to or within one mile of U.S. Highway 2 from Wolf Point to Williston. Existing rural residences, major transportation routes, and public use or recreation areas were all considered Key Observation Points (KOPs) within the Project area. Views within ¼ mile (near-foreground) of the existing transmission ROW were considered as KOPs.

Portions of the existing line parallel U.S. Highway 2 within ¼ mile for about 22 miles. This near foreground distance for a high number of viewers (highway travelers) would result in high project visibility, while remaining portions of the line that occupy middle-ground views (½ mile to one mile from the highway) have moderate to low levels of project visibility.

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT

Visual resources reflect the aesthetic qualities of the landscape, such as its scenic value and sensitivity to change. New structure design, new access trails, and limited reroutes of the transmission line are examples of landscape changes that would affect scenic views of the Project area. Significant impacts on visual resources could result from increased intrusion on a unique viewshed or views from a site listed or potentially eligible for listing on the National Register of Historic Places

(NRHP). Because most of the rebuilt transmission line (95 percent) would remain in the existing ROW, the impact on visual resources would not change dramatically. The new structures would be approximately 70 feet in height, as opposed to the existing 60- to 65-foot structures, and in locations similar to existing structures (except for reroutes). The non-weathered poles for new H-frame structures would initially introduce a noticeable contrast compared to the existing weathered poles, but this would diminish within a few years. Both reroutes would move the line further from U.S. Highway 2 (**Figures 2-1 and 2-2**), resulting in an improvement in visual resources in those areas.

To minimize impacts, structures would be placed to avoid or span sensitive features whenever possible. Remaining impacts would be minimal owing to the existing modified landscape and previously affected views from within and adjacent to the existing ROW. Local landowners or respondents to public scoping have not identified any concerns regarding impacts on visual resources resulting from rebuild of the existing transmission line as proposed.

The visual region of influence contains no highly distinctive or important landscape features, and the proposed transmission line would continue to be in or near the existing ROW. The proposed Project would not increase intrusion on a unique viewshed or views from a site listed or potentially eligible for listing on the NRHP. As a result, the proposed Project would have no significant impact on visual resources.

ELECTRIC AND MAGNETIC FIELD (EMF) EFFECTS

Evaluation of EMF was limited to the Project area (**Figure 1-1**), and specifically focused on areas in the immediate vicinity of the overhead transmission lines and substations.

EXISTING ENVIRONMENT

Magnetic and electrical profiles for the existing 115-kV transmission line are provided in Appendix B.

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT

A significant impact on safety and health as a result of the proposed Project would occur if features of the proposed action have demonstrated adverse health effects. Specifically, these would include increased risk of injuries or deaths resulting from potentially higher risk of adverse health symptoms (including those to pacemaker wearers) resulting from increases in electric and magnetic fields in the area.

Current and voltage are required to transmit electrical energy over a transmission line. Current is flow of an electrical charge measured in amperes and is the source of a magnetic field. Voltage represents the potential for an electrical charge to do work expressed in units of volts (V) or kV and is the source of an electrical field. The proposed 230-kV transmission line would provide a maximum thermal capacity of approximately 1,000 amperes in each of three phases. The electrical effects of the proposed 230-kV transmission line can be characterized as “corona effects” and “field effects” that are associated with current-induced magnetic fields and voltage-induced electrical fields. Magnetic and electrical profiles for the proposed 230-kV transmission line are provided in **Appendix B** as a reference for the following discussion.

Corona Effects

Corona is the electrical breakdown of air into charged particles caused by the electrical field at the surface of conductors, insulators, and hardware of energized high-voltage transmission lines. Corona occurs where the field has been enhanced by protrusions, such as nicks, insects, or water drops. During fair weather, these sources are few and corona is minor. During wet weather, sources increase and corona effects are greater. Effects of corona are audible noise, visible light, radio and television interference, and photochemical oxidants.

Audible noise – Corona-generated audible noise is generally characterized as a crackling/hissing noise, most noticeable during wet-weather conditions. There are no design-specific regulations to limit audible noise from transmission lines. Transmission line audible noise is measured and predicted in decibels (A-weighted) or dBA. Some typical noise levels are: light automobile traffic at 100 feet, 50 dBA; an operating air conditioning unit at 20 feet, 60 dBA; and freeway traffic or freight train at 50 feet, 70 dBA. This last level represents the point at which a contribution to hearing impairment begins. The average noise level during wet weather at the edge of the ROW for the proposed line is anticipated to be 46 dBA at 230 kV.

Visible light – Corona is visible as a bluish glow under conditions of darkness, and probably only with the aid of telescopic devices. Light would be difficult to detect at the operating voltage of 230 kV.

Radio and television interference– Corona-generated radio interference is most likely to affect the amplitude modulated (AM) broadcast band; frequency modulated (FM) radio reception is rarely affected. Only AM-radio receivers near transmission lines are affected by radio interference. An acceptable level of maximum fair-weather radio interference at the edge of a ROW is 40 to 45 dBuV/m (decibels above one microvolt per meter). Average levels during foul weather are typically 16 to 22 dB higher than average fair-weather levels. The predicted fair-weather level for the proposed transmission line rebuild is 36 dBuV/m. Television interference (TVI) due to corona occurs during foul weather and is generally caused by transmission lines with voltage more than 345 kV. The level of corona-operated TVI expected from the proposed rebuild is 16 dBuV/m at the edge of the ROW. This is a lower level than occurs on many existing lines.

Various techniques exist for eliminating adverse impacts on radio and television reception. Western would address individual complaints concerning radio and television interference as needed.

Corona-generated interference can disrupt communication bands such as the citizen's and mobile bands. However, mobile-radio communications are not susceptible to transmission line interference because they are generally FM. If interference occurs with these types of communications, the same techniques used to alleviate television and radio interference can be used. Shielding, where practicable, would alleviate interference with electronic monitoring equipment.

Photochemical oxidants – When corona is present, the air surrounding the conductors is ionized and many chemical reactions take place, producing small amounts of ozone and other oxidants. Approximately 90 percent of oxidants are ozone and the remainder mainly nitrogen oxides.

The NAAQS for photochemical oxidants, of which ozone is the principal component, is 235 microgram/cubic meter ($\mu g/m^3$) or 120 parts per billion (ppb). The maximum incremental ozone levels at ground level calculated for the proposed line would be less than 0.02 ppb for a 0.5 miles per hour perpendicular wind and a .03 inch per hour rain.

Field Effects

The electric field created by high voltage transmission lines extends from the energized conductor to other conducting objects. Resulting field effects include induced current and voltage in the ground, structures, vegetation, buildings, vehicles, and people near the transmission line; spark discharge shocks; steady state current shocks; field perception at ground level; and magnetic field. The electric field or voltage gradient is expressed in units of volts per meter (V/m) or kilovolts per meter (kV/m).

The maximum electric field at the minimum 28-foot clearance for the proposed line at 230 kV would be 1.4 kV/m. At the edge of the 100-foot ROW, the field would be 0.78 kV/m (**Appendix B**). There are no Federal standards for transmission line electric fields. Montana has established a one kV/m edge of ROW standard in residential areas. Several states have established recommended field limits for maximum and edge of ROW. Field levels for the proposed rebuild would be within the recommended limits of these states.

Primary shocks – The greatest hazard from a transmission line is primary shocks or direct electrical contact with the conductors. Primary shocks can result in physiological harm. The lowest category of primary shocks is "let go", which represents the steady-state current that cannot be released voluntarily. The maximum induced current (mA) criterion for vehicles closely approximates the estimated 4.5 mA let-go threshold for 0.5 percent of children (Keesey and Letcher 1969). Caution should be exercised to avoid primary shocks resulting from line strikes with equipment (e.g., drill rigs, farm equipment, electrical service equipment).

Steady-state current shocks – Steady-state currents are those that flow when a person contacts an ungrounded object, providing a path for the induced current to flow to the ground. Potential steady-state-current shocks from vehicles under the proposed line are at or below secondary shock levels. Secondary shocks could cause an involuntary and potentially harmful movement, but cause no direct physiological harm. Steady-state current shocks are infrequent and represent a nuisance rather than a hazard.

Induced current and voltage – When a conducting object, such as a vehicle or person, is placed in an electric field, currents and voltages are induced in that object. The magnitude of the induced current depends on the strength of the electric field and the size and shape of the object. Voltage induction and the creation of currents in long conducting objects such as fences and pipelines would be possible near the proposed transmission line. If the object is grounded, the induced current flows into the earth and is called the short-circuit current of the object. In this case, voltage on the object is effectively zero. If the object is insulated (not grounded), then it assumes some voltage relative to ground. These induced currents and voltages represent a potential source of nuisance shocks near a high voltage transmission line. Even under worst case conditions, the short-circuit current resulting from induced voltage of the

proposed transmission line to the largest anticipated vehicle would be less than the National Electric Safety Code criterion of 5 mA.

Cardiac pacemakers – Overall risk to cardiac pacemaker wearers as a result of current and voltage induction warrant individual discussion. Induced current and voltage represent a possible source of interference to pacemakers. Internal currents can be caused by electric fields, magnetic fields, or by direct contact. The interference threshold for the most sensitive pacemaker is estimated at 3.4 kV/m. The maximum induced electrical field of the proposed 230-kV transmission line is estimated at 1.6 kV/m. Therefore, the proposed Project, when operated at 230-kV capacity, would not pose a risk to pacemaker wearers.

Spark-discharge shocks – Induced voltage appears on objects that conduct electricity, such as vehicles, fences, and railroad tracks, when there is an inadequate ground. If voltage were sufficiently high, a spark-discharge shock would occur upon contact with the object. This type of shock could occur under the proposed 230-kV transmission line. However, the magnitude of the electric field would be low, and infrequently occur under the line near mid-span.

Carrying or handling conducting objects, such as irrigation pipe, under the proposed line could result in spark discharges that are a nuisance. The primary hazard with irrigation pipe, however, is direct contact with conductors.

Field perception – When the electric field under a transmission line is sufficiently high, persons standing under or near the line may perceive the raising of hair on an upraised hand. At the operating voltage of 230 kV, any perception of electric fields from the proposed line should not be detected.

Magnetic field – Magnetic field strength is expressed in terms of teslas or gauss. There are no established limits for magnetic field strength. The proposed 230-kV transmission line, operated at maximum current and thermal capacity, would induce an estimated 60-hertz (Hz) magnetic field of approximately 90 milligauss (.09 gauss) directly below the conductors strung on each side of the H-frame structures. Magnetic field strength at the edge of ROW (50 feet from centerline) at maximum line capacity is calculated to be 38 milligauss (.038 gauss). These magnetic field strengths compare with levels of magnetic field measured near common household appliances, and are much less than the direct current magnetic field of the earth (0.6 gauss).

Long-term Exposure to Electric and Magnetic Fields

Questions concerning effects of long-term exposure to electric fields from transmission lines on human health are a controversial subject that has been raised primarily in hearings related to 500-kV and 765-kV transmission lines. These high voltage lines induce electrical fields at ground levels more than twice the maximum electrical field estimated under the proposed 230-kV Wolf Point to Williston Transmission Line. Although available evidence has not established that induced electrical fields pose a significant health hazard to exposed humans, the same evidence does not prove there is no hazard. Therefore, in light of the present uncertainty, it is Western's policy to design and construct transmission lines that reduce the EMF to the maximum extent feasible.

