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FINAL ENVIRONMENTAL IMPACT STATEMENT

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BENTON COUNTY - MILACA, MINNESOTA
230 KV TRANSMISSION LINE

JOINT FINAL ENVIRONMENTAL IMPACT STATEMENT

**FOR A 230 KV TRANSMISSION LINE FROM
BENTON COUNTY TO MILACA SUBSTATION**

VOLUME II

PREPARED BY :

**POWER PLANT SITING STAFF
MINNESOTA ENVIRONMENTAL
QUALITY BOARD
CAPITAL SQUARE BUILDING
550 CEDAR STREET
ST. PAUL MINNESOTA 55101**

EQB DOCKET UPA-TR-1

**RURAL ELECTRIFICATION
ADMINISTRATION
UNITED STATES DEPARTMENT
OF AGRICULTURE
WASHINGTON D.C. 20250**

**REA DESIGNATION
USDA-REA-EIS (ADM)-79-5**

OCTOBER 1979

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ERRATA

VOLUME II FINAL ENVIRONMENTAL IMPACT STATEMENT FOR A 230 kV TRANSMISSION LINE FROM BENTON COUNTY TO MILACA SUBSTATION VOLUME II

CHAPTER 1

- Page 2 R-14 was Undergrunding
R-14 should read Undergrounding
- Page 3 R-1 Public Health and Safety - Paragraph 3, line 17
was ...effects of power frequency fields to the
exploratory or...

Should read: ...effects of power frequency
fields to be exploratory or...
- Page 6 R-3 Reference Centerlines - Paragraph 2, line 5 was
...way. Only the MEQB may designate the final right-
of-way. The...
- Should read: ...way. Only the MEQB may designate the
final route. The ...
- Page 8 R-4 Flood Plains - Comment - Paragraph 5, line 7
was ...contingency) would have to occur before serv-
cice was...
- Should read: ...contingency) would have to occur
before service was...
- Page 11 Paragraph 1, line 2 was ...Cloud eastward through
Princeton and United State Highway ...
- Should read: ...Cloud eastward through Princeton and
United States Highway ...
- Page 13 R-8 Endangered Species - Reply - Paragraph 1, line
1 was ...The MEQB agrees. These comments include
information not...
- Should read: ...The MEQB and the REA agree. These
comments include information not...
- Page 14 R-10 Land Use, Rights of Way and Easements -
Paragraph 4, line 10 was ...tion, there is a
possibility that land values may dimi-...
- Should Read: ...tion, there is a possibility that
land values may dimi-...

Page 15

Paragraph 2, line 3, was ...passes, and the purchase of a utilily...

Should read: ...passes, and the purchase of a utility ...

Page 25

Under R-19 - Rivers, Wetlands and Woods - was ...COE-1, COE-2, COE-6, COE-7, FS-1, FS-2, FS-3, UPA-106...

Should read: ...COE-1, COE-2, COE-6,* FS-1, FS-2, FS-3, UPA-106...

Also add Footnote for COE-6,* - reads: This comment is addressed on page: 146 (Mitigative Measures (6.2) Design (d) and page 147 Maintenance (6.2.3) (b) and (c) Volume I of the Draft Environmental Impact Statement.

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Preface

United Power Association (UPA) proposes to build a 230 kV transmission line between the Benton County Substation near St. Cloud and the Milaca Substation on the eastern side of Milaca. UPA applied to the Minnesota Environmental Quality Board (MEQB) for a construction permit under the provisions of the Power Plant Siting Act. In addition, UPA applied to the United States Department of Agriculture, Rural Electrification Administration (REA) for a loan guarantee insuring the project's funding.

Subsequently, REA and the Power Plant Siting staff of the MEQB produced cooperatively a joint draft environmental impact statement as required by the National Environmental Policy Act and the Minnesota Environmental Policy Act.

This document was distributed on July 30, 1979 to appropriate government agencies, to UPA and to the general public. In addition, the MEQB held a public meeting in Milaca on September 12, 1979 in order to solicit comments on the draft environmental impact statement. A transcript of this meeting is available from the MEQB.

The public record for comments upon the draft environmental impact statement closed under state regulations on October 2, 1979 and under federal regulations on October 1, 1979.

Comments were received from state and federal agencies and UPA. The final environmental impact statement includes these comments, REA and MEQB staff responses to them when necessary, appropriate corrections and clarifications to the draft text and the original draft environmental impact statement which remains a separate volume. However, portions of the draft text are incorporated with the comments when necessary for clarity.

Specific comments were numbered and indexed. For example, UPA-33 indicates the 33rd comment within United Power Association's submission which can be found in full in Chapter 2. Conversely, the staff responses are numbered and cross-referenced in Chapter 2. For example, R-3 indicates the section in Chapter 1 on reference centerlines.

CHAPTER 1
COMMENTS RECEIVED WITH STAFF RESPONSE

- R-1 Public Health and Safety
- R-2 Archaeological Sites
- R-3 Reference Centerlines
- R-4 Flood Plains
- R-5 Airports
- R-6 Roads
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- R-21 Ownership
- R-22 Microwave Repeater Station
- R-23 Double Circuiting
- R-24 Clean Up
- R-25 Milaca
- R-26 General Errata and Clarification

R-1 Public Health And Safety

REA and UPA disagree with the State of Minnesota's assessment of the potential hazards to human beings caused by direct exposure to high voltage transmission lines.

Section 4.5.2 of the environmental impact statement reads:

Adverse health effects resulting from the direct exposure of humans to the high voltage overhead transmission line field environment are a matter of considerable public concern. Although it is not possible to say that there is no risk, the Minnesota Department of Health (MDOH) study cited above states that thus far both epidemiological and laboratory studies have failed for various reasons to indicate that the energy transferred directly from transmission lines to humans is a health hazard. The authors of the MDOH study conclude that there is no evidence suggesting any effect on health or upon one's sense of well-being from the intermittent exposure experienced in the transmission line environment. No theoretical basis for the presumption of effects has been postulated. This is a particularly important point for it forces research into the biological effects of power frequency fields to be exploratory or observational rather than rigorous experimental studies designed to accept or reject specific hypotheses.

While ac electric fields are not strong enough to cause tissue heating or nerve stimulation, the possibility of more indirect effects has prompted research in this area. Human and animal studies on the biological effects of ac electric fields have yielded generally conflicting results. One major reason for discrepancies is differing experimental exposure parameters; i.e., frequency, gradient and exposure duration. In addition, many experiments have not had adequate experimental design, controls for extraneous or interfering variables, and statistical analyses of experimental data. Biological effects, if they exist, are likely to be subtle; recognition of true effects demands investigation utilizing a systematic, interdisciplinary approach to assure well-designed, closely controlled research. At the time of this analysis such a comprehensive study is not available.

Comment

However, REA comments (REA-3) replied with the following addendum to the joint draft environmental impact statement:

It should be noted that Section 4.5.2 represents the viewpoint of the Minnesota Environmental Quality Board.

Based on years of industry operating experience with 230 kV transmission facilities, it is REA's judgment that there will be no harmful effects from electrostatic or electromagnetic fields to humans, animals, or vegetation.

UPA (UPA-86) agrees:

Based on UPA's experience and experience obtained by an industry operating over 70,000 circuit miles of 230 kV transmission facilities, there is no evidence of adverse biological or health effects. This experience is verified by the Rural Electrification Administration (REA) as stated in the REA supplement to the draft EIS.

In contrast, the Minnesota Department of Health (MDOH-1) has no objection to the original text.

The Health Department has no objections to the technical content and/or accuracy of Section 4.5-- Public Safety and Health. The Department concurs with the conclusion that "Biological effects, if they exist, are likely to be subtle...(and that) at the time of this analysis, such a comprehensive study is not available.

Reply

Potential health and safety hazards created by high voltage transmission lines are matters of increasing public concerns in Minnesota. Studies such as Public Health And Safety Effects of High Voltage Overhead Transmission Lines, the 1977 report by the Minnesota Department of Health for the Minnesota Environmental Quality Board mentioned above, have been inconclusive. No conclusive evidence exists to demonstrate that transmission lines do or do not create public health and safety problems. If biological effects exist, they are likely to be subtle. Further research is necessary.

Related Comments include REA-2, UPA-55, UPA-57, UPA-58, UPA-59, UPA-60, UPA-61, UPA-82, UPA-83, UPA-124, UPA-126, UPA-139.

R-2 Archaeological Sites

The Minnesota Historical Society administers the National Historic Preservation Act in Minnesota.

Comments

It states that (MHS-1)

...the construction of transmission lines (i.e., clearing rights-of-way and the placement of poles in undisturbed locations) can have an adverse impact on archaeological sites. Accordingly, we have reviewed the route alternatives and designated the areas which were evaluated as having a potential for archaeological resources. In general these are areas which pass near or cross rivers, streams, and marshes. They are selected based on results from systematic archaeological research in many areas of the state which has indicated a high correlation between prehistoric archaeological sites and permanent sources of water (which exist now or may have existed in the past).

Consequently, we recommend that an archaeological survey...be conducted. Such a survey would determine the existence of any sites, their eligibility to the National Register, and the possible effects on them from the proposed activity. We would like to add that the evaluation was essentially based on U.S.G.S. topographic maps, and, in many instances, conditions on the field vary. Therefore, if the alignment we recommend to be surveyed is extensively disturbed, or if it is within a river valley or wetland which appears to have low archaeological potential, these areas do not need to be surveyed. However, the decisions should be left to the professional archaeologist who is hired. In addition the archaeologist should be free to investigate high probability areas that may be affected...

In addition, a literature search should be conducted to identify historical archaeological sites that may be affected by the proposed transmission line.

Reply

REA (REA-1) states:

All the transmission routes have been marked for areas of high archaeological potential. Surveys of all the marked areas are recommended by the State Historic Preservation Officer (SHPO), and a copy of the survey results has been requested by the SHPO before work begins on the project. The Rural Electrification

Administration would not require any survey of alternatives, unless the proposed route is found to be unacceptable. We suggest that you contact the Environmental Assessment Officer of the State Historic Preservation Office to determine whether a survey of only the proposed route will be acceptable to them as well.

The MEQB concurs with REA. Only the designated route and adjacent areas used during construction need be surveyed. Archaeological sites are important and fragile cultural resources. Every effort should be made to preserve and to protect them. The MEQB has required an archaeological site survey of the designated right-of-way by a qualified archaeologist prior to construction in the past.