While considerable uncertainty remains about the EMF/health effects issue, the following facts have been established from evaluating the results and trends of EMF-related research:

- Any exposure-related health risks to an exposed individual would be small.
- The most biologically significant types of exposures have not been established.
- Most health concerns have been related to magnetic fields.
- The measures employed for field reduction can affect line safety, reliability, efficiency, and maintainability, depending upon the type and extent of such measures.

No Federal regulations have established environmental limits on the strengths of EMF from power lines. Some states have set limits on EMF from newly constructed lines, not based on factual health data. Most of Western's lines would meet those standards.

Below are brief summaries of some past and current studies on EMF health studies:

Electric and Magnetic Fields from 60-Hz Powerlines: What do We Know about Possible Health Risks? Morgan (1989) concluded that 60-Hz EMF do not pose a significant risk to agriculture, animals, or ecosystems.

The Electric Power Research Institute (1998) (along with the Veterans Affairs Medical Center and the Bonneville Power Administration) conducted a four-phase study that exposed sheep to fields from a 500-kV transmission line. The research was done to determine whether long-term EMF exposures impacted melatonin levels, immune function, and animal health. Early phase studies of exposed groups of animals showed no impact on melatonin levels. In later studies, immune cells were monitored in two exposed groups of animals to find out if exposure to fields resulted in immune cells reduction in the exposed animals. Cell reduction would affect immune function and animal health. Final results showed that immune cells were not consistently or significantly reduced in exposed sheep.

A team of Canadian researchers led by McBride reported in the May 1999 issue of the American Journal of Epidemiology that if there is a risk (of childhood leukemia from EMF exposure) it is undetectable through epidemiological studies.

A study sponsored by the National Institute of Health (NIH), National Institute of Environmental Health Sciences (NIEHS) was published in June 1999, The *Report on Health Effects from Exposure to Power-Line Frequency Electric and Magnetic Fields*, stated that all theories concerning biological effects of EMF "suffer from a lack of detailed, quantitative knowledge," and concluded that laboratory data using a variety of animals, such as non-human primates, pigeons, and rodents, are inadequate to conclude that EMF field exposure alters cancer pattern rate and has not been adequately demonstrated for non-cancer health issues (e.g. birth defects) (NIEHS 1999). As a precaution regarding human health issues, the report recommends that the electrical field at the edge of a ROW measured one meter above ground not exceed 1 kV/m, and considered this recommendation conservative.

Dr. Sander Greenland, in a 2000 report entitled *A Pooled Analysis of Magnetic Fields, Wire Codes and Childhood Leukemia*, concluded: exposures to fields

less than 3 milligauss (mG) is unlikely to cause leukemia; there is suggestive evidence of a link between childhood leukemia and exposure to fields higher than 3 mG; and future studies of EMF and childhood leukemia should focus on highly exposed populations.

A paper by Dr. Anders Ahlbom published in the September 2000 issue of British Journal of Cancer stated they did not find any evidence of an increased risk of childhood leukemia at residential magnetic field levels less than 4 mG.

A 2002 report by the Department of Health Services, State of California, *An Evaluation of the Possible Risks from Electric and Magnetic Fields from Power Lines, Internal Wiring, Electrical Occupations and Appliances*, was prepared in response to the California Public Utilities Commission. The three preparing scientists agreed, to one degree or another, that EMF can cause some degree of increased risk of childhood leukemia, adult brain cancer, Lou Gehrig's disease, and miscarriage. The scientists were not in universal agreement that EMFs are related to other conditions such as heart disease, Alzheimer's disease, suicide, and adult leukemia.

CULTURAL RESOURCES

Cultural resources include archaeological and historical sites, buildings, structures, and objects of historic, scientific, or social value. The primary legislation that mandates Federal management and protection of cultural resources is the National Historic Preservation Act (NHPA) of 1966 (as amended in 1976, 1980, and 1992), specifically Section 106 of the act. The following evaluation of cultural resources encompasses the Project area and surrounding one-mile study area (**Figure 3-1**). The area of potential effect was determined based on the Project's potential for ground disturbance associated with the line rebuild.

EXISTING ENVIRONMENT

Western Cultural, Inc. of Missoula, Montana, conducted a cultural resource investigation to meet Section 106 of the NHPA. The literature review examined the 95-mile Project area and one-mile study area between the Wolf Point and Williston substations (Western Cultural 2002). Known sites, site leads, and manuscripts were reviewed. The subsequent field survey examined 83 miles of the existing line, encompassing a 200-foot wide area centered on the existing 115-kV line, for a total of 2,012 acres. Pedestrian transects spaced 100 feet apart covered each side of the transmission line. Areas with high probability for cultural resources, such as stream terraces, were studied using transects spaced less than 30 feet apart. Surface visibility ranged from 75 to 100 percent. A Fort Peck Tribal member was present for the entire field survey. Approximately 12 miles of the existing line was excluded from the field survey since they were covered by previous cultural resource investigations. Western Cultural's field survey also examined proposed reroute areas and two areas for location of the Williston 230-kV Substation.

No cultural resources were identified in the Project area and one-mile study area within North Dakota. The investigation identified 20 cultural resources in Montana. Fifteen of these sites are on Fort Peck Reservation land, four are on private land, and one is on both private and reservation land. The following two sites are recommended as eligible for listing on the NRHP:

- The Chelsea Church (24RV0696) is a simple Gothic Revival wooden structure built on the Fort Peck Reservation by the Presbyterian Church in 1929 as a mission to the local tribes. The church was deactivated in 2001 and is currently boarded-up. The site also includes the former pastor's residence and an active cemetery. The existing transmission line passes between the church and the cemetery. The site is recommended as eligible for listing on the NRHP under Criterion A for its association with the missionary movement and its role in the historical and social development of the local rural community.

- The road segment and bridge of U.S. Highway 2 over Tule Creek (24RV655) is located on the Fort Peck Reservation. The roadbed is 45-feet wide and has an asphalt surface. The cement slab bridge over Tule Creek is 50-feet long. This alignment dates from the 1920's and was abandoned for a new alignment developed in the 1950's. The site is recommended as eligible for listing on the NRHP under Criterion A for its association with the social, cultural, and economic development of eastern Montana.

No recommendation for eligibility for listing on the NRHP is provided at this time for the following three sites:

- A rectangular alignment of about 55 stones (24RV0688) located on the Fort Peck Reservation measures about 15 by 20 feet. The alignment is on a level terrace overlooking the Missouri River. No additional artifacts or features are available to help establish a comparative time period of use, distinctive function, or cultural affinity.

- A tipi ring with a possible hearth in the center (24RV0689) is located on the Fort Peck Reservation along a seasonal intermittent drainage to the Missouri River. About 33 stones define the ring, which is about 15 feet in diameter. No prehistoric artifacts were observed. The site cannot be placed into any temporal or cultural framework.

- A lithic scatter consisting of 13 flakes and three pieces of fire-cracked rock (24RV0697) is interpreted as an occupation site. The site is located on the Fort Peck Reservation on a level terrace overlooking the Missouri River. The site is currently a plowed agricultural field. The lack of diagnostic artifacts prevents the site from being placed into any temporal or cultural framework.

The remaining 15 cultural resources (nine sites and six isolated finds) are recommended as ineligible for listing on the NRHP. These resources include a historic trash scatter, several cairns, a homestead, a cement foundation, and lithic scatters.

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT

A significant impact on cultural resources would occur if an archaeological, tribal, or historical value site that is listed, eligible, or potentially eligible for the NRHP is not avoided or mitigated during Project construction. Construction activities during rebuilding of the transmission line could damage the two eligible and three potentially eligible sites discussed above and summarized in **Table 3-3**. The survey recommends no structures be placed within the boundaries of the Chelsea Church site. Avoidance is also recommended for the

other four sites (24RV655, 24RV0688, 24RV0689, and 24RV0697). These four sites would be located before construction, and the sites would be monitored so potential impacts would be avoided during construction activities.

Results of the surveys and recommendations were forwarded to the North Dakota and Montana State Historic Preservation Offices (SHPO), as well as the Fort Peck Tribes (Assiniboine & Sioux Tribes) and the Trenton Indian Service Area (Chippewa). Concurrence with eligibility recommendations and avoidance measures was received from the Fort Peck Tribes in a letter dated January 15, 2003. The Montana SHPO and North Dakota SHPO provided letters of concurrence dated February 12, and April 2, 2003, respectively.

TABLE 3-3
Cultural Resources in the Project Area

Site No.	Field No.	Site Type	Nearest Structure No.	Distance to Structure	NRHP* Eligibility	Recommendations
24RV0696	Chelsea Church	Historic Church	53/08	65 feet	Eligible	Avoidance during construction and maintenance of new line.
24RV655	US Hwy 2	Historic Road	50/40	80 feet	Eligible	Avoidance during construction and maintenance of new line.
24RV0688	ELF-06	Stone Alignment	79/02	90 feet	Unknown	Avoidance during construction and maintenance of new line.
24RV0689	ELF-08	Tipi Ring	80/07	120 feet	Unknown	Avoidance during construction and maintenance of new line.
24RV0697	DGF-04	Lithic Scatter	56/02	30 feet	Unknown	Avoidance during construction and maintenance of new line.

* - National Register of Historic Places

Appendix A1 specifies standards for preserving cultural resources, including discovery of unknown sites. If unknown cultural resources are discovered during construction, work within 50 feet of the site would be halted pending consultation with the Fort Peck Tribes, Montana SHPO, or North Dakota SHPO. Any required mitigations would be developed and implemented in consultation with the appropriate agency(s). Since all sites of archaeological, tribal, or historical value that is listed, eligible, or potentially eligible for the NRHP would be avoided or mitigated during construction, no significant impact on cultural resources in the Project area would occur.

NATIVE AMERICAN RELIGIOUS CONCERNS

EXISTING ENVIRONMENT

About 52 miles of the proposed 95-mile long transmission line upgrade project lie within the exterior boundaries of the Fort Peck Indian Reservation in Montana. In addition, the large Native population and trust resources associated with the Trenton Indian Service Area are concentrated at the east end of the proposed Project in North Dakota.

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT IMPACTS

A significant impact on Native American religious concerns would occur if a site of tribal religious value is not avoided or mitigated during construction of the proposed Project.

Consultation with the Fort Peck Tribes (MT) and the Trenton Indian Service Area (ND) has not revealed any sensitive cultural, religious, or traditional use areas that would be adversely impacted by the proposed Project. Specific information on identified sites and resources within the Project area, along with the relevant avoidance and/or mitigation measures to be employed, are discussed in Cultural Resources. If any such resources were discovered during inventories and maintenance activities associated with the Project, Western would consult with the Tribes to determine appropriate mitigation and avoidance measures. As a result, all sites of tribal religious value would be avoided or mitigated during construction. Therefore, no significant impact would occur on Native American religious concerns in the Project area.