R-3 Reference Centerlines

Reference centerlines are often misleading.

Reply

The reference centerline is used by the utility and by the Power Plant Siting staff to estimate the location of a transmission line along a specific route. However, they are not necessarily the centerlines that will be used to locate the actual right-of-way. Only the MEQB may designate the final route. The exact location of the transmission line within this designated route is determined usually by negotiation between the utility and the landowner. Reference centerlines are used for data gathering purposes only.

In its application to the MEQB, UPA stated on page 110:

The reference center lines were chosen primarily on the basis of environmental constraints such as the location of residences. It is strongly emphasized that these are not necessarily the right-of-way alignments that UPA will develop within the designated route. The additional input that will come from contact with landowners, concerned citizens, and from more detailed field surveys and engineering studies may require UPA to deviate from the reference center lines described in this Application. Responsive to landowner comments and environmental constraints, deviations will be made where reasonable and practicable in order to mitigate the impacts of the HVTL.

The purpose of the 1.25 mile wide routes is to allow reasonable flexibility in final right-of-way alignment. The purposes of the reference center line description are both to indicate where UPA would initially attempt to locate the center line and to provide a basis for realistic environmental impact assessment.

The reference centerline provides the basis for data collection and analysis of route segments used in the fifth chapter of this environmental impact statement. This process is explained on page 90.

The route segments were assessed according to a checklist of environmental, land use, topographical and line design features...

Data for the various segments were calculated on the basis of a reference centerline established by the utility. This approach was used in order to approximate the impact of the actual transmission line and right-of-way.

...the reference centerlines were selected by UPA, based on the utility's preliminary planning and engineering criteria. Depending on final engineering and design, however, the reference centerline may not represent the final alignment of the actual right-of-way. Its purpose in this analysis is largely to provide a means of assessing the potential impact of the proposed project on a facsimile of the actual right-of-way. Therefore, while it is recognized that the environmental features and potential impacts discussed in this section may vary slightly with those associated with the right-of-way which is ultimately used, they should be reasonably accurate approximations. In cases where it is necessary to assure certain critical impacts are minimized, the MEQB may designate the route width to constrain the centerline location to whatever degree is necessary.

UPA reiterates in its comments on this environmental impact statement that the reference centerlines are for comparative purposes only and do not represent the final right-of-way location for the transmission line. UPA points out that the reference centerlines for routes C and D are based solely on the presence of existing rights-of-way and not its criteria stated on page 110 of its application. In addition, UPA emphasizes that it has expressed no preference for a centerline through or around the city of Foley.

Related comments are UPA-8, UPA-90, UPA-91, UPA-99, UPA-101, UPA-110, UPA-119.

R-4 Flood Plains

The term, "critical facility," as applied to flood plain zoning by the United States Department of Housing and Urban Development (HUD) has caused some misunderstandings.

Comment

The United States Army Corps of Engineers (COE-3) asks, "What is meant by a critical facility? Why is the proposed transmission line not a critical facility?"

UPA (UPA-13) was disturbed by the term.

The last sentence indicates that the transmission line is not a "critical facility." UPA interprets this to mean a critical action facility as defined in Executive Order 11988. UPA would define a transmission line to be critical if an outage of it would require significant outage time for consumers. By this definition, the proposed 230 kV line is not critical for the first few years of its operation by utilizing only the existing 69 kV grid. The results of this would be inordinately uneconomic line losses on the 69 kV transmission system.

The proposed line, however, will become "critical" in the mid to late 1980s because at that time an outage of it during normal conditions, i.e., a single contingency, would probably require load shedding.

The addition of a 230 kV line from Milaca to eastern Minnesota in the mid to late 1980s will probably become necessary for continued reliable and economic system operations. This future line would then similarly render the planned Benton-Milaca line to be noncritical. That is, outage of it and one other key facility (double contingency) would have to occur before service was directly affected.

Reply

This environmental impact statement follows REA's policy concerning the construction of transmission line within flood plains.

It may be necessary to locate tower structures within a designated flood plain which is defined as an area inundated by a 100 year flood. REA finds that there is no practicable alternative to avoid flood plain areas. In all instances an attempt will be made to span the flood plain rather than locate structures within it. Any structures that may be located within a flood plain will

be flood proofed to the extent practicable and will be constructed to minimize the probability of interruption or loss of vital services. In addition, the REA finds that the proposed facility is not a critical facility.

Flood plains cannot be avoided within this project area. Proposed routes often pass through 100 year flood zones.

The term, "critical facility," describes the flood hazard only. In general, a facility within the 500 year flood plain is considered to be critical. REA considers power plants within flood plains to be critical facilities. However, transmission lines are not considered critical unless this line is extremely vital, e.g., when only one transmission line serves a community. Structures can be designed to withstand floods in the project area without difficulty.

The term, "critical facility," does not imply anything about REA's or MEQB's judgment concerning the importance of or the need for the proposed project.

R-5 Airports

The following text replaces all of section 2.12.3 on pages 34-35 at the suggestion of the Minnesota Department of Transportation.

2.12.3 Airports

Four existing and one proposed airports are in the impacted area. St. Cloud Municipal, the largest, is located approximately 1 mile southeast of the Benton Substation. Other municipal airports are located at Princeton and Milaca. A personal-use landing strip is located in Section 6 of Alberta Township and one is planned for Section 11 in St. George Township, both in Benton County.

Of the five, the personal use airport in Section 6 and the Milaca Airport are the ones most affected by the proposed routes. The personal use airport is within the Route C corridor and the Milaca Airport is in close proximity to the Milaca Substation and is also affected by Route C and the other route options approaching the substation from the north.

The Milaca Municipal Joint Airport Zoning Board established an airport zoning ordinance in an effort to ensure ultimate plans for extending and paving the airport. The Milaca Airport Zoning Ordinance regulates land use and airspace use in order to minimize airport hazards and to prevent the construction of obstructions in the vicinity of the airport. There are five airspace zones, which are horizontal, geometric planes at specified elevations, and three land use zones.

The airspace zones prohibit structures and trees above a height limit established in the ordinance. These height limits, measured in relation to the elevation of the runway, range from the airport elevation of 1100 feet mean sea level (msl) to 300 feet above the runway elevation or 1400 feet msl out to a distance of nearly 2 miles from the airport. These zones are illustrated on the airspace zoning and cross section maps. See Figures 2-16 and 2-17.

The horizontal zone is affected by the proposed line. The approach zone could also be affected depending on which route is selected.

The Milaca Substation is located within the horizontal zone. Erection of any structure higher than 1200 feet msl would be prohibited. Careful selection of type, site and height of the structures is necessary to avoid conflict with the airport zoning ordinance.

The approach zone will be affected if Route C is selected. This would cross the approach zone on the north side of the airport and could create in a hazard approach to aircraft.

The Milaca Airport Zoning Ordinance delineates land uses permitted adjacent and near the airport. The most critical area is located under the approach zone at a distance of 2200 feet from the end of the planned runway. This zone is depicted in Figure 2-18 as zone A. The proposed transmission line would bisect this zone and, therefore, would be in violation of the ordinance.

Any alternative route that enters the Milaca Substation from the north would have a definite impact on the Milaca Municipal Airport. These routes should no longer be considered as viable alternatives.

Relevant comments include FAA-1, MDOT-8, UPA-23, UPA-25, UPA-26, UPA-27, and UPA-28.

R-6 Roads

The environmental impact statement describes roads and road construction in the project area on pages 33-34.

Roads provide the most familiar network for interaction within the study area. The major highways in the study area are State Highway 23 between St. Cloud and Milaca, State Highway 25 which passes north-south through Foley, Gilman and Jakeville, State Highway 95 along the southern edge of

the study area from its junction with Highway 23 near St. Cloud eastward through Princeton and United States Highway 169 which passes north-south through Princeton and Milaca. Heaviest traffic flows are experienced on Highways 23 and 169 as illustrated in Figure 2-14.

In addition, numerous county and township roads serve local needs. See Figure 2-15.

The Minnesota Department of Transportation plans seven highway improvement projects within the proposed transmission line corridors. These projects involve resurfacing, grading, and bridge replacement scheduled between 1979 and 1981. The construction schedules for these highway projects and for the 230 kV line need to be coordinated.

The principal highway project in the area, however, requires special considerations. A major realignment and widening of Highway 169 from Princeton to a point immediately south of Onamia is in progress.

This project includes highway by-passes at Princeton and Milaca. The Milaca by-pass circumnavigates the city on the eastern side and includes a major interchange at the intersection of Highway 23 and the new Highway 169 alignment adjacent to the Milaca Substation. Consequently, north and south must cross over the new Highway 169 alignment. Again the precise location and construction schedules for these projects need to be negotiated and coordinated. There are presently three transmission lines radiating to the north and east from the substation which will have to be relocated to accommodate the freeway interchange. Consequently, any new transmission lines approaching the substation from the north or south will encounter considerable conflict with the relocation lines and the highway interchange.

Two particular limitations must be considered when crossing the new Milaca by-pass. The tower structures may not be higher than 1200 feet mean sea level elevation or approximately 100 feet above the ground due to airspace restrictions placed upon the area by Milaca airport zoning ordinance discussed in Section 2.12.3. This may be difficult because federal regulations, title 23, part 645.206 (e), prohibit the placement of transmission line structures on highway rights of way. This may require the length of the span between structures to be greater than is feasible, if these structures are to remain shorter than 100 feet tall.

Reply

The final two sentences of paragraph four were added at the suggestion of the Minnesota Department of Transportation (MDOT-6). In addition, a current list of construction projects has been received (MDOT-1).

Related comments include MDOT-2, MDOT-3, MDOT-4, MDOT-5, UPA-24, and UPA-120.

R-7 Climate

The following statement on storm damage to transmission lines was included in the discussion on climate in section 2.2.

United Power Association reports that they have had very little severe storm damage to their transmission lines in the study area. Tornadoes are not common. In 1966 a tornado traveling from St. Cloud to Zimmerman caused minor damage to transmission lines; however, severe damage occurred to local distribution circuits. Other storms have caused temporary outages and pole damage; but the UPA system in this area has been relatively free of ice, wind or tornado damage.

Comment

UPA made the following disclaimer (UPA-21).

UPA has made no statement that the area has been relatively free of ice, wind or tornado damage. UPA has in fact experienced wind and tornado damage in this area.

Reply

The Power Plant Siting staff requested information on storm damage and line reliability within the project area in April 1979. UPA was unable to provide comprehensive data on this question. But an informal UPA interoffice communication dated April 12, 1979 was provided which stated, in part, that UPA had

very little severe storm damage to our transmission lines relating back many years. A tornado went through in 1966 from St. Cloud through to north of Zimmerman and only caused minor damage to the transmission lines, however, severe damage was done to distribution circuits in the area. Other high wind storms, in some cases, may have temporary relayed lines out and leaned poles severely, but no major outage was encountered from these.

Storm damage is not an important criterion for the location of transmission lines in central Minnesota. The potential for severe ice or wind damage does not eliminate any proposed routes as occurs in mountainous regions. Tornado damage is unpredictable.

R-8 Endangered Species

Possible impacts on endangered species are discussed on pages 15-17 of the environmental impact statement.

Comment

UPA conducted a biological assessment in accordance with Section 7(c) of the Endangered Species Act of 1973. The United States Fish and Wildlife Service (FWS-1) concurs with UPA (UPA-22) that no critical habitats are present in the area.

Reply

The MEQB and the REA agree. These comments include information not available at the time the environmental impact statement was written.

R-9 Natural Areas

Page 40 of the environmental impact statement states:

The Nature Conservancy, Minnesota Chapter owns or manages no properties within the study area. However, Professor Max Partch of the Department of Biology, St. Cloud State University surveyed the natural area of Benton County for the Nature Conservancy in 1973. Partch identified six parcels within the study area with significant, undisturbed natural features. Of these, only one, the Nix Woods, an 80 acre parcel on Highway 23 in St. George Township, is within a proposed transmission line corridor.

Comment

The Corps of Engineers (COE-4) asks:

What constitutes significant undisturbed natural features? A description of the parcels with these areas should be included (sic).

Reply

These parcels contain substantially original vegetation as defined by Professor Partch. The results of Partch's survey are confidential and are on file at the Nature Conservancy's Minneapolis office.

R-10 Land Use, Rights of Way and Easements

The environmental impact statement discusses the influence of a transmission line upon present and future land use on pages 64-66 and elsewhere.

Urban areas and residential dwellings place numerous constraints on transmission line routing. The National Electrical Safety Code and the Minnesota State Electrical Code specify minimum safety clearances to be maintained between transmission line conductors and all buildings and structures. These clearance standards vary with the type of structure and land use of the area crossed by the right of way. It is often not possible to locate transmission line routes through urban concentrations without the acquisition and removal of existing structures, particularly, in residential areas. In addition, required safety clearances prevent the possibility of most types of new construction within the right of way for a 230 kV transmission line.

Activities during the construction of the transmission line also constitute a temporary negative impact on areas of concentrated population. These include the traffic, noise, dust and physical disruption which can occur with any construction project.

High voltage transmission lines may influence urban land use patterns, particularly in areas that are not fully developed. The tangible impacts upon adjacent lands are difficult to measure due to the large number of variables which may influence land use changes. Nonetheless, it is clear that HVTLS cause physical disruptions, linear constraints along the right of way for future land uses, and negative public attitudes toward an area crossed by a transmission line. In addition, there is a possibility that land values may diminish as a result of the real and perceived effects of HVTLS.

However, the consequences of a transmission line right of way may not be entirely negative. In some situations, it may be possible to combine careful line routing with effective land use planning to take advantage of the linearity of transmission lines as a buffer or as a transition between different land uses.

In general, the impact of a high-voltage transmission line on land use depends upon the perceived compatibility of the line with the setting. The greatest

adverse impacts tend to be associated with the placement of HVTLs in low density residential areas; the least impacts occur when lines cross industrial or certain types of institutional lands, e.g., sewage treatment facilities or transportation corridors.

The construction of a high voltage transmission line changes the use and character of the land over which it passes, and the purchase of a utility right of way alters the landowner's rights to his property. But it is not entirely clear to what extent the presence of the transmission line and the easement influence the future real estate value of the property.

Once the precise location of the transmission line is determined, the utility must acquire, whether by voluntary sale or by involuntary eminent domain proceedings, an easement, i.e. legal property rights, for the use of required rights of way. Since the transmission line uses only a portion of the land over which it passes, fee simple ownership is not necessary. However, negotiated easement prices can be equal to or more than the normal purchase price for the land itself, and may include additional payments based on the number and type of poles on a parcel of land. In addition, the utility is liable for specific damages to crops and to the land caused by construction and maintenance of the transmission line.

The most immediate legal consequence of granting an easement to the utility is the loss of rights to the land. Thus, when the landowner sells his property, he is selling something less than what he originally purchased. The purchaser of the land acquires the obligations in the form of rights relinquished by the original owner. In this respect the presence of a utility easement, obviously, lowers the real estate value of the land.

In addition to these legal implications, the actual presence and operation of the transmission line may have an influence upon the selling price of the property. As discussed in Section 4.3.1, transmission lines may create land management difficulties when located on agricultural land. The landowner must adjust his operations in order to minimize safety hazards, loss of productive crop land and loss of time. In addition, the transmission line is an obstacle which may make future changes such as the installation of a new irrigation system or the subdivision of property for housing dif-

ficult or impossible. The consequent loss of opportunities could have an impact upon the value of the land, especially, for a new owner who may wish to alter the present land use.

Finally, the impact of transmission lines upon aesthetic values, especially in residential and scenic areas, may have an important influence upon future land values. Since few potential buyers are likely to perceive transmission lines to be aesthetically pleasing, the existence of the line may tend to depress the land values.

Studies of the impact of utility easements upon land values have been inconclusive. Due to the large number of variables which affect land value, no reliable quantitative measure is yet available. Nevertheless, it is likely that the presence of high voltage transmission lines do not add to land values and in most cases would tend to depress them.

Comment

UPA (UPA-66) felt that the last sentence in the second paragraph above was misleading.

Certain types of construction may be permitted within the right of way of a 230 kV transmission line. UPA does not restrict the owner's rights to use and enjoy the land provided his use and enjoyment does not interfere with UPA's rights of constructing, operating and maintaining the transmission line. The owner may cultivate, use and otherwise occupy the easement, subdivide and improve the easement with streets, curbs, gutters and underground utilities and other similar improvements where no poles, guys or anchors are located. UPA has occasionally permitted the construction of buildings such as garages, commercial facilities and industrial plants beneath existing transmission lines.

UPA (UPA-69) stated further in response to the above discussion of easements as follows:

The landowners lose certain rights in the land. The statement as contained in the draft environmental impact statement is misleading by not qualifying the extent of the rights that are provided to the utility by the landowners. The landowner retains rights to his property and may use his land to the extent that his use does not interfere with the utility's right to construct, operate and maintain a high voltage transmission line.

Reply

When the landowner signs an easement contract, whether by voluntary sale or by involuntary eminent domain proceedings, he surrenders certain rights to the land to the utility. As UPA points out, it objects generally to land uses that might interfere with the construction, operation or maintenance of the transmission line. To this extent, the present and future landowners are restricted in their land use options.

Of course, the landowner retains the fee simple ownership of the land except under certain circumstances outlined in the Power Plant Siting Act. The exact set of rights and obligations established between the landowner and the utility depend upon the text of an easement contract negotiated between the two parties. However, the precise terms of the easement can vary considerably as UPA pointed out during testimony at the September 12, 1979, environmental impact statement information meeting in Milaca. A sample easement contract supplied by UPA is in Appendix A.

Comment

UPA (UPA-70) questioned the effect of an utility easement on real estate value.

As stated above, several studies have been completed which indicate that real estate value is not affected by the presence of a utility easement.

Reply

A large number of variables influence real estate values. No reliable means exists to measure precisely the effect utility easements have upon land values. However, two things are clear. When the landowner sells his fee simple rights to a third party after he has granted an easement to the utility, he is selling property that is something less than what he purchased originally. Also, there is no evidence that the presence of a transmission line increases land values except in extraordinary circumstances.

Related comments include UPA-4, UPA-32, UPA-37, UPA-65, UPA-126, UPA-137, UPA-138, UPA-140, UPA-141, UPA-143 and UPA-144.

R-11 Avian Mortality

The environmental impact statement on page 145 states that:

Birds, especially migrating waterfowl and raptors, may collide with the new tower structures.

Comment

UPA (UPA-142) doubts the importance of the avian mortality problem.

If avian collision with a high voltage transmission line is in fact a problem--there is some dispute over the significance of the problem--collision by birds normally occur with small sized conductors, such as on a distribution line or telephone line. Collisions with transmission line towers have not been documented.

Reply

Birds collide with telephone and electrical distribution lines more frequently than with large transmission lines. But birds do collide with high voltage transmission lines too. Many more birds collide with conductors and shield wires than with structures per se. Nevertheless, birds have been observed striking structures although collisions with large television and radio antenna and other towers are observed more often.

The significance of the avian mortality problem depends upon the species involved and the individual characteristics of their populations. The number of bird collisions depends upon the behavior of specific species, population concentrations, habitat use, and migration patterns in relation to the location of the transmission line and weather.

R-12 Mining

Comment

The United States Department of Interior, Bureau of Mines (DOI-3) expressed a concern about possible conflicts involving stone quarries.

Reply

No stone quarries operate within the study area. No conflict anticipated.

R-13 Structures

The merits of various structure designs have been discussed extensively by the Citizens' Route Evaluation Committee (CREC), the utility, the Power Plant Siting staff and the public. The environmental impact statement states on page 3:

Although UPA indicated a preference for wooden H-frame poles in its Application For a Construction Permit, other types of tower structures and poles have been discussed. Residents of the study area and members of the CREC have shown a preference for single shaft steel or concrete poles. Depending on the structure type designated by the MEQB, 5.5 to 8 poles will be required per mile of route. Typically, the structures will be 80-110 feet high, with specific height determined by location, terrain, and other factors such as the need for tangent or angle structures.

Comment

UPA (UPA-9) has disputed the accuracy of this paragraph.

Certain members of the Citizens' Route Evaluation Committee have shown a preference for single shaft steel or concrete poles; however, considerable discussion was held with the Committee on the use of wood single shaft poles. The Committee did not express any preference for type of material to be used for construction of the transmission line. It is the position of UPA that the choice of material for the structures should be made by UPA, whose decision will be dependent upon material availability, cost, delivery, schedules, etc., and made at the appropriate time in the project schedule.