RECREATION

EXISTING ENVIRONMENT

General dispersed recreational opportunities exist within the Project area, such as hunting, driving for pleasure, and recreational shooting. There are no developed recreational sites in the Project area.

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT

Significant impacts would occur if developed recreational opportunities suffered long-term disruption or displacement.

Effects on dispersed recreational opportunities in the Project area would be minor and short-term, due to Project length and area. Western anticipates no impacts on area campgrounds or recreational destinations in the area. No significant impact on recreation resources in the Project area would occur.

ENVIRONMENTAL JUSTICE

Executive Order 12898, "Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations," was issued by the White House in February 1994. The Executive Order seeks to focus Federal agency attention on the human health and environmental conditions in minority and low-income communities. It also seeks to ensure that any adverse human health and environmental effect of agency actions that may disproportionately impact minority and low-income populations, including Native American Indian Tribes, are identified and addressed. Existing laws such as NEPA provide the context and opportunity for Federal agencies to identify, address, and consider in decisions any potentially hazardous impacts.

The goal of Environmental Justice is to ensure all people are treated fairly and have opportunities to be involved with respect to developing, implementing, and enforcing environmental laws, regulations, and policies. Fair treatment means that no group

of people, including a racial, ethnic, or socioeconomic group should bear a disproportionate share of potentially adverse human health and environmental effects of a Federal agency action, operation, or program. Meaningful involvement means that potentially affected populations can participate in the decision process, and any concerns are considered in the agency's decision.

EXISTING ENVIRONMENT

See the description under *Native American Religious Concerns* for information on Tribes in the area. The Fort Peck Tribes and the Trenton Indian Service Area constitute community populations as defined in Executive Order 12898.

ENVIRONMENTAL CONSEQUENCES – DIRECT AND INDIRECT

Under Executive Order 12898, a significant impact could result if a low-income, minority, or subsistence population in the proposed Project region was disproportionately affected by the proposed Project.

Western has taken appropriate and adequate measures to ensure the Tribes and their members receive fair treatment and meaningful involvement. Through early notification, on-site meetings, direct Tribal involvement, and government-to-government consultation, Western has discussed potentially adverse impacts. During the consultation process, the Tribes concerns have been addressed, such as considering possible reroute locations, avoiding culturally or historically important resources, including tribal monitors during cultural resource inventories, and considering and avoiding sacred sites, ceremonial use areas, and possible traditional cultural properties. No potential impacts and, therefore, no significant impact on human health or the environment have been identified during the analysis or during consultation that would constitute discrimination of or disproportionate impacts on low-income, minority, and subsistence populations due to the proposed Project.

CUMULATIVE EFFECTS

Cumulative impacts could result if impacts of the proposed action added to other past, present, and reasonably foreseeable future actions occurring in the region. Significant cumulative impacts would result if impacts from the proposed Project–when added to other actions in the region–resulted in one or more significant impacts as defined for each resource area analyzed in this EA.

The reroute for structures 104/8-108/4 (**Figure 2-2**) would conflict with two proposed center pivot irrigation systems, while the existing route conflicts with one proposed wheel line irrigation system. ROW agreements were negotiated with landowners in the reroutes who understand that land use would be affected and any proposed irrigation systems would need to be redesigned or relocated. Future construction of irrigation systems would be consistent with agricultural practices in the area and is not expected to result in significant environmental impacts, whether alone or in combination with the proposed action. No other new major surface-disturbing developments are planned for the one-mile study area that could interact with the proposed action in a cumulative manner.

Impacts on wildlife from project implementation would be in addition to all other impacts on wildlife, including predation, hunting, disease, human disturbance, and vehicle collisions. Direct

mortality to waterfowl, shorebirds, and raptors from collisions with the transmission line would be additive (in addition to other causes of mortality). However, impacts associated with the proposed Project are expected to be minor and, due to mitigation measures, less than that already occurring. Direct and indirect mortality to other groups of wildlife, such as small mammals, songbirds, big game, predators, reptiles, and amphibians from Project implementation is expected to be minimal or non-existent, and would not contribute to adverse cumulative impacts on wildlife from other sources.

The impacts of past, present or reasonably foreseeable activities combined with the impacts from the proposed action would not have a significant impact on any of the resources discussed using the significance measurements included in each section.

CHAPTER 4
CONSULTATION, COORDINATION, AND PREPARATION

LIST OF PREPARERS AND REVIEWERS

U.S. DEPARTMENT OF ENERGY - WESTERN AREA POWER ADMINISTRATION

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Dave Swanson–NEPA Team Lead
John Bridges–Terrestrial Biologist
Mary Barger–Historic Preservation Officer
Joe Giliberti–Archaeologist
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Samantha Fontenelle–Tetra Tech, Program Coordinator
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Pat Mullen–Project Manager/Biological Sciences Coordinator
Doug Rogness–Physical Sciences Coordinator
Joe Murphy–Social Sciences Coordinator, Document Control
Tom Butts–Wildlife/Threatened and Endangered Species
Gretchen Meier–Vegetation
Bonnie Johnson–Document Production

SUBCONTRACTORS

Dan Hall–Western Cultural

AGENCIES CONTACTED/CONSULTED

FEDERAL AGENCIES

U.S. Department of the Interior, Fish and Wildlife Service
U.S. Army Corps of Engineers
U.S. Department of the Interior, Bureau of Indian Affairs
U.S. Department of the Interior, Bureau of Reclamation

STATE AGENCIES

Montana Department of Environmental Quality
Montana Department of Natural Resources and Conservation
Montana Department of Fish, Wildlife, and Parks
Montana Department of Transportation
Montana State Historic Preservation Office
North Dakota State Historic Preservation Office

TRIBES

Assiniboine and Sioux Tribes, Fort Peck Reservation, MT
Trenton Indian Service Area, Trenton, ND

SUMMARY OF RESPONSES ON THE DRAFT ENVIRONMENTAL ASSESSMENT RECEIVED DURING THE COMMENT PERIOD (January 22-February 21, 2003)

Entity	Comment Summary	EA Response
Montana Department of Environmental Quality	Requests clarification of future line voltage, reroute length, highway ROW encroachment, pole spacing and wire diameters, and purpose and need for proposed action. Indicates MDEQ MPDES and 318 permits may be required and solid or hazardous waste must be disposed of properly.	Added clarifying language to Chapters 1 and 2. Permit and waste handling acknowledged in Table 1-1.
Montana Department of Environmental Quality	Requests additional discussion on reroutes, line marking devices, magnetic fields, and interactions with proposed irrigation projects.	Additional discussion provided in Chapter 3.
Montana Department of Environmental Quality and U.S. Bureau of Reclamation	Requests additional information on cultural resources.	Included in Chapter 3 additional information from cultural survey report, and procedures if unknown resources are discovered.
U.S. Fish and Wildlife Service	Requests use of native seed mix for disturbed native prairie, and clarification of measures to reduce electrocution of raptors and reduce bird mortality due to line strikes.	Stated in Chapter 3 that native seed mixes would be used as appropriate, and clarified measures to protect birds.

CHAPTER 5
REFERENCES

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APPENDIX A1

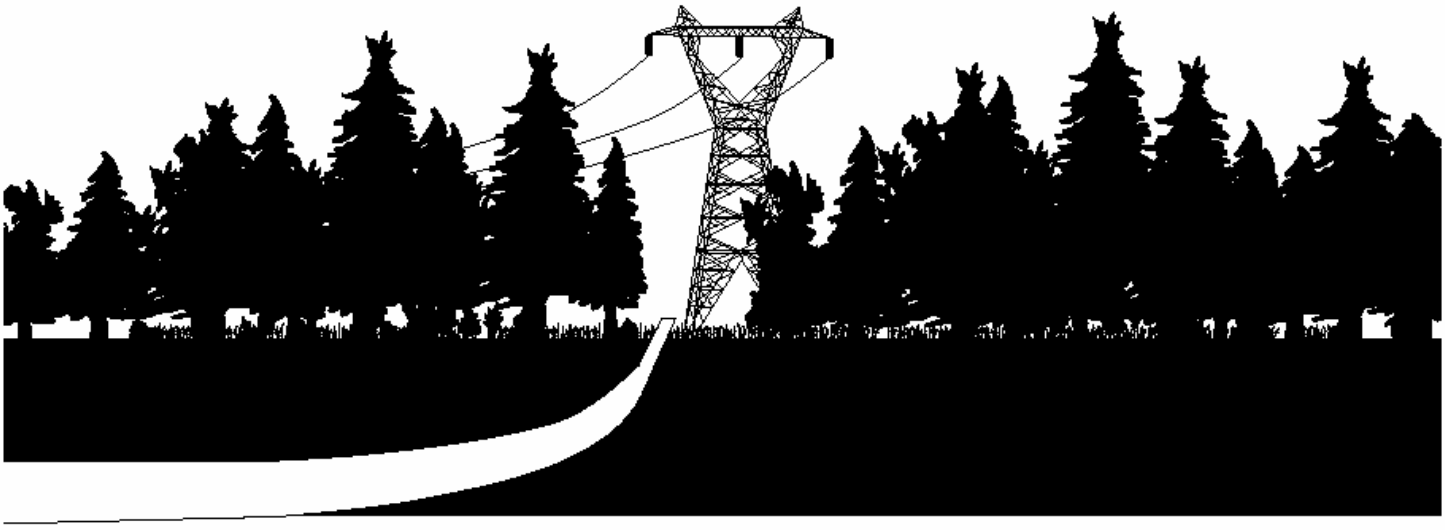
Western's Standard Construction Practices

Western
AREA POWER
ADMINISTRATION

CONSTRUCTION STANDARDS

STANDARD 13

ENVIRONMENTAL QUALITY PROTECTION



February 2003

SAFETY
A HABIT TO LIVE BY

STANDARD 13 - ENVIRONMENTAL QUALITY PROTECTION

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STANDARD 13 - ENVIRONMENTAL QUALITY PROTECTION

SECTION 13.1--CONTRACTOR FURNISHED DATA

1. RECYCLED MATERIAL QUANTITY REPORT: Submit quantities for recycled material listed in Section 13.6, "Recycled Material Quantities", to the COR after completion and prior to submittal of final invoice.

2. PRODUCTS CONTAINING RECOVERED MATERIAL REPORT: Provide the COR the following information for purchases of items listed in Section 13.7, "Use of Products Containing Recovered Material":

   (1) Quantity and cost of listed items with recovered material content and quantity and cost of listed items without recovered material content after completion and prior to submittal of final invoice.

   (2) Written justification 7 days prior to purchase of listed items if recovered material content products are not available: 1) competitively within a reasonable time frame; 2) that meet performance criteria defined in the Standards or Project Specifications; or 3) at a reasonable price.

3. RECLAIMED REFRIGERANT RECEIPT: A receipt from the reclaimer stating that the refrigerant was reclaimed, the amount and type of refrigerant, and the date shall be submitted to the COR after completion and prior to submittal of final invoice in accordance with Section 13.8.5, “Refrigerants And Receipts”.

4. WASTE MATERIAL QUANTITY REPORT: Submit quantities of total project waste material disposal as listed below to the COR after completion and prior to submittal of final invoice in accordance with Section 13.8.8, “Waste Material Quantity Report”.