Reply

The UPA-TR-1 Citizens Route Evaluation Committee's report to the Minnesota Environmental Quality Board, dated September 13, 1979, outlines that committee's position vis-a-vis structures on page 7.

The committee recommends that, in so far as possible, all line supports are to be single pole structures of any material. The City of Foley has requested that the supports used within city limits are to be exclusively single shaft steel or concrete poles. This option should be offered to the other municipalities on the route.

The advantages of the single pole structures are both aesthetic and practical. Without doubt they look better than the H-frame poles originally proposed by UPA. From a practical standpoint, a single pole support immediately adjacent to the railroad right of way would likely be the least obtrusive and controversial to affected farmers.

Information provided by UPA to the CREC indicates that any additional cost caused by the use of single pole supports would partially be recovered in reduced right of way acquisition costs. The CREC feels that any costs not recovered would be compensated for by the appreciation and good will of farmers and their fellow citizens.

While the utility may be granted the privilege of selecting the type of structure used in consultation with the landowner, the MEQB retains, and has exercised in the past, its right to designate the type of structure used in the Construction Permit. The Minnesota Power Plant Siting Act states, "When the board designates a route, it shall issue a permit for the construction of a high voltage transmission line specifying the type, design, routing, right of way preparation of facility construction it deems necessary and with any other appropriate conditions" (Minn. Stat. § 116.57, Subdivision 2).

UPA has provided revised cost estimates for wooden H-frame structures for routes A and B. See comments UPA-42, UPA-62, UPA-63, UPA-67, UPA-68, UPA-151, and UPA-152. Other related comments include COE-5, UPA-36, UPA-40, UPA-41, UPA-51, UPA-52, UPA-53, UPA-49 and UPA-130.

R-14 Undergrounding

Comment

The United States Army Corps of Engineers (COE-10) has requested a discussion of the feasibility and costs of undergrounding this transmission line under the Rum River.

Reply

Undergrounding is discussed on pages 141-143 of the environmental impact statement. The MEQB shares the Corps' concern about the Rum River, a state wild and scenic river. However, undergrounding at the Rum River is not considered a feasible option. Therefore, no detailed discussion was provided in the environmental impact statement.

R-15 Agricultural Land

The environmental impact statement discusses the impact of transmission lines on agriculture on pages 5, 7, 24-30, 68-77, 128-130 and elsewhere. Page 5 states:

At least 50 percent of the project area is classified as prime agricultural land by the Soil Conservation Service (SCS). However, in the case of the proposed routes, existing linear features and rights of way can be used frequently. These features include a railroad, state

highway, various county and township and roads, and government survey lines. Nonetheless, all routing alternatives will cross some productive farmland. REA finds that the need to provide adequate electric service to this area overrides and warrants the use of this productive farmland.

And on page 65, it remarks:

Transmission lines may create land management difficulties when located on agricultural land. The landowner must adjust his operations in order to minimize safety hazards, loss of productive crop land and loss of time. In addition, the transmission line is an obstacle which may make future changes such as the installation of a new irrigation system or the subdivision of property for housing difficult or impossible.

Comment

UPA (UPA-11 and UPA-71) has commented:

While the transmission line may cross prime farmland, it should be pointed out that very little prime farmland is taken out of production or otherwise directly affected by the presence of transmission facilities.

The statement that a landowner must adjust his agricultural operations to minimize safety hazards is misleading in that it is not absolutely necessary that in each and every case such adjustment is required. For the most part, agricultural operations may continue as prior to the transmission line.

Reply

The following table (PPS-1) tabulates the amount and the soil quality of crop land found along the proposed routes. These figures were calculated on the basis of 40 acre units found within the proposed routes and indicate the potential agricultural productivity within them based upon the climate modified soil productivity system explained in Section 2.10.2.2. This table supplements estimates of prime agricultural land based upon Soil Conservation Service data compiled by UPA that is found on page 130.

Possible loss of productive crop land and the loss of time are continuing concerns for residents of the project area as the Citizens' Route Evaluation Committee's report emphasizes. Careful planning, however, can minimize public health and safety hazards and agricultural losses. See, for example, pages 68-77

of this environmental impact statement and An Investigation of Electric Power Transmission and Agriculture Capability In the MAPP Region by Robert J. Gustafson et al, 1978, Miscellaneous Publication 1713-1978, Agricultural Experiment Station, University of Minnesota, St. Paul, Minnesota.

R-16 Irrigation

A major potential conflict exists where large center pivot and travelling gun irrigation systems are used. Page 5 of the environmental impact statement states:

Most of the project study area has been classified as "least suitable for irrigation." None of the proposed routes adversely affect known existing or proposed irrigation systems in the project area.

Comment

UPA (UPA-12) has noted:

Immediately north of the Benton County Substation are presently located center pivot irrigation systems. These and future systems in this area could be adversely impacted by an improperly located transmission line.

Reply

UPA is correct.

Related comments on agriculture include EPA-4, UPA-16, UPA-71, UPA-74, UPA-75, UPA-76, and UPA-147.

R-17 Soils

The soils map for the study area, Figure 2-4, was inadequately reproduced in the original environmental impact statement. The Power Plant Siting staff (PPS-2) has provided a corrected map.

R-18 Soil Erosion

Comment

The United States Environmental Protection Agency (EPA-3) raised a number of questions concerning the quality of soil information and the discussion on soil erosion problems.

Reply

Although some erosion may be caused by the construction of a high voltage transmission line, soil erosion per se is not anticipated to be a significant consequence of this project. United Power Association and its contractors must comply with the MEQB's

Construction Permit, the REA's regulations contained in the United States Department of Agriculture/United States Department of the Interior criteria outlined in "Environmental Criteria for Electrical Transmission Systems," and relevant provisions in permits granted by the United States Army Corps of Engineers pursuant to Section 404 of the Federal Water Pollution Control Act of 1974 and to Section 10 of the River and Harbor Act of 1899. Each of these documents specifies measures to prevent or to mitigate soil erosion. In addition, UPA has solicited local advice from the Soil Conservation Service.

Soil erosion may result from disturbance to the soil during construction at stream crossings and at individual sites where structures are located. These disturbances can be minimized, however, by the careful use of trucks and other heavy equipment, the crossing of streams and other fragile areas manually with lead lines and the use of existing roads. After construction is completed, disturbed ground can be reseeded, replanted or otherwise repaired.

The following comments, corrections and clarifications are noted.

Specific responses are not needed.

R-19 Rivers, Wetlands and Woods

COE-1, COE-2, *COE-6, FS-1, FS-2, FS-3, UPA-106

R-20 Scheduling

UPA-123

R-21 Ownership

UPA-33, UPA-44, UPA-45

R-22 Microwave Repeater Station

UPA-5, UPA-46

R-23 Double Circuiting

COE-11, UPA-10, UPA-14, UPA-15, UPA-105, UPA-128, UPA-132

R-24 Clean Up

UPA-54, UPA-145

R-25 Milaca

UPA-110, UPA-111, UPA-113, UPA-115,

- * This comment is addressed on page: 146 (Mitigative Measures (6.2) Design (d) and page 147 Maintenace (6.2.3) (b) and (c) Volume I of the Draft Environmental Impact Statement.

R-26 General Errata and Clarifications

COE-8, COE-9

DOI-1, DOT-2

PPS-3, PPS-4 ... PPS-36

UPA-1, UPA-2, UPA-3, UPA-6, UPA-7, UPA-17, UPA-18, UPA-19,
UPA-20, UPA-29, UPA-30, UPA-31, UPA-34, UPA-35, UPA-38, UPA-
39, UPA-43, UPA-47, UPA-48, UPA-54, UPA-64, UPA-73, UPA-77,
UPA-78, UPA-79, UPA-80, UPA-81, UPA-84, UPA-85, UPA-87, UPA-
88, UPA-890, UPA-92, UPA-93, UPA-94, UPA-95, UPA-96, UPA-97,
UPA-98, UPA-100, UPA-102, UPA-103, UPA-104, UPA-107, UPA-
108, UPA-109, UPA-112, UPA-114, UPA-116, UPA-117, UPA-121,
UPA-122, UPA-125, UPA-127, UPA-129, UPA-131, UPA-133, UPA-
134, UPA-135, UPA-146, UPA-148, UPA-149, UPA-150

CHAPTER 2

COMPLETE TEXTS OF COMMENTS

- A. Fish and Wildlife Service, United States Department of the Interior
- B. Federal Aviation Administration, United States Department of Transportation
- C. Forest Service, United States Department of Agriculture
- D. Minnesota Department of Health
- E. Minnesota Department of Transportation
- F. Minnesota Historical Society
- G. Power Plant Siting Staff, Minnesota Environmental Quality Board
- H. Economics, Statistics and Cooperatives Service, United States Department of Agriculture
- I. Rural Electrification Administration, United States Department of Agriculture
- J. United Power Association
- K. United States Army Corps of Engineers
- L. United States Department of the Interior
- M. United States Environmental Protection Agency



United States Department of the Interior

FISH AND WILDLIFE SERVICE

Federal Building, Fort Snelling

Twin Cities, Minnesota 55111

IN REPLY REFER TO

AFA-SE

JUL 11 1979

Mr. Frank W. Bennett, Director
North Central Area - Electric
USDA-REA, South Building
Washington, D.C. 20250

Dear Mr. Bennett:

We have received the biological assessment that was conducted for the proposed Benton County - Milaca 230 kilovolt transmission project in Minnesota. This assessment was conducted by Drs. Wayland L. Ezell and Ralph Gundersen of St. Cloud State University under contract to United Power Association of Elk River, Minnesota.

FWS-1 No suitable habitat was found for the American or Arctic Peregrine
R-8 Falcon, Bald Eagle, Dakota Skipper or Pennsylvania Smartweed (var. eglandulosum) in the project area. We concur with the results presented in the assessment and as a result, it is my biological opinion that the project as currently planned, will not jeopardize the continued existence of any Federally listed species. There is no designated critical habitat in the project area.

This letter will serve as termination to the requirements of the Section 7 consultation process.