   (1) Sanitary Wastes: Volume in cubic yards or weight in pounds.

   (2) Hazardous or Universal Wastes: Weight in pounds.

   (3) PCB Wastes: Weight in pounds.

   (4) Other regulated wastes (e.g., lead-based paint or asbestos): Weight in pounds (specify type of waste in report).

5. SPILL PREVENTION NOTIFICATION AND CLEANUP PLAN (Plan): Submit the Plan as described in Section 13.10.2, "Spill Prevention Notification and Cleanup Plan”, to the COR for approval 14 days prior to start of work. Approval of the Plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations.

6. TANKER OIL SPILL PREVENTION AND RESPONSE PLAN: Submit the Plan as described in Section 13.10.3, "Tanker Oil Spill Prevention and Response Plan”, to the COR for approval 14 days prior to start of work. Approval of the Plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations.

7. PESTICIDE USE PLAN: Submit one copy of a pesticide use plan as described in Section 13.11.3, “Pesticide Use Plan”, to the COR for approval 14 days prior to use. Approval of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations. Within seven days

after application, submit a written report in accordance with Standard 2 – Sitework, Section 2.1.1.5, "Soil-Applied Herbicide".

8. TREATED WOOD POLE AND MEMBERS RECYCLING CONSUMER INFORMATION RECEIPT: Submit treated wood pole and members consumer receipt forms to the COR after completion and prior to submittal of final invoice (see 13.12, "Treated Wood Poles and Members Recycling or Disposal").

9. PREVENTION OF AIR POLLUTION: Submit a copy of permits, if required, from Federal, State, or local agencies to the COR 14 days prior to the start of work.

10. ASBESTOS LICENSES OR CERTIFICATIONS: Submit a copy of licenses and/or certifications for asbestos work as described in 13.14, "Handling and Management of Asbestos Containing Material" paragraph a., to the COR prior to work. Submit copies of certificates of disposal and/or receipts for waste to the COR after completion and prior to submittal of final invoice.

11. LEAD PAINT NOTICES: Submit a copy of lead paint notices as described in 13.15, "Material with Lead-based Paint" paragraph b., to the COR upon completion and prior to submittal of final invoice. Submit copies of certificates of disposal and/or receipts for waste to the COR after completion and prior to submittal of final invoice.

12. WATER POLLUTION PERMITS: Submit copies of any water pollution permits as described in 13.16, "Prevention of Water Pollution" paragraph b., to the COR prior to work.

13. PCB TEST REPORT: Submit a PCB test report as described in 13.17, "Testing, Draining, Removal, and Disposal of Oil-filled Electrical Equipment" paragraph b., prior to draining, removal, or disposal of oil or oil-filled equipment that is designated for disposal.

14. OIL AND OIL-FILLED ELECTRICAL EQUIPMENT RECEIPT: Obtain and submit a receipt for oil and oil-filled equipment transported and disposed, recycled, or reprocessed as described in 13.17, "Testing, Draining, Removal, and Disposal of Oil-filled Electrical Equipment", to the COR upon completion and prior to submittal of final invoice.

15. OSHA PCB TRAINING RECORDS: Submit employee training documentation records to the COR 14 days prior to the start of work as described in 13.18.1.

16. CLEANUP WORK MANAGEMENT PLAN: Submit a Cleanup Work Management Plan as described in 13.18, "Removal of Oil-contaminated Material" paragraph b., to the COR for approval 14 days prior to the start of work. Approval of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations.

17. POST CLEANUP REPORT: Submit a Post-Cleanup Report as described in 13.18, "Removal of Oil-contaminated Material" paragraph g., to the COR upon completion and prior to submittal of final invoice.

SECTION 13.2--ENVIRONMENTAL REQUIREMENTS

Comply with Federal, State, and local environmental laws and regulations. The sections in this Standard further specify the requirements.

SECTION 13.3--LANDSCAPE PRESERVATION

1. GENERAL: Preserve landscape features in accordance with the contract clause titled “Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements.”

2. CONSTRUCTION ROADS: Location, alignment, and grade of construction roads shall be subject to the COR's approval. When no longer required, construction roads shall be restored to their original condition. Surfaces of construction roads shall be scarified to facilitate natural revegetation, provide for proper drainage, and prevent erosion. If revegetation is required, then use regionally native plants.

3. CONSTRUCTION FACILITIES: Shop, office, and yard areas shall be located and arranged in a manner to preserve trees and vegetation to the maximum practicable extent and prevent impact on sensitive riparian areas and flood plains. Storage and construction buildings, including concrete footings and slabs, shall be removed from the site prior to contract completion. The area shall be regraded as required so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate natural revegetation, provide for proper drainage, and prevent erosion. If revegetation is required, then use regionally native plants.

SECTION 13.4--PRESERVATION OF CULTURAL AND PALEONTOLOGICAL RESOURCES

1. GENERAL: Do not remove or alter cultural artifacts or paleontological resources (fossils). Cultural artifacts are of potential scientific or cultural importance and include bones, tools, historic buildings, and features. Paleontological resources can be of scientific importance and include mineralized animals and plants or trace fossils such as footprints. Both cultural and paleontological resources are protected by Federal Regulations during Federal construction projects.

2. KNOWN CULTURAL OR PALEONTOLOGICAL SITES: Following issuance of notice to proceed, Western will provide two sets of plan and profile drawings showing sensitive areas located on or immediately adjacent to the transmission line right-of-way and/or facility. These areas shall be considered avoidance areas. Prior to any construction activity, the avoidance areas shall be marked on the ground in a manner approved by the COR. Instruct employees, subcontractors, and others that vehicular or equipment access to these areas is prohibited. If access is absolutely necessary, first obtain approval from the COR. Ground markings shall be maintained throughout the duration of the contract. Western will remove the markings during or following final cleanup. For some project work, Western will require an archaeological, paleontological or tribal monitor at or near cultural or paleontological site locations. The contractor will work with the monitor to identify avoidance areas.

3. UNKNOWN CULTURAL OR PALEONTOLOGICAL SITES: On rare occasions cultural or paleontological sites may be discovered during excavation or other earth-moving activities.

   (1) Reporting: If evidence of a cultural or paleontological site is discovered, immediately notify the COR and give the location and nature of the findings. Stop all activities within a 50-foot radius of the discovery and do not proceed with work within that radius until directed to do so by the COR.

   (2) Care of Evidence: Do not damage artifacts or fossils uncovered during construction.

4. CONTRACT ADJUSTMENTS: Where appropriate by reason of delays caused by a discovery, the Contracting Officer may make adjustments to contract requirements.

STANDARD 13 - ENVIRONMENTAL QUALITY PROTECTION

SECTION 13.5--NOXIOUS WEED CONTROL

1. GENERAL: Comply with Federal, state, and local noxious weed control regulations. Provide a "clean vehicle policy" while entering and leaving construction areas to prevent transport of noxious weed plants and/or seed. Transport only construction vehicles that are free of mud and vegetation debris to staging areas and the project right-of-way.

SECTION 13.6--RECYCLED MATERIAL QUANTITIES

1. GENERAL: Record quantities of the following material by category that is salvaged, recycled, reused, or reprocessed:

   (1) Transformers, Breakers: Weight without oil.

   (2) Electrical Conductors: Length in feet and Type (for example, ACSR, Copper, and gauge).

   (3) Structural Steel: Weight in pounds or tons.

   (4) Aluminum Buswork: Weight in pounds or tons.

   (5) Other Metals: Weight in pounds or tons.

   (6) Oil: Gallons (separate by type - less than 2 ppm PCB, 2 to 50 ppm PCB, and 50 or greater ppm PCB).

   (7) Gravel, Asphalt, Or Concrete: Weight in pounds or tons.

   (8) Batteries: Weight in pounds.

   (9) Wood Poles and Crossarms: Weight in pounds.

2. RECYCLED MATERIAL QUANTITY REPORT: Submit quantities for recycled material listed above to the COR after completion and prior to submittal of final invoice.

SECTION 13.7--USE OF PRODUCTS CONTAINING RECOVERED MATERIAL

1. GENERAL: If the products listed below are obtained as part of this project, purchase the items with the highest recovered material content possible unless recovered material content products are not available: 1) competitively within a reasonable time frame; 2) that meet performance criteria defined in the Standards or Project Specifications; or 3) at a reasonable price.

   (1) Construction Products:

   - Building Insulation Products
   - Carpet
   - Carpet cushion
   - Cement and concrete containing coal fly ash or ground granulated blast furnace slag
   - Consolidated and reprocessed latex paint
   - Floor Tiles
   - Flowable fill
   - Laminated Paperboard
   - Patio Blocks
   - Railroad grade crossing surfaces
   - Shower and restroom dividers/partitions

- Structural Fiberboard

(2) Landscaping Products:

- Compost made from yard trimmings or food waste
- Garden and soaker hoses
- Hydraulic Mulch
- Lawn and garden edging
- Plastic lumber landscaping timbers and posts

(3) Non-paper Office Products:

- Binders, clipboards, file folders, clip portfolios, and presentation folders
- Office recycling containers
- Office waste receptacles
- Plastic desktop accessories
- Plastic envelopes
- Plastic trash bags
- Printer ribbons
- Toner cartridges

(4) Paper and Paper Products:

- Commercial/industrial sanitary tissue products
- Miscellaneous papers
- Newsprint
- Paperboard and packaging products
- Printing and writing papers

(5) Park and Recreation Products:

- Park benches and picnic tables
- Plastic fencing
- Playground equipment
- Playground surfaces
- Running tracks

(6) Transportation Products:

- Channelizers
- Delineators
- Flexible delineators
- Parking stops
- Traffic barricades
- Traffic cones

(7) Vehicular Products:

- Engine coolants
- Re-refined lubricating oils
- Retread tires

(8) Miscellaneous Products:

- Awards and plaques
- Industrial drums
- Manual-grade strapping
- Mats
- Pallets
- Signage
- Sorbents

(9) For a complete listing of products and recommendations for recovered content, see http://www.epa.gov/cpg/products.htm

2. PRODUCTS CONTAINING RECOVERED MATERIAL REPORT: Provide the COR the following information for purchases of those items listed above:

(1) Quantity and cost of listed items with recovered material content and quantity and cost of listed items without recovered material content after completion and prior to submittal of final invoice.

(2) Written justification 7 days prior to purchase of listed items if recovered material content products are not available: 1) competitively within a reasonable time frame; 2) that meet performance criteria defined in the Standards or Project Specifications; or 3) at a reasonable price.

SECTION 13.8--DISPOSAL OF WASTE MATERIAL

1. GENERAL: Dispose or recycle waste material in accordance with applicable Federal, State and Local regulations and ordinances. In addition to the requirements of the Contract Clause “Cleaning Up”, remove all waste material from the construction site. No waste shall be left on Western property, right-of-way, or easement. Burning or burying of waste material is not permitted.

2. HAZARDOUS, UNIVERSAL, AND NON-HAZARDOUS WASTES: Manage hazardous, universal, and non-hazardous wastes in accordance with State and Federal regulations.

3. USED OIL: Used oil generated from the Contractor activities shall be managed in accordance with used oil regulations.

4. RECYCLABLE MATERIAL: Reduce wastes, including excess Western material, by recycling, reusing, or reprocessing. Examples of recycling, reusing, or reprocessing include reprocessing of solvents; recycling cardboard; and salvaging scrap metals.

5. REFRIGERANTS AND RECEIPTS: Refrigerants from air conditioners, water coolers, refrigerators, ice machines and vehicles shall be reclaimed with certified equipment operated by certified technicians if the item is to be disposed. Refrigerants shall be reclaimed and not vented to the atmosphere. A receipt from the reclaimer stating that the refrigerant was reclaimed, the amount and type of refrigerant, and the date shall be submitted to the COR after completion and prior to submittal of final invoice.

6. HALONS: Equipment containing halons that must be tested, maintained, serviced, repaired, or disposed must be handled according to EPA requirements and by technicians trained according to those requirements.

7. SULFUR HEXAFLOURIDE (SF6): SF6 shall be reclaimed and not vented to the atmosphere.

8. WASTE MATERIAL QUANTITY REPORT: Submit quantities of total project waste material disposal as listed below to the COR after completion and prior to submittal of final invoice.

   (1) Sanitary Wastes: Volume in cubic yards or weight in pounds.

   (2) Hazardous or Universal Wastes: Weight in pounds.

   (3) PCB Wastes: Weight in pounds.

   (4) Other regulated wastes (e.g., lead-based paint or asbestos): Weight in pounds (specify type of waste in report).

SECTION 13.9--CONTRACTOR'S LIABILITY FOR REGULATED MATERIAL INCIDENTS

1. GENERAL: The Contractor is solely liable for all expenses related to spills, mishandling, or incidents of regulated material attributable to his actions or the actions of his subcontractors. This includes all response, investigation, cleanup, disposal, permitting, reporting, and requirements from applicable environmental regulation agencies.

2. SUPERVISION: The actions of the Contractor employees, agents, and subcontractors shall be properly managed at all times on Western property or while transporting Western's (or previously owned by Western) regulated material and equipment.

SECTION 13.10--POLLUTANT SPILL PREVENTION, NOTIFICATION, AND CLEANUP

1. GENERAL: Provide measures to prevent spills of pollutants and respond appropriately if a spill occurs. A pollutant includes any hazardous or non-hazardous substance that when spilled, will contaminate soil, surface water, or ground water. This includes any solvent, fuel, oil, paint, pesticide, engine coolants, and similar substances.

2. SPILL PREVENTION NOTIFICATION AND CLEANUP PLAN (Plan): Provide the Plan to the COR for approval 14 days prior to start of work. Approval of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations. Include the following in the Plan:

   (1) Spill Prevention measures. Describe the work practices or precautions that will be used at the job site to prevent spills. These may include engineered or manufactured techniques such as installation of berms around fuel and oil tanks; Storage of fuels, paints, and other substances in spill proof containers; and management techniques such as requiring workers to handle material in certain ways.

   (2) Notification. Most States and the Environmental Protection Agency require by regulation, that anyone who spills certain types of pollutants in certain quantities notify them of the spill within a specific time period. Some of these agencies require written follow up reports and cleanup reports. Include in the Plan, the types of spills for which notification would be made, the agencies notified, the information the agency requires during the notification, and the telephone numbers for notification.

   (3) Employee Awareness Training. Describe employee awareness training procedures that will be implemented to ensure personnel are knowledgeable about the contents of the Plan and the need for notification.

   (4) Commitment of Manpower, Equipment and Material. Identify the arrangements made to respond to spills, including the commitment of manpower, equipment and material.

(5) If applicable, address all requirements of 40CFR112 pertaining to Spill Prevention, Control and Countermeasures Plans.

3. TANKER OIL SPILL PREVENTION AND RESPONSE PLAN: Provide a Tanker Oil Spill Prevention and Response Plan as required by the Department of Transportation if oil tankers with volume of 3,500 gallons or more are used as part of the project. Submit the Tanker Oil Spill Prevention and Response Plan to the COR for approval 14 days prior to start of work. Approval of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations.

SECTION 13.11--PESTICIDES

1. GENERAL: The term "pesticide" includes herbicides, insecticides, rodenticides and fungicides. Pesticides shall only be used in accordance with their labeling.

2. ENVIRONMENTAL PROTECTION AGENCY REGISTRATION: Use EPA registered pesticides.

3. PESTICIDE USE PLAN: The plan shall contain: 1) a description of the pesticide to be used, 2) where it is to be applied, 3) the application rate, 4) a copy of the label, and 5) a copy of required applicator certifications. Submit two copies of the pesticide use plan to the COR for approval 30 days prior to the date of intended application. Approval of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations. Within seven days after application, submit a written report in accordance with Standard 2 – Sitework, Section 2.1.1.5, "Soil-Applied Herbicide".

SECTION 13.12--TREATED WOOD POLES AND MEMBERS RECYCLING OR DISPOSAL

Whenever practicable, treated wood poles and members removed during the project shall be recycled or transferred to the public for some uses. Treated wood poles and members transferred to a recycler, landfill, or the public shall be accompanied by a written consumer information sheet on treated wood as provided by Western. Obtain a receipt form, part of the consumer information sheet, from the recipient indicating that they have received, read, and understand the consumer information sheet. Treated wood products transferred to right-of-way landowners shall be moved off the right-of-way. Treated wood product scrap or poles and members that cannot be donated or reused shall be properly disposed in a landfill that accepts treated wood and has signed Western's consumer information sheet receipt. Submit treated wood pole and members consumer receipt forms to the COR after completion and prior to submittal of final invoice.

SECTION 13.13--PREVENTION OF AIR POLLUTION

1. GENERAL: Ensure that construction activities and the operation of equipment are undertaken to reduce the emission of air pollutants. Submit a copy of permits, if required, from Federal, State, or local agencies to the COR 14 days prior to the start of work.

2. MACHINERY AIR EMISSIONS: The Contractor and subcontractor machinery shall have, and shall use the air emissions control devices required by Federal, State or Local Regulation or ordinance.

3. DUST ABATEMENT: Dust shall be controlled. Oil shall not be used as a dust suppressant. Dust suppressants shall be approved by the COR prior to use.

SECTION 13.14--HANDLING AND MANAGEMENT OF ASBESTOS CONTAINING MATERIAL

1. GENERAL: Obtain the appropriate Federal, State or local licenses or certifications prior to disturbing any regulated asbestos-containing material. Submit a copy of licenses and/or certifications for asbestos work to the COR prior to work. Ensure: 1) worker and public safety requirements are fully implemented and 2) proper handling, transportation, and disposal of asbestos containing material.

2. TRANSPORTATION OF ASBESTOS WASTE: Comply with Department of Transportation, Environmental Protection Agency, and State and Local requirements when transporting asbestos wastes.

3. CERTIFICATES OF DISPOSAL AND RECEIPTS: Obtain certificate of disposals for waste if the waste is a hazardous waste or receipts if the waste is a non-hazardous waste. Submit copies to the COR after completion and prior to submittal of final invoice.

SECTION 13.15--MATERIAL WITH LEAD-BASED PAINT

1. GENERAL: Comply with all applicable Federal, State and local regulations concerning work with lead-based paint, disposal of material painted with lead-based paint, and management of these material. OSHA and General Industry Standards apply to worker safety and right-to-know issues. Federal EPA and State agencies regulate waste disposal and air quality issues.

2. TRANSFER OF PROPERTY: If lead-based paint containing equipment or material is to be given away or sold for reuse, scrap, or reclaiming, a written notice shall be provided to the recipient of the material stating that the material contains lead-based paint and the Hazardous Waste regulations may apply to the waste or the paint in some circumstances. The new owner must also be notified that they may be responsible for compliance with OSHA requirements if the material is to be cut, sanded, abraded, or stripped of paint. Submit a copy of lead paint notices to the COR upon completion and prior to submittal of final invoice.

3. CERTIFICATES OF DISPOSAL AND RECEIPTS: Obtain certificate of disposals for waste if the waste is a hazardous waste or receipts if the waste is a non-hazardous waste. Submit copies to the COR after completion and prior to submittal of final invoice.

SECTION 13.16--PREVENTION OF WATER POLLUTION

1. GENERAL: Ensure that surface and ground water is protected from pollution caused by construction activities and comply with applicable regulations and requirements.

2. PERMITS: Ensure that:

   (1) Streams, and other waterways or courses are not obstructed or impaired, unless the appropriate Federal, State or local permits have been obtained;

   (2) A National Pollutant Discharge Elimination System (NPDES) Permit for the Prevention of Stormwater Pollution from Construction Projects is obtained if required by State or Federal regulation; and

   (3) A dewatering permit is obtained from the appropriate agency if required for construction dewatering activities.

   (4) Submit copies of any water pollution permits to the COR prior to work.

3. EXCAVATED MATERIAL AND OTHER CONTAMINANT SOURCES: Control runoff from excavated areas and piles of excavated material, construction material or wastes (to include truck washing and concrete wastes), and chemical products such as oil, grease, solvents, fuels, pesticides, and pole treatment compounds. Excavated material or other construction material shall not be stockpiled or deposited near or on streambanks, lake shorelines, ditches, irrigation canals, or other areas where run-off could impact the environment.

4. MANAGEMENT OF WASTE CEMENT OR WASHING OF CEMENT TRUCKS: Do not permit the washing of cement trucks or disposal of excess cement in any ditch, canal, stream, or other surface water. Cement wastes shall be disposed in accordance with all Federal, State, and local regulations. Cement wastes shall not be disposed on any Western property, right-of-way, or easement; nor on any streets, roads, or property without the owner's consent.

5. STREAM CROSSINGS: Crossing of any stream or other waterway shall be done in compliance with Federal, State, and local regulations. Crossing of some waterways may be prohibited by landowners, State or Federal agencies or require permits.

SECTION 13.17--TESTING, DRAINING, REMOVAL, AND DISPOSAL OF OIL-FILLED ELECTRICAL EQUIPMENT

1. SAMPLING AND TESTING OF INSULATING OIL FOR PCB CONTENT: Sample and analyze the oil of electrical equipment for PCB's. Use analytical methods approved by EPA and applicable State regulations. Decontaminate sampling equipment according to documented good laboratory practices (these can be contractor developed or EPA standards). Use only laboratories approved by Western. The COR will furnish a list of approved laboratories.

2. PCB TEST REPORT: Provide PCB test reports that contain the information below for disposing of oil-filled electrical equipment. Submit the PCB test report prior to draining, removal, or disposal of oil or oil-filled equipment that is designated for disposal.

   - Name and address of the laboratory
   - Description of the electrical equipment (e.g. transformer, breaker)
   - Serial number for the electrical equipment.
   - Date sampled
   - Date tested
   - PCB contents in parts per million (ppm)
   - Unique identification number of container into which the oil was drained (i.e., number of drum, tank, tanker, etc.)

3. OIL CONTAINING PCB: Comply with the Federal regulations pertaining to PCBs found at Title 40, Part 761 of the U.S. Code of Federal Regulations (40 CFR 761).