Sincerely yours,

Charles A. Hughlett
Acting Regional Director

DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

GREAT LAKES REGION
2300 EAST DEVON AVENUE
DES PLAINES, ILLINOIS 60018



Mr. Michael Sullivan
Minnesota Environmental Quality
Board
Room 100, Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101

Dear Mr. Sullivan:

FAA-1 We have reviewed the Draft Environmental Impact Statement for the
R-5 230 kV transmission line between Benton County and Milaca, Minnesota,
and have no aviation-related comments to offer. We do not require a
copy of the Final Environmental Impact Statement.

Sincerely,

for Willie H. Baker
LOUIS H. YATES
Chief, Planning Staff, AGL-4

UNITED STATES DEPARTMENT OF AGRICULTURE
FOREST SERVICE
WO

REPLY TO: 1950 Forest Service NEPA Process

OCT 1 - 1970

SUBJECT: DEIS - Minnesota 107 Gopher (GT) 230 KV Trans-
mission Line, Benton County, Milaca, MN

TO: Assistant Administrator, Electric, REA



Our comments on the DEIS for Minnesota 107 Gopher
230 KV Transmission Line in Benton County, Minnesota,
are enclosed in triplicate.

Philip L. Thornton
PHILIP L. THORNTON
Deputy Chief

Enclosures

FOREST SERVICE COMMENTS

Re: DRAFT ENVIRONMENTAL IMPACT STATEMENT - Minnesota
107 Gopher (GT) 230 KV Transmission Line,
Benton County, Milaca, MN

- FS-1 We agree that route A, paralleling the Burlington
R-19 Northern right-of-way would generally have less impact
on woodland and other vegetation than the other alterna-
tive routes. Perhaps it would not be necessary to bypass
Foley but continue along the railroad if tower locations
were selected to avoid interference with traffic. The
same considerations would apply at Milaca, between Nodes
8 and 11 of Line A.
- FS-2 Changes in line alignment probably would render little
R-19 aesthetic improvement in alignment A because the area
involved already has an artificial appearance due to the
presence of the railroad.
- FS-3 Page 147 - If elm wood cannot be removed and destroyed
R-19 immediately, stripping the bark from the wood will prevent
beetle attack. If permitted by regulations, this may be
the only sanitation method needed.



minnesota department of health

717 s.e. delaware st. minneapolis 55440

(612) 296-5221

August 30, 1979

Mr. Michael Sullivan
Minnesota Environmental Quality Board
Room 100, Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101

Subject: UPA-TR-1 Draft Environmental Impact Statement

Dear Mr. Sullivan:

The Minnesota Department of Health has reviewed the Draft Environmental Impact Statement for the Benton County to Milaca Transmission Line and associated facilities.

MDOH-1 The Health Department has no objections to the technical content
R-1 and/or accuracy of Section 4.5--Public Safety and Health. The Department concurs with the conclusion that "Biological effects, if they exist, are likely to be subtle...(and that) at the time of this analysis, such a comprehensive study is not available."

We appreciate the opportunity to review this document. If the Department can be of further assistance please contact me.

Sincerely,

Laura A. Oatman
Public Health Engineer
Section of Health Risk Assessment

LAO:jm



Minnesota
Department of Transportation
Transportation Building
St. Paul, Minnesota 55155

Office of Commissioner

(612) 296-3000

August 28, 1979

Michael Sullivan
Power Plant Siting
Environmental Quality Board
100 Capitol Square Building
St. Paul, Minnesota 55101

Re: Benton-Milaca 230 KV Transmission Line
Draft Environmental Impact Statement

Dear Mr. Sullivan:

The Minnesota Department of Transportation (Mn/DOT) has reviewed the above referenced document. We offer the following comments for your information and consideration in preparing the final document.

Transportation Projects on the Proposed Transmission Line Routes

The following Mn/DOT highway projects are located on one or more of the proposed transmission line routes:

MDOT-1 R-6	<u>Location</u>	<u>Project</u>	<u>Tentative Letting Date</u>
	T.H. 23	Replacement of Bridge 4803	January 1981
	T.H. 95	Replacement of Bridge 87	May 1981
	T.H. 95	Replacement of Bridge 1766 (T.H. 95 Realignment)	May 1981
	T.H. 95	Resurfacing - T.H. 23 to 3 Mi. E. of T.H. 25	presently unscheduled*
	T.H. 169	Princeton Bypass, Grading	under construction
	T.H. 169	Milaca Bypass, Grading	presently unscheduled*
	T.H. 169	Milaca to Rum River Grading	November 1980

* These projects are among 128 Mn/DOT projects which were deferred on August 3, 1979, pending completion of investment strategy and project studies. While it is probable that these projects will be built, the letting dates will be rescheduled for 1982 at the earliest.

On page 33 in section 2.12.1 Roads, paragraph 4, replace the last two sentences with the following:

MDOT-6 Substation. There are presently three transmission lines
R-6 radiating to the north and east from the Substation which will
 have to be relocated to accommodate the freeway interchange.
 Consequently, any new transmission lines approaching the Substation
 from the north or south will encounter considerable conflict with
 the relocated lines and the highway interchange.

All of section 2.12.3 Airports on pages 34-35 should be replaced by the following revised section:

2.12.3 Airports

MDOT-7 Four existing and one proposed airport are in the impacted area.
R-5 St. Cloud Municipal, the largest, is located approximately 1 mile
 southeast of the Benton Substation. Other municipal airports are
 located at Princeton and Milaca. A personal-use landing strip is located
 in Section 6 of Alberta Township and one is planned for Section 11 in
 St. George Township, both in Benton County.

Of the five, the personal-use airport in Section 6 and the Milaca Airport are the ones most affected by the proposed routes. The personal-use airport is within the Route C corridor and the Milaca Airport is in close proximity to the Milaca Substation and is also affected by Route C.

The Milaca Municipal Joint Airport Zoning Board, in an effort to ensure ultimate plans for extending and paving the airport, established an airport zoning ordinance. The Milaca Airport Zoning Ordinance regulates land use and airspace use in order to minimize airport hazards and to prevent the construction of obstructions in the vicinity of the airport. There are five airspace zones, which are horizontal, geometric planes at specified elevations, and three land use zones.

The airspace zones prohibit structures and trees above a height limit established in the Ordinance. These height limits, measured in relation to the elevation of the runway, range from the airport elevation of 1100 feet mean sea level (MSL) to 300 feet above the runway elevation or 1400 feet MSL out to a distance of nearly 2 miles from the airport. These zones are illustrated on the airspace zoning and cross section maps (see Figures 2-16 and 2-17).

The Horizontal Zone of the Milaca Municipal Airport Zoning Ordinance is affected by the proposed line and the Approach Zone could also be affected, depending on which route is selected.

The Milaca Substation is located within the Horizontal Zone and the erection of any structure higher than of 1200 feet MSL would be prohibited. Careful analysis by the United Power Association in determining the type and height of the structures is necessary to be sure that they do not conflict with the Airport Zoning Ordinance.

The Approach Zone of the Zoning Ordinance will also be affected if Alternative Route C is selected. This routing would cross the zone on the north side of the airport and, depending on the height of the poles, could result in a hazard to air navigation.

The Milaca Airport Zoning Ordinance also defines what land uses can be permitted adjacent and near the airport. The most critical area is the land located under the Approach Zone out a distance of 2200 feet from the end of the planned runway. This zone is depicted in Figure 2-18 as Zone A. The proposed transmission line would bisect this zone and therefore would be in violation of the Ordinance.

Any alternative route that enters the Milaca Substation from the north would have a definite impact on the Milaca Municipal Airport, and these routes should no longer be considered as viable alternatives.

We appreciate this opportunity to comment on the draft environmental impact statement. If you desire further information or have questions regarding our requested revisions of the document, please contact Corinne Sando, Mn/DOT Office of Environmental Affairs, at 296-1646.

Sincerely,



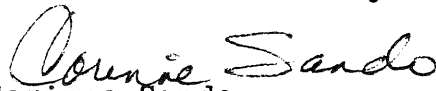
Richard P. Braun
Commissioner

DEPARTMENT OF TRANSPORTATION

Office Memorandum

TO : Michael Sullivan
Environmental Quality Board

DATE: August 30, 1979

FROM : 
Corinne Sando
Mn/DOT Office of Environmental Affairs

PHONE: 6-1646

SUBJECT: Benton-Milaca Draft EIS - Mn/DOT review comments of August 28

MDOT-8 On page 3 of Commissioner Braun's letter of August 28 is
R-5 our requested revision of the Airports section of the EIS.
We wish to delete the following from the first sentence of
the sixth paragraph: 100 feet or .

It has come to our attention that the Milaca Substation's
elevation is approximately 1080' which means that the
utility could actually build a 120' structure and still be
within the 1200 mean sea level limit.

Therefore, deletion of the "100 feet or" will avoid confusion
over the actual limits for structures.

Thank you.



MINNESOTA HISTORICAL SOCIETY

690 Cedar Street, St. Paul, Minnesota 55101 • 612-296-2747

August 21, 1979

Ms. Jenifer Callaway, Project Manager
Power Plant Siting Staff
Environmental Quality Board
100 Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101

Dear Ms. Callaway:

RE: Review of the Joint Draft Environmental
Impact Statement for a 230 KV Transmission
Line from Benton County to Milaca Substation.
USDA - REA-EIS (ADM) 79-5
UPA-TR-1

MHS Referral File Number I279

Thank you for the opportunity to review and comment on the above project. It has been reviewed pursuant to responsibilities given the State Historic Preservation Officer by the National Historic Preservation Act of 1966 and the Procedures of the National Advisory Council on Historic Preservation (36CFR800).

MHS-1 As stated in the above referenced report on pages 38 and 66, the construction
R-2 of transmission lines (i.e., clearing rights-of-way and the placement of poles in undisturbed or minimally disturbed locations) can have an adverse impact on archaeological sites. Accordingly, we have reviewed the route alternatives and designated the areas which were evaluated as having a potential for archaeological resources. In general these are areas which pass near or cross rivers, streams, and marshes. They were selected based on results from systematic archaeological research in many areas of the state which has indicated a high correlation between prehistoric archaeological sites and permanent sources of water (which exist now or may have existed in the past).