4. REMOVAL AND DISPOSAL OF INSULATING OIL AND OIL-FILLED ELECTRICAL EQUIPMENT: Once the PCB content of the oil has been identified from laboratory results, the oil shall be transported and disposed, recycled, or reprocessed according to 40 CFR 761 (if applicable), Resource Conservation and Recovery Act (RCRA) "used oil", and other applicable regulations. Used oil may be transported only by EPA-registered used oil transporters. The oil must be stored in containers that are labeled "Used Oil." Use only U.S. transporters and disposal sites approved by Western.

5. OIL AND OIL-FILLED ELECTRICAL EQUIPMENT RECEIPT: Obtain and submit a receipt for oil and oil-filled equipment transported and disposed, recycled, or reprocessed to the COR upon completion and prior to submittal of final invoice.

SECTION 13.18--REMOVAL OF OIL-CONTAMINATED MATERIAL

1. GENERAL: Removing oil-contaminated material includes excavating, stockpiling, testing, transporting, cleaning, and disposing of these material. Personnel working with PCBs shall be trained in accordance with OSHA requirements. Submit employee training documentation records to the COR 14 days prior to the start of work.

2. CLEANUP WORK MANAGEMENT PLAN: Provide a Cleanup Work Management Plan that has been approved by applicable Federal, State, or Local environmental regulation agencies. Submit the plan to the COR for approval 14 days prior to the start of work. Approval of the plan is for the purpose of determining compliance with the specifications only and shall not relieve the Contractor of the responsibility for compliance with all Federal, State, and Local regulations. The plan shall address on-site excavation of contaminated soil and debris and include the following:

   - Identification of contaminants and areas to be excavated
   - Method of excavation
   - Level of personnel/subcontractor training
   - Safety and health provisions
   - Sampling requirements including quality control, laboratory to be used
   - Management of excavated soils and debris
   - Disposal methods, including transportation to disposal

3. EXCAVATION AND CLEANUP: Comply with the requirements of Title 40, Part 761 of the U.S. Code of Federal Regulations (40 CFR 761).

4. TEMPORARY STOCKPILING: Excavated material, temporarily stockpiled on site, shall be stored on heavy plastic and covered to prevent wind and rain erosion at a location designated by the COR.

5. SAMPLING AND TESTING: Sample contaminated debris and areas of excavation to ensure that contamination is removed. Use personnel with experience in sampling and, in particular, with experience in PCB cleanup if PCBs are involved. Use analytical methods approved by EPA and applicable State regulations.

6. TRANSPORTION AND DISPOSAL OF CONTAMINATED MATERIAL: The Contractor shall be responsible and liable for the proper loading, transportation, and disposal of contaminated material according to Federal, State, and local requirements. Use only U.S. transporters and disposal sites approved by Western.

7. POST CLEANUP REPORT: Provide a Post-Cleanup Report that describes the cleanup of contaminated soils and debris. Submit the report to the COR upon completion and prior to submittal of final invoice. The report shall contain the following information:

   - Site map showing the areas cleaned
   - Description of the operations involved in excavating, storing, sampling, and testing, and disposal
   - Sampling and analysis results including 1) Name and address of the laboratory, 2) sample locations, 3) sample dates, 4) analysis dates, 5) contents of contaminant (e.g. PCB or total petroleum hydrocarbons) in parts per million (ppm)
   - Certification by the Contractor that the cleanup requirements were met
   - Copies of any manifests, bills of lading, and disposal certificates
   - Copies of correspondence with regulatory agencies that support completion of the cleanup

STANDARD 13 - ENVIRONMENTAL QUALITY PROTECTION

SECTION 13.19—CONSERVATION OF NATURAL RESOURCES

1. GENERAL: Federal law prohibits the taking of endangered, threatened, proposed or candidate wildlife and plants, and destruction or adverse modification of designated Critical Habitat. Federal law also prohibits the taking of birds protected by the Migratory Bird Treaty Act. "Take" means to pursue, hunt, shoot, wound, kill, trap, capture or collect a protected animal or any part thereof, or attempt to do any of those things.

2. KNOWN OCCURRENCE OF PROTECTED SPECIES OR HABITAT: Following issuance of the notice to proceed, and prior to the start of construction, Western will provide training to all contractor and subcontractor personnel involved in the construction activity. Untrained personnel shall not be allowed in the construction area. Western shall provide two sets of plan and profile drawings showing sensitive areas located on or immediately adjacent to the transmission line right-of-way and/or facility. These areas shall be considered avoidance areas. Prior to any construction activity, the avoidance areas shall be marked on the ground in a manner approved by the COR. If access is absolutely necessary, first obtain permission from the COR, noting that a Western and/or other government or tribal agency biologist may be required to accompany personnel and equipment. Ground markings shall be maintained through the duration of the contract. Western will remove the markings during or following final inspection of the project.

3. UNKNOWN OCCURRENCE OF PROTECTED SPECIES OR HABITAT: If evidence of a protected species is found in the project area, the contractor shall immediately notify the COR and provide the location and nature of the findings. The contractor shall stop all activity in the vicinity of the protected species or habitat and not proceed until directed to do so by the COR.

4. CONTRACT ADJUSTMENTS: Where appropriate by reason of delays caused by a discovery, the Contracting Officer may make adjustments to contract requirements.

APPENDIX A2

Standard Mitigative Measures for Construction, Operation, and Maintenance of Transmission Lines

APPENDIX A2. STANDARD MITIGATIVE PRACTICES

Mitigation

Measure

1. The contractor shall limit the movement of its crews and equipment to the right-of-way (ROW), including access routes. The contractor shall limit movement on the ROW so as to minimize damage to grazing land, crops, or property, and shall avoid marring the land.

2. When weather and ground conditions permit, the contractor shall obliterate all contractor-caused deep ruts that are hazardous to farming operations and to movement of equipment. Such ruts shall be leveled, filled, and graded, or otherwise eliminated in an approved manner. In hay meadows, alfalfa fields, pastures, and cultivated productive lands, ruts, scars, and compacted soils shall have the soil loosened and leveled by scarifying, harrowing, discing, or other approved methods. Damage to ditches, tile drains, terraces, roads, and other features of the land shall be corrected. Before final acceptance of the work in these agricultural areas, all ruts shall be obliterated, and all trails and areas that are hard-packed as a result of contractor operations shall be loosened, leveled, and reseeded. The land and facilities shall be restored as nearly as practicable to their original conditions.

3. Water bars or small terraces shall be constructed across all ROW and access roads on hillsides to prevent water erosion and to facilitate natural revegetation.

4. The contractor shall comply with all Federal, State, and local environmental laws, orders, and regulations. Prior to construction, all supervisory construction personnel and heavy equipment operators will be instructed on the protection of cultural and ecological resources.

5. The contractor shall exercise care to preserve the natural landscape and shall conduct its construction operations so as to prevent any unnecessary destruction, scarring, or defacing of the natural surroundings in the vicinity of the work. Except where clearing is required for permanent works, approved construction roads, or excavation operations, all trees, native shrubbery, and vegetation shall be preserved and shall be protected from damage by the contractor's construction operations and equipment. The edges of clearings and cuts through tree, shrubbery, or other vegetation shall be irregularly shaped to soften the undesirable visual impact of straight lines. Where such clearing occurs in the Lake Mead National Recreation Area, the contractor shall consult with the on-site Park Representative.

6. On completion of the work, all work areas except access roads shall be scarified or left in a condition which will facilitate natural revegetation, provide for proper drainage, and prevent erosion. All destruction, scarring, damage, or defacing of the landscape resulting from the contractor's operations shall be repaired by the contractor.

7. Construction staging areas shall be located and arranged in a manner to preserve trees and vegetation to the maximum practicable extent. On abandonment, all storage and construction buildings, including concrete footings and slabs, and all construction materials and debris

shall be removed from the site. The area shall be regraded as required so that all surfaces drain naturally, blend with the natural terrain, and are left in a condition that will facilitate natural revegetation, provide for proper drainage, and prevent erosion.

8. Borrow pits shall be excavated so that water will not collect and stand therein. Before being abandoned, the sides of borrow pits shall be brought to stable slopes, with slope intersections shaped to carry the natural contour of adjacent undisturbed terrain into the pit or borrow area giving a natural appearance. Waste piles shall be shaped to provide a natural appearance.

9. Construction activities shall be performed by methods that will prevent entrance, or accidental spillage, of solid matter contaminants, debris, any other objectionable pollutants and wastes into streams, flowing or dry watercourses, lakes, and underground water sources. Such pollutants and waste include, but are not restricted to refuse, garbage, cement, concrete, sanitary waste, industrial waste, radioactive substances, oil and other petroleum products, aggregate processing tailing, mineral salts, and thermal pollution.

10. Dewatering work for structure foundations or earthwork operations adjacent to, or encroaching on, streams or watercourses, shall be conducted in a manner to prevent muddy water and eroded materials from entering the streams or watercourses by construction of intercepting ditches, bypass channels, barriers, settling ponds, or by other approved means.

11. Excavated material or other construction materials shall not be stockpiled or deposited near or on stream banks, lake shorelines, or other watercourse perimeters where they can be wasted away by high water or storm runoff or can in any way encroach upon the actual watercourse itself.

12. Waste waters from concrete batching, or other construction operations shall not enter streams, watercourses, or other surface waters without the use of such turbidity control methods as settling ponds, gravel-filter entrapment dikes, approved flocculating processes that are not harmful to fish, recirculation systems for washing of aggregates, or other approved methods. Any such waste waters discharged into surface waters shall be essentially free of settleable material. For the purpose of these specifications, settleable material as defined as that material which will settle from the water by gravity during a 1-hour quiescent detention period.

13. The contractor shall utilize such practicable methods and devices as are reasonably available to control, present, and otherwise minimize atmospheric emissions or discharges of air contaminants.

14. The emission of dust into the atmosphere will not be permitted during the manufacture, handling, and storage of concrete aggregate, and the contractor shall use such methods and equipment as necessary for the collection and disposal, or prevention, of dust during these operations. The contractor's methods of storing and handling cement and pozzolans shall also include means of eliminating atmospheric discharges of dust.

15. Equipment and vehicles that show excessive emissions of exhaust gases due to poor engine adjustments, or other inefficient operating conditions, shall not be operated until repairs or adjustments are made.

16. The contractor shall prevent any nuisance to persons or damage to crops, cultivated fields, and dwellings from dust originating from his operations. Oil and other petroleum derivatives shall not be used for dust control. Speed limits shall be enforced, based on road conditions, to reduce dust problems.

17. To avoid nuisance conditions due to construction noise, all internal combustion engines used in connection with construction activity shall be fitted with an approved muffler and spark arrester.

18. Burning or burying waste materials on the ROW or at the construction site will be permitted if allowed by local regulations. The contractor shall remove all other waste materials from the construction area. All materials resulting from the contractor's clearing operations shall be removed from the ROW.

19. The contractor shall make all necessary provisions in conformance with safety requirements for maintaining the flow of public traffic and shall conduct its construction operations to offer the least possible obstruction and inconvenience to public traffic.