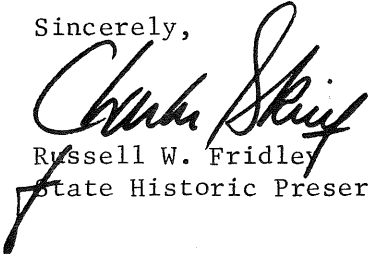
August 21, 1979

- MHS-2
R-2 Consequently, we recommend that an archaeological survey (of the areas delineated on the enclosed map) be conducted. Such a survey would determine the existence of any sites, their eligibility to the National Register, and the possible effects on them from the proposed activity. We would like to add that the evaluation was essentially based on U.S.G.S. topographic maps, and, in many instances, conditions on the field vary. Therefore, if the alignment we recommend to be surveyed is extensively disturbed, or if it is within a river valley or wetland which appears to have low archaeological potential, these areas do not need to be surveyed. However, the decisions should be left to the professional archaeologist who is hired. In addition the archaeologist should be free to investigate high probability areas that may be affected that have not been identified on the enclosed maps.
- MHS-3
R-2 In addition, a literature search should be conducted to identify historical archaeological sites that may be affected by the proposed transmission line.
- MHS-4
R-2 I have also enclosed for your reference a list of archaeologists who have indicated an interest in performing such a survey. The archaeologist will need detailed maps of the project area and an explanation of the proposed construction. In addition, a copy of the survey results should be submitted to this office for final review before work on the project begins.

If you have further questions or comments, please contact Ms. Susan Queripel, Environmental Assessment Officer, State Historic Preservation Office, Minnesota Historical Society, James J. Hill House, 240 Summit Avenue, St. Paul, Minnesota 55102, phone (612) 296-0103.

Thank you for your participation in this important effort to preserve Minnesota's cultural resources.

Sincerely,



Russell W. Fridley
State Historic Preservation Officer

RWF/cjb
Enclosures

cc: Rural Electrification Administration
U.S. Department of Agriculture
Washington, D.C. 20250

Mr. James Eggen
United Power Association
Elk River, Minnesota 55330

Soil Quality Summary
UPA-TR-1
Power Plant Siting Staff
Minnesota Environmental Quality Board
October 1, 1979

PPS-1 The following table, "UPA-TR-1, Summary Of Computer Assisted
R-15 Route Analysis," tabulates the amount and the soil quality of
crop land found along the proposed routes. These figures were
calculated on the basis of 40 acre units found within the pro-
posed routes and measure the potential agricultural productivity
within them based upon the climate modified soil productivity
system explained in Section 2.10.2.1.

Summary of Computer Assisted Route Analysis

	route A'	route A	route B	route C	route D
soil group 1 (76-94)					
	(No group 1 soils present)				
soil group 2 (57-75)					
# of 40 acre parcels	10	11	12	13	9
% of route	11.2	11.5	9.3	8.2	6.5
Approximate distance of route	2.78	2.94	2.97	3.25	2.21
soil group 3 (38-56)					
# of 40 acre parcels	54	61	83	110	58
% of route	60.6	64.2	64.8	70.0	42.3
Approximate distance of route	15.03	16.37	20.70	27.72	14.38
soil group 4 (19-37)					
# of 40 acre parcels	6	4	4	1	55
% of route	6.7	4.2	3.1	.63	40.1
Approximate distance of route	1.67	1.07	.99	.25	13.63
soil group 5 (0-18)					
# of 40 acre parcels	19	19	29	33	15
% of route	21.3	20.0	22.6	21.0	10.9
Approximate distance of route	5.29	5.10	7.21	8.32	3.70
TOTAL # of 40 acre parcels	89	95	128	157	137
TOTAL route distance	24.8	25.5	31.9	39.6	34.0

Corrected Soils Map
Power Plant Siting Staff
Minnesota Environmental Quality Board
October 1, 1979

PPS-2 The following is a corrected text and soils map replacing Section
R-17 2.5 of the environmental impact statement. The original map was reproduced improperly.

2.5 Soils

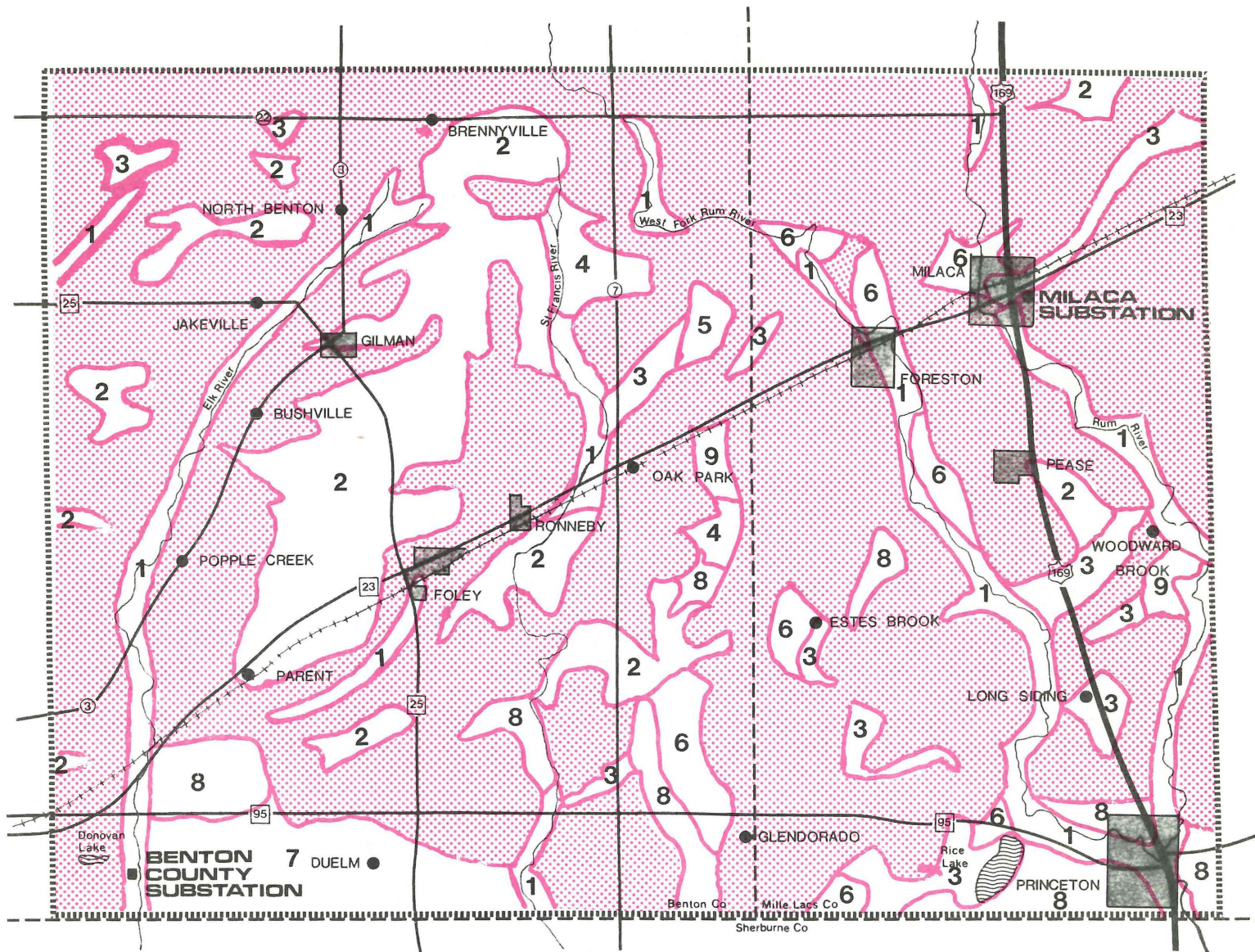
Soil is a product of glacial action of related deposition of material, of stream erosion and of the deposit of alluvial soils. Soils in this area consist mainly of organic soils in the flood plains and of silty, loamy, or sandy soils in between.

Despite these generalizations, accurate descriptions of soils can be made only at the local level after field inspection. Unfortunately, the three major sources of detailed soil descriptions for this area -- the Soil Survey of Benton County, Minnesota (1977), the Soil Survey of Mille Lacs County, Minnesota (1932) and the Minnesota Soil Atlas, "Soil Landscapes and Geomorphic Regions - Stillwater Sheet" (1977) -- are not directly comparable. As a result, although the two county surveys provide more detailed information, the Minnesota Soil Atlas is used here because it provides comparable data for the entire study area in sufficient detail for the purpose of this environmental impact assessment.

Seven general soil types or soil landscape units are present in the study area according to the Minnesota Soil Atlas:

1. Alluvial soils undifferentiated (A);
2. Organic sils undifferentiated (P);
3. Deep silty or loamy, poorly drained, dark colored soils (LLPD);
4. Deep silty or loamy, well drained, light colored soils (LLWL);
5. Loamy over sandy, poorly drained, dark colored soils (SLPD).
6. Loamy over sandy, well drained light colored soils (SLWL); and
7. Sandy over sandy, well drained, light colored soils (SSWL).

The distribution of these soil landscape units in the study area is shown in Figure 2-4.



SOILS

.....

STUDY AREA



LLWL

1

ALLUVIAL

2

LLPD

3

ORGANIC

4

SLPD

5

SLPL

6

SLWL

7

SSWD

8

SSWL

9

SSPL



Miles



Kilometers

FIGURE 2.4

General Corrections

Power Plant Siting Staff

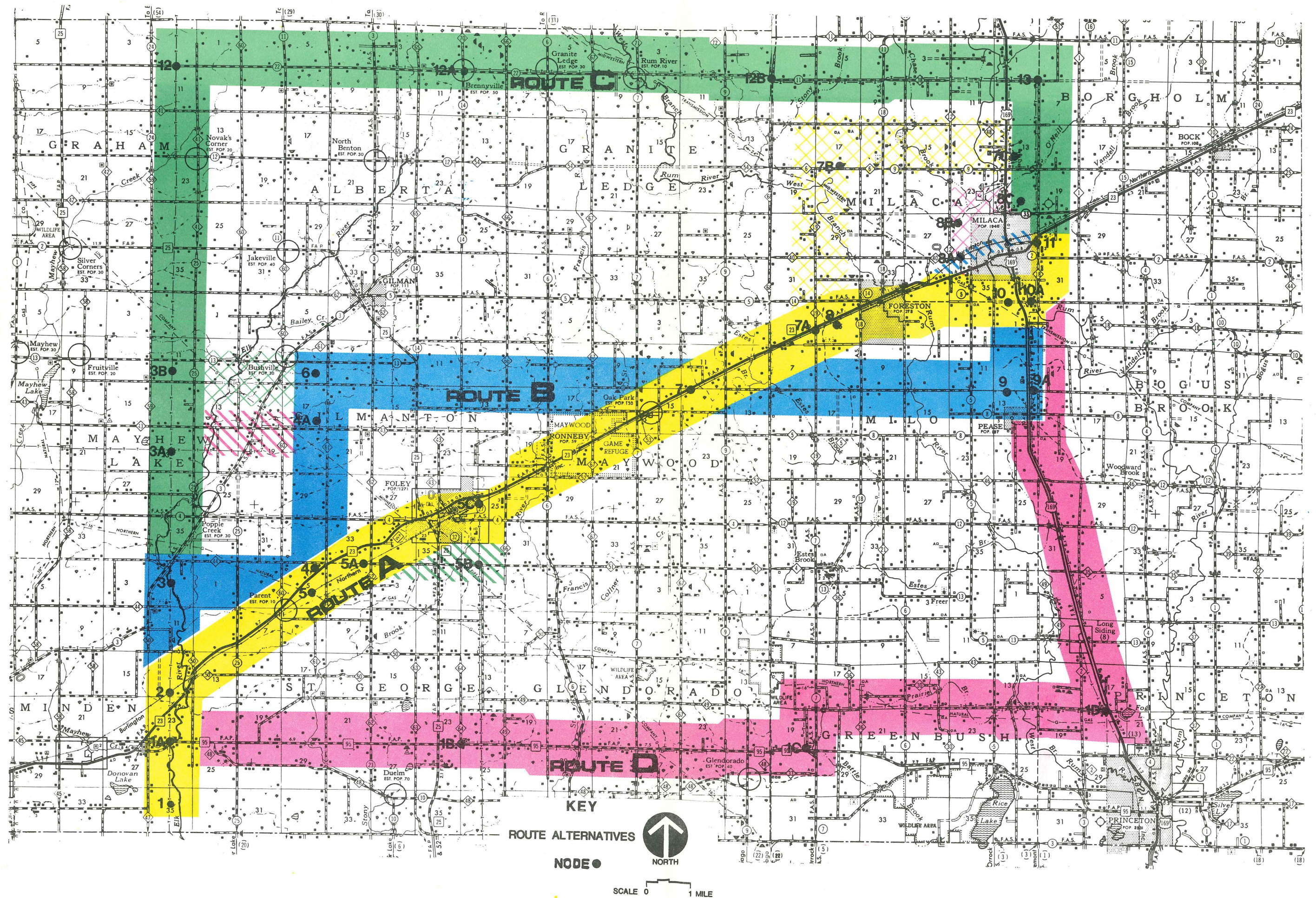
Minnesota Environmental Quality Board

October 1, 1979

The following corrections, additions and clarifications should be made to the environmental impact statement.

- R-26 PPS-3-page 1, paragraph 4, line 5: Delete "Federal and State."
- R-26 PPS-4-page 2, paragraph 1, line 25: Change "to be constructed" to "to be expanded."
- R-26 PPS-5-page 4, paragraph 1, line 1: Change "reference right of way" to "reference centerline."
- R-26 PPS-6-page 4, paragraph 2, line 5: Delete "Rare and."
- R-26 PPS-7-page 4, paragraph 1, line 5: This should read "township roads, and government..."
- R-26 PPS-8-page 12, paragraph 1, line 3: 1977 should be 1967
- R-26 PPS-9-page 17, paragraph 1, line 8: This should read "Ezell."
- R-26 PPS-10-page 21, paragraph 4, line 6: Change to "cemeteries."
- R-26 PPS-11-page 21, paragraph 5, line 8: "Burshville" should read "Bushville."
- R-26 PPS-12-page 27, paragraph 1, line 2: The Minnesota Crop Land Resources study has been published.
- R-26 PPS-13-page 27, paragraph 3, line 3: Replace the sentence with the following one. "Potential major agricultural development projects, such as large scale reclamation projects and speciality crops are not included."
- R-26 PPS-14-page 42, paragraph 1, line 8: Read as "plants)."
- R-26 PPS-15-page 48, paragraph 4, line 1: Change from "Table 3-3" to "Table 3-4."
- R-26 PPS-16-page 54, paragraph 6, line 4: Delete "grassy"

- R-26 PPS-17-page 58, paragraph 2, line 2: Read "...fault. A line to ground fault is a short..."
- R-26 PPS-18-page 61, paragraph 1, line 1: Read "...preparation are estimated..."
- R-26 PPS-19-page 64, paragraph 3, line 7: Read "negative."
- R-26 PPS-20-page 66, paragraph 1, line 5: Read "does" instead of "do."
- R-26 PPS-21-page 67, paragraph 3, line 4: Read "ground cover..."
- R-26 PPS-22-page 72 is upside down.
- R-26 PPS-23-page 83, paragraph 2, line 4: Read "...temporary. The original..."
- R-26 PPS-24-page 86, paragraph 6, line 4: Read "shock."
- R-26 PPS-25-page 86, paragraph 7, line 1: Read "Let-go threshold."
- R-26 PPS-26-page 90, paragraph 5, line 1: Read "The data...were..."
- R-26 PPS-27-page 92, paragraph 3, line 1: Read "Two gravel pits, one used and one unused..."
- R-26 PPS-28-page 93, paragraph 6, line 2: Change to "Northwestern Bell Telephone Company..."
- R-26 PPS-29-page 94, paragraph 3, line 1: This should read "...once. The river is crossed also here by a 25 foot high railroad bridge..."
- R-26 PPS-30-page 109, paragraph 3, line 1: "Soils are light textured loams. Numerous small wetlands are scattered throughout the area." This replaces this paragraph.
- R-26 PPS-31-page 109, paragraph 6: Delete this paragraph.
- R-26 PPS-32-page 161, line 32: This should read "Joe Anfinson."
- R-26 PPS-33-page 162, line 7: This should read "Mark Heitlinger"
- R-26 PPS-34-page 165, paragraph 1, line 2: Read "...CREA form 203; Rev. 3-72)..."
- R-26 PPS-35-page 177, paragraph 1, line 4: Read "...of the study area, some..."
- R-26 PPS-36-page 177, paragraph 1, line 6: Read "Benton County."



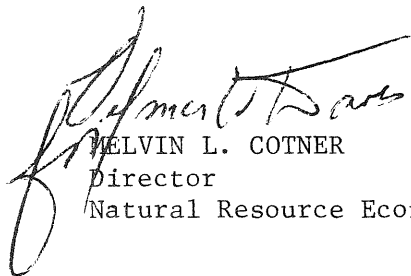
**U.S. DEPARTMENT OF AGRICULTURE
ECONOMICS, STATISTICS, and COOPERATIVES SERVICE
WASHINGTON, D.C. 20250**

August 21, 1979

SUBJECT: Draft Environmental Impact Statement

TO: Joseph S. Zoller
REA

ESCS-1 We have no comments on the Draft Environmental Impact Statement relating to a request for a loan guarantee commitment from the Rural Electrification Administration for United Power Association of Elk River, Minnesota.



MELVIN L. COTNER
Director
Natural Resource Economics Division

UNITED STATES DEPARTMENT OF AGRICULTURE
RURAL ELECTRIFICATION ADMINISTRATION
WASHINGTON, D.C. 20250

SEP 25 1979

SUBJECT: Minnesota 107 Gopher

TO: Mr. Dan McConnan
United Power Association
Elk River, Minnesota 55330

REA-1
R-2

Comments from the Minnesota Historical Society, dated August 21, 1979, addressing the proposed 230 kV Transmission Line from Benton County to Milaca Substation were sent to Mr. Jim Eggan. All the transmission routes have been marked for areas of high archeological potential. Surveys of all the marked areas are recommended by the State Historic Preservation Officer (SHPO), and a copy of the survey results has been requested by the SHPO before work begins on the project. The Rural Electrification Administration would not require any survey of alternatives, unless the proposed route is found to be unacceptable. We suggest that you contact the Environmental Assessment Officer of the State Historic Preservation Office to determine whether a survey of only the proposed route will be acceptable to them as well.

We request that you keep us informed about any meetings you have with the SHPO, and provide us with copies of any reports prepared for this and other offices. A copy of this letter is being sent to Mr. Mike Sullivan, Minnesota Environmental Quality Board.



for FRANK W. BENNETT
Director
North Central Area Electric

cc: Mr. Mike Sullivan



**Minnesota
Environmental Quality Board**

100 Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101
Phone _____

August 10, 1979

TO: WHOM IT MAY CONCERN

RE: UPA-TR-1 Draft Environmental Impact Statement

Enclosed you will find the REA Addendum to the Joint Draft Environmental Impact Statement for the Benton County to Milaca Transmission Line and associated facilities.

REA-2 This copy of the addendum should be read in conjunction with the
R-1 Draft Environmental Impact Statement, referencing Section 4.5.2-
Public Health, Page 87.

Sincerely,

Michael Sullivan
Power Plant Siting Program

REA ADDENDUM TO JOINT DRAFT
ENVIRONMENTAL IMPACT STATEMENT

Reference - Section 4.5.2 - Public Health, Page 87

It should be noted that Section 4.5.2 represents the viewpoint of the Minnesota Environmental Quality Board.

REA-3
R-3

Based on years of industry operating experience with 230 kv transmission facilities, it is REA's judgment that there will be no harmful effects from electrostatic or electromagnetic fields to humans, animals, or vegetation.

united power association



elk river, minnesota 55330 • phone 612-441-3121

September 12, 1979

Mr. Michael Sullivan
Minnesota Environmental Quality Board
Room 100, Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101

Dear Mr. Sullivan:

United Power Association has reviewed the JOINT DRAFT ENVIRONMENTAL IMPACT STATEMENT for a 230 kV Transmission Line From Benton County to Milaca Substation (EQB Docket #UPA-TR-1). We have prepared a number of comments which we feel will clarify the document and correct inaccuracies that are contained therein. A copy of our comments is enclosed for your consideration.

We will be available to respond to any questions you may have concerning our comments. Thank you for the opportunity to present the enclosed comments and we trust they will be beneficial in preparing the Final Environmental Impact Statement for the Benton County to Milaca project.

Sincerely yours,

UNITED POWER ASSOCIATION

Dan McConnon, Manager
Environmental and Lands Division

DM:sgb

Encl.