20. Western will apply necessary mitigation to eliminate problems of induced currents and voltages onto conductive objects sharing a ROW, to the mutual satisfaction to the parties involved.

21. Structures will be carefully located to avoid sensitive vegetative conditions, including wetlands, where practical.

22. ROW will be located to avoid sensitive vegetation conditions including wetlands where practical, or, if they are linear to cross them at the least sensitive feasible point.

23. Removal of vegetation will be minimized to avoid creating a swath along the ROW.

24. Topsoil will be removed, stockpiled, and respread at all heavily disturbed areas not needed for maintenance access.

25. All disturbed areas not needed for maintenance access will be reseeded using mixes approved by the landowner or land management agency.

26. Erosion control measures will be implemented on disturbed areas, including areas that must be used for maintenance operations (access ways and areas around structures).

27. The minimum area will be used for access ways (12 feet to 15 feet wide, except where roadless construction is used).

28. Structures will be located and designed to conform with the terrain. Leveling and benching of the structure sites will be the minimum necessary to allow structure assembly and erection.

29. ROW will be located to utilize the least steep terrain and, therefore, to disturb the smallest area feasible.

30. Careful structure location will ensure spanning of narrow flood prone areas.

31. Structures will not be sited on any potentially active faults.

32. Structure sites and other disturbed areas will be located at least 300 feet, where practical, from rivers, streams (including ephemeral streams), ponds, lakes, and reservoirs.

33. New access ways will be located at least 300 feet, where practical, from rivers, ponds, lakes, and reservoirs.

34. At crossings of perennial streams by new access ways, culverts of adequate size to accommodate the estimated peak flow of the stream will be installed. Construction areas will minimize disturbance of the stream banks and beds during construction. The mitigation measures listed for soil/vegetation resources will be performed on areas disturbed during culvert construction.

35. If the banks of ephemeral stream crossings are sufficiently high and steep that breaking them down for a crossing would cause excessive disturbance, culverts will be installed using the same measures as for culverts on perennial streams.

36. Blasting will not be allowed.

37. Power line structures will be located, where practical, to span small occurrences of sensitive land uses, such as cultivated areas. Where practicable, construction access ways will be located to avoid sensitive conditions.

38. ROW will be purchased at fair market value and payment will be made of full value for crop damages or other property damage during construction or maintenance.

39. The Power line will be designed to minimize noise and other effects from energized conductors.

40. The precise location of all structure sites, ROW, and other disturbed areas will be determined in cooperation with landowners or land management agencies.

41. Crossing of operating railroads by construction vehicles or equipment in a manner that would cause delays to railroad operations will be avoided. Construction will be coordinated with railroad operators. Conductors and overhead wire string operations would use guard structures to eliminate delays.

42. Before construction, Western will perform a Class III (100 percent of surface) cultural survey on all areas to be disturbed, including structure sites and new access ways. These surveys will be coordinated with the appropriate land owner or land management agency. A product of the survey will be a Cultural Resources Report recording findings and suggesting mitigation measures. These findings will be reviewed with the State Historic Preservation Offices and other appropriate agencies, and specific mitigation measures necessary for each site or resource will be determined. Mitigation may include careful relocation of access ways, structure sites, and other disturbed areas to avoid cultural sites that should not be disturbed, or data recovery.

43. The contractor will be informed of the need to cease work in the location if cultural resource items are discovered.

44. Construction activities will be monitored or sites flagged to prevent inadvertent destruction of any cultural resource for which the agreed mitigation was avoidance.

45. Construction crews will be monitored to the extent possible to prevent vandalism or unauthorized removal or disturbance of cultural artifacts or materials from sites where the agreed mitigation was avoidance.

46. Should any cultural resources that were not discovered during the Class III Survey be encountered during construction, ground disturbance activities at that location will be suspended until the provisions of the National Historic Preservation Act and enabling legislation have been carried out.

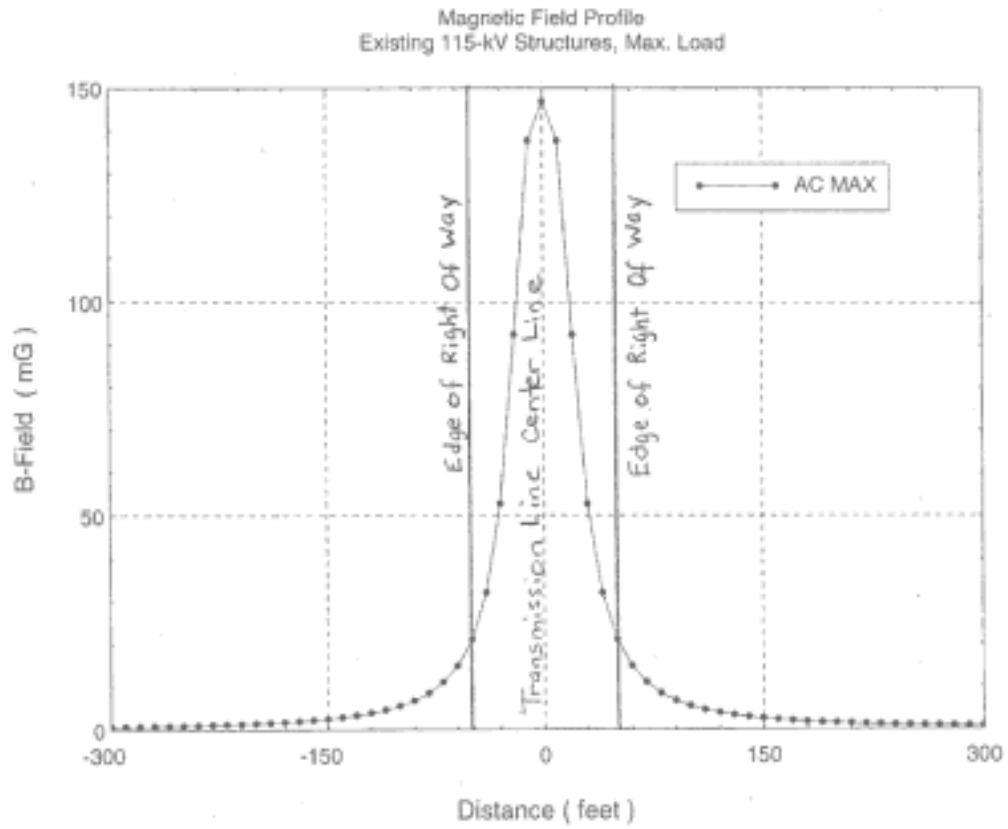
47. Construction activities will be monitored or significant locations flagged to prevent inadvertent destruction of any paleontological resource for which the agreed mitigation was avoidance.

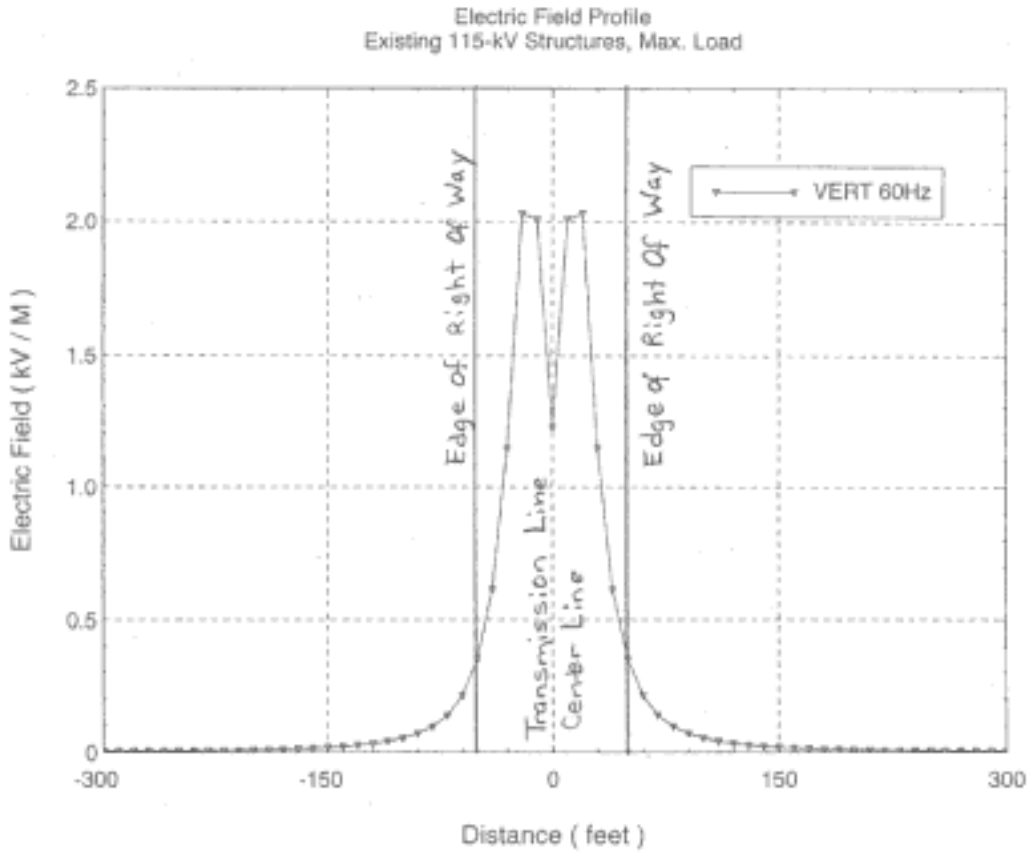
48. Clearing for the access road will be limited to only those trees necessary to permit the passage of equipment.

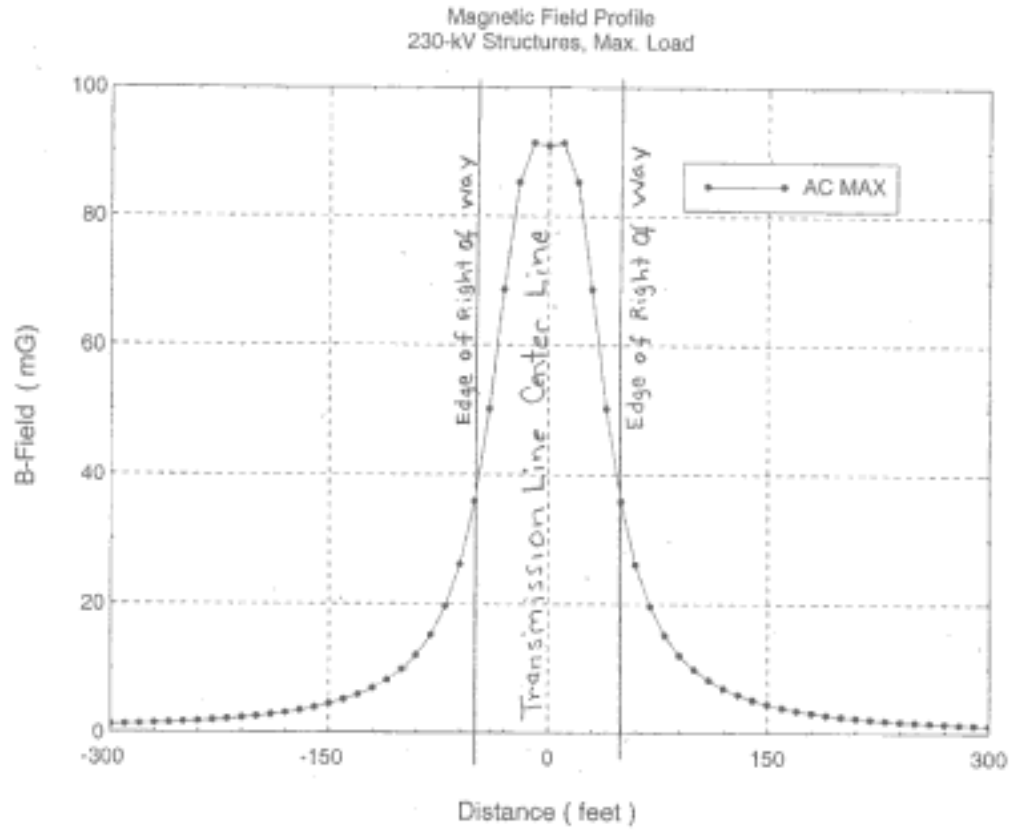
49. The access road will follow the lay of the land rather than a straight line along the ROW where steep features would result in a higher disturbance.

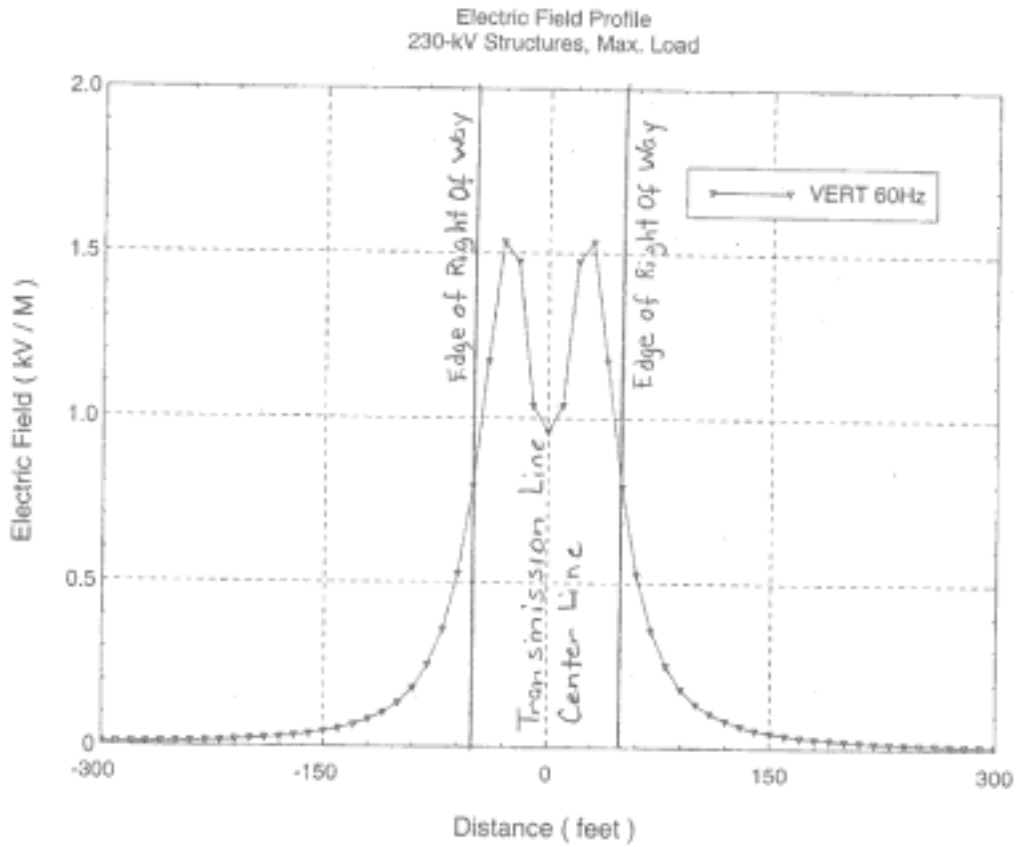
APPENDIX B

Magnetic and Electrical Profiles for the Existing 115-Kilovolt Transmission Line and the Proposed 230-Kilovolt Transmission Line


Magnetic Field Profile
Existing 115-kV Structures, Max. Load
B-Field (mG)
150
100
50
0
-300
-150
0
150
300
Distance (feet)
AC MAX
Edge of Right Of way
Transmission Line Center Line
Edge of Right Of way


Electric Field Profile
Existing 115-kV Structures, Max. Load
Electric Field (kV / M)
Distance (feet)
2.5
2.0
1.5
1.0
0.5
0
-300
-150
0
150
300
Edge of Right of Way
Transmission Line Center Line
Edge of Right Of Way
VERT 60Hz


Magnetic Field Profile
230-kV Structures, Max. Load
B-Field (mG)
Distance (feet)
AC MAX
Edge of Right of way
Transmission Line Center Line
Edge of Right of way
100
80
60
40
20
0
-300
-150
0
150
300


Electric Field Profile
230-kV Structures, Max. Load
Electric Field (kV / M)
2.0
1.5
1.0
0.5
0
-300
-150
0
150
300
Distance (feet)
Edge of Right Of way
Transmission Line
Center Line
Edge of Right Of way
VERT 60Hz

APPENDIX C

Mitigation Action Plan

MITIGATION ACTION PLAN

for the

WOLF POINT, MT – WILLISTON, ND
TRANSMISSION LINE REBUILD
(DOE/EA-1401)

WESTERN AREA POWER ADMINISTRATION

August 2003

Western Area Power Administration

Mitigation Action Plan

1.0 HISTORY AND BACKGROUND

Western Area Power Administration (Western) prepared an Environmental Assessment (EA) (DOE/EA-1401) for the Wolf Point to Williston Transmission Line Rebuild (Project). Based on the EA, Western has determined that the proposed Project would not result in any significant environmental impacts, and the preparation of an environmental impact statement (EIS) will not be required. The basis for this determination is described in the Finding of No Significant Impact issued in August 2003.

Western Area Power Administration (Western) proposes to rebuild a 95-mile segment of the Wolf Point to Williston 115-kilovolt (kV) Transmission Line to 230-kV standards and expand its existing Williston Substation to accommodate the voltage upgrade. Western maintenance forces would rebuild the transmission line over several construction seasons. The rebuild and substation expansion would be completed in 2011. A number of environmental protection measures are included with the proposed action to minimize potential adverse environmental effects.

The requirements for preparing a Mitigation Action Plan (MAP) are specified in 10 CFR part 1021 (Section 331(a), Department of Energy National Environmental Policy Act Implementing Procedures). These guidelines state that DOE shall prepare a MAP for commitments to mitigations that are essential to render the impacts of a proposed action not significant. The guidelines further state that the MAP shall also explain how mitigation will be planned and implemented. The EA analyzed the impacts of the proposed Project. Western has determined that three mitigation measures are essential to render the impacts of the proposed action not significant: 1) securing permits to discharge stormwater runoff, 2) avoiding any discovered mountain plover nesting areas, and 3) avoiding and monitoring know cultural resource sites to avoid impacts to cultural sites during construction.

2.0 FUNCTION AND ORGANIZATION OF THE MITIGATION ACTION PLAN

The following sections describe the plans and actions by which Western will implement and verify mitigation action commitments described above.

Section 3.0 describes the monitoring and verification of mitigation actions and the reporting requirements. Section 4.0 describes the mitigation commitments and action plans for the Project. The commitment to the mitigation is presented along with an action plan composed of the tasks, responsible party, and schedule anticipated for the mitigation.

3.0 MITIGATION ACTION PLAN MONITORING AND REPORTING SYSTEM

Section 5.d. (11)(f) of DOE Order 451.1B, National Environmental Policy Act Compliance Program, requires Western to report MAP activities in its Annual Site Environmental Report, published by January 31 of each year. This annual report will reflect new information or changed circumstances. If major changes to mitigation included in this MAP are necessary, these changes will be described in the annual report. The annual report will be made available to the public.

A member of Western's environmental staff will verify mitigation results and determine if the mitigation actions achieved their intended purpose. Existing organizational and administrative controls will be used to gather information regarding implementation and status of mitigation actions. Such controls include applicable reporting systems, inspection, and verification. The results of inspection and verification will be reported on the anniversary of the MAP in the Annual Report. When mitigation actions are completed and verified, the information will be included in the Annual Report.

4.0 MITIGATION COMMITMENTS AND ACTION PLANS

Mitigation practices were defined for the Project in the EA and were considered during the assessment of impacts of the Project. Western maintains standard mitigation practices for the construction of transmission lines and substations (see Appendices A1 and A2 in the EA). Project specific mitigation measures are identified in Chapter 2 of the EA. Measures not addressed as part of this MAP will be implemented as part of Western's standard business and environmental program practices.

Table 4.1 outlines the mitigation measures to reduce impacts to less than significant and action items necessary to assure the mitigation is implemented to protect water quality, mountain plovers, and important cultural resource sites.

TABLE 4.1 MITIGATION MEASURES		Western Actions Needed To Avoid Significant Impact
Water Resources	Permits for stormwater discharges associated with construction activities would be obtained from the Montana Department of Environmental Quality and the North Dakota Department of Health.	1. Prior to the construction season, review the areas where structures would be replaced and define drainages that could be potentially affected by ground disturbance activities. 2. Based on Step 1, determine if a stormwater runoff permit would be required. 3. If a permit, is required, complete permit application and submit to appropriate agency. 4. Upon receipt of permit, provide permit to construction crews prior to structure replacement activities.
Wildlife	In the event mountain plovers are documented in the area, nesting areas would be avoided during the spring nesting season.	1. Prior to the start of the construction, Western's environmental office will consult with the U.S. Fish and Wildlife Service to determine if mountain plover habitat has been identified within the project area. 2. If habitat has been identified, a survey by a qualified biologist would be conducted to determine if any nesting plovers are near areas where structures would be replaced. 3. If nesting plovers are discovered, the nesting areas would be avoided until the nesting season is over, based on periods defined by the U.S. Fish and Wildlife Service.

Cultural Resources	Sites subject to damage from construction activities would be avoided during structure replacement activities to avoid potential impacts. Tribal monitors will be used to ensure that known prehistoric sites are avoided.	1. Prior to the initiation structure replacement activities near known cultural resource sites, Western's environmental office will make arrangements for Tribal monitors to monitor construction activities near know prehistoric cultural resource sites. In addition, when construction near the Tule Creek Bridge is planned, Western's environmental office will make arrangements for a qualified cultural resource monitor to monitor construction near this site. 2. Construction crews would be instructed to avoid the cultural sites plus a buffer (cultural sites will be designated as sensitive areas) until the monitors are available to monitor construction activities. 3. The Fort Peck Maintenance Office would be instructed not to conduct any maintenance on structures located near know cultural sites until cleared by Western's environmental office. Depending on the nature of the maintenance activities, maintenance work would be monitored by a Tribal monitor.