This document presents the comments of United Power Association on the joint Draft Environmental Impact Statement by the Rural Electrification Administration and Power Plant Siting Staff of the Minnesota Environmental Quality Board for the 230 kilovolt transmission line from Benton County to the Milaca Substation.

Chapter 1:

Page 2, paragraph 2, line 4

UPA-1 The National Environmental Policy Act was adopted by
R-26 Congress in 1969 not 1979.

Page 2, paragraph 3, line 7

UPA-2 The Construction Permit issued pursuant to the Minnesota
R-26 Power Plant Siting Act of 1973 supersedes and preempts
all zoning, building or land-use rules, regulations
or ordinances promulgated by regional, county, local and
special purpose government (Minnesota Statutes, Section
1166.61). The last sentence should be amended as
follows: "...and local authorities, unless superseded
or preempted."

Page 2, paragraph 1.2, subparagraph 1, line 2

UPA-3 Northern States Power Company (NSP) presently owns the
R-26 land and substation facilities located at the Benton
County Substation. United Power Association (UPA) owns
the existing 230 kilovolt (kV) transmission facilities
at the substation and will install, own and operate
necessary substation facilities for the Benton County-
Milaca line.

Page 2, paragraph 1.2, subparagraph 1, line 6

UPA-4 Delete from "UPA will provide..." and amend to read--
R-10 UPA will be purchasing existing substation land and 230
kV facilities from NSP and will provide an additional
transformer...

Page 2, paragraph 1.2, subparagraph 1, line 14

UPA-5 Should a repeater station be necessary between the
R-22 Benton County and Milaca Substations, additional land
will be required; however, it should be noted that by
resolution adopted September 21, 1978, the Minnesota
Environmental Quality Board (MEQB) determined that
microwave facilities "will not be considered as an
associated facility for the purposes of this Application."
The last sentence should be deleted.

Page 2, paragraph 1.2, subparagraph 2, lines 2 and 3

UPA-6 The route segment node numbers are not consistent with
R-26 the map included at the end of Chapter 1 and at the
beginning of Chapter 5. The map node numbers should be
corrected.

UPA-7 Page 3, paragraph 1, line 4
R-26 The route segment node numbers are not consistent with the map included at the end of Chapter 1 and at the beginning of Chapter 5.

UPA-8 Page 3, paragraph 3, line 12
R-3 The sentence beginning on this line might lead one to believe that UPA will construct the transmission line on the reference centerline. UPA makes no representation that this will happen. The reference centerline, as discussed in the Application, is only a convenient means of narrowing down larger routes for purposes of comparing alternatives. Reference is made to Page 110 of the Application by UPA (UPA-TR-1) where a description of the intended use and meaning of the term "reference centerline" is provided. UPA would urge the MEQB to designate the widest possible route for the transmission facility. This action would allow flexibility in locating the transmission line in accordance with good engineering practices, least environmental impact and landowner preferences. Such factors may require that the transmission line centerline not coincide with the reference centerline.

UPA-9 Page 3, paragraph 4, line 5
R-13 Certain members of the Citizens' Route Evaluation Committee have shown a preference for single shaft steel or concrete poles; however, considerable discussion was held with the Committee on the use of wood single shaft poles. The Committee did not express any preference for type of material to be used for construction of the transmission line. It is the position of UPA that the choice of material for the structures should be made by UPA, whose decision will be dependent upon material availability, cost, delivery, schedules, etc., and made at the appropriate time in the project schedule.

UPA-10 Page 3, paragraph 5, line 2
R-23 Should the MEQB designate that existing facilities be double circuited, additional land will be required for right of way. This land may be necessary for construction of a temporary transmission line to replace the line that will be taken out of service for construction, or the existing right of way may be widened to allow for construction of a new double circuit facility next to the existing single circuit facility. In either event, additional land and right of way will be necessary.

Page 5, paragraph B, subparagraph 1

- UPA-11 While the transmission line may cross prime farmland,
R-15 it should be pointed out that very little prime farmland
is taken out of production or otherwise directly affected
by the presence of transmission facilities.

Page 5, paragraph B, subparagraph 2, line 2

- UPA-12 Immediately north of the Benton County Substation are
R-15 presently located center pivot irrigation systems.
These and future systems in this area could be adversely
impacted by an improperly located transmission line.

Page 6, paragraph 2, last sentence

- UPA-13 The last sentence indicates that the transmission line
is not a "critical facility." UPA interprets this to
mean a critical action facility as defined in Executive
Order 11988. UPA would define a transmission line to
be critical if an outage of it would require significant
outage time for consumers. By this definition, the pro-
posed 230 kV line is not critical for the first few years
of its operation because UPA could continue normal system
operation by utilizing only the existing 69 kV grid.
The result of this would be inordinately uneconomic line
losses on the 69 kV transmission system.

The proposed line, however, will become "critical"
in the mid to late 1980s because at that time an outage
of it during normal conditions, i.e., a single contingency,
would probably require load shedding.

The addition of a 230 kV line from Milaca to eastern
Minnesota in the mid to late 1980s will probably become
necessary for continued reliable and economic system
operation. This future line would then similarly render
the planned Benton-Milaca line to be noncritical. That
is, outage of it and one other key facility (double
contingency) would have to occur before service was
directly affected.

Page 7, paragraph H, line 1

- UPA-14 Problems may also arise, but to a lesser extent if the
R-23 Duelm-Mayhew tap 69 kV line is paralleled or double
circuited.

Page 7, paragraph H, line 3

- UPA-15 The statement beginning on this line is true only for
R-23 operation of the transmission facilities. A serious
reliability problem exists during construction of
double circuited facilities on all routes if the
existing line must be removed from service for any
appreciable length of time during construction.

Page 7, paragraph J

UPA-16 While it is appropriate for the reference centerline to
R-15 straddle survey or other natural division lines and
field boundaries, it is not necessarily true that
the centerline of the transmission line will straddle such
divisions. It would be the intent of UPA to "follow"
such lines. Government survey lines and fences are not
normally straight and locating transmission line
structures directly on such fence or survey lines would
entail angles at each structure. This is not practical.
The transmission line is normally aligned in a straight
line for several structures until an angle is required
to bring the centerline back over the fence or survey
line. Such a practice requires structures to be located
on one side of the fence or survey line in many instances.

Page 7, paragraph K, line 5

UPA-17 The route segment node numbers are not consistent with
R-26 the map included at the end of Chapter 1 and at the
beginning of Chapter 5.

Page 8, paragraph 1.5, subparagraph 1, line 1

UPA-18 The Construction Permit issued pursuant to the Minnesota
R-26 Power Plant Siting Act of 1973 supersedes and preempts
"all zoning, building or land-use rules, regulations
or ordinances promulgated by regional, county, local
and special purpose government."

Page 9, first full paragraph, line 10

UPA-19 Delete "migration" and insert mitigation.

R-26

Chapter 2:

Page 12, paragraph 1, line 3

UPA-20 Delete 1977 and insert 1966.

R-26

Page 12, paragraph 1, line 7

UPA-21 UPA has made no statement that the area has been
R-7 relatively free of ice, wind or tornado damage. UPA
has in fact experienced wind and tornado damage in this
area.

Page 17, first full paragraph

UPA-22 This paragraph is not accurate. Now that UPA has obtained
R-8 a biological assessment which indicates that the five
species in question do not exist in the project area,
no formal consultation process is necessary with the
United States Fish and Wildlife Service.

Page 21, paragraph 2.8, subparagraph 4, line 7

- UPA-23 There are no existing private landing strips in the
R-5 project area. One private landing strip is proposed to
be located in the project area.

Page 33, paragraph 2.12.1, subparagraph 4, line 6

- UPA-24 It is not true that all possible alignments and some
R-6 reference centerlines must cross over the new Highway
169 alignment. There are feasible centerlines and
certain reference centerlines which do not cross
Highway 169.

Page 34, paragraph 1, lines 1 through 4

- UPA-25 Delete the sentence "This.....tall" and add,
R-5 Use of 100 foot structures may not allow adequate
ground clearance for required span lengths.

Page 34, paragraph 2.12.3 subparagraph 1, line 4

- UPA-26 UPA knows of no private airstrip adjacent to Highway
R-5 169 north of Milaca and within the project area,
including Milaca Township.

Page 35, first full paragraph, line 3

- UPA-27 Rather than "about 100 feet in height," it would be
R-5 more accurate to say that the height of any object,
in remaining below the 1200 feet mean sea level
elevation, would be determined by the ground elevation
at that point. For example, the mean sea elevation at
the substation site on the east side of Milaca is about
1080 feet. This means that structures erected at the
substation could be no more than about 120 feet in
height.

Page 35, third full paragraph, line 10

- UPA-28 Same comments as above regarding the "100 foot height
R-5 regulation."

Page 35, paragraph 2.12.4(a)

- UPA-29 Delete "Princeton" and insert Riverton.
R-26

Page 40, paragraph 2.16.1, line 9

- UPA-30 Delete "corridor" and insert route.
R-26

Chapter 3:

Page 42, paragraph 3, line 2

- UPA-31 For certain transmission line designs, only one shield
R-26 wire may be necessary.

Page 42, paragraph 3, line 8

UPA-32 UPA has proposed a right of way width of 130 feet for
R-10 H-frame structures and 110 feet for single shaft pole structures.

Page 42, paragraph 4, line 5

UPA-33 All of the additional equipment to be installed at the
R-21 Benton County Substation will be owned, operated and maintained by UPA.

Page 43, paragraph 1, line 4

UPA-34 Delete "land" and insert load.
R-26

Page 44, paragraph 3, line 2

UPA-35 Delete "...transformer equipment in..."
R-26

Page 47, paragraph 3.2.1, line 5

UPA-36 The line should be changed to read "...single shaft
R-13 steel, ~~of~~ concrete and wood poles."

Page 48, paragraph 1, line 7

UPA-37 Delete the entire sentence beginning with "Below
R-10 ground..." and insert. "Below ground requirements are a function of soil conditions."

Page 48, paragraph 2, line 3

UPA-38 Delete 3-3 and 3-4 and add 3.3 and 3.4.
R-26

Page 48, paragraph 3.2.3, line 3

UPA-39 Take out the period and add.....except for railroad
R-26 crossings where 34 feet minimum ground clearance will be provided.

Figure 3.4

UPA-40 Other structure designs than shown in this figure are
R-13 available, most of which utilize suspended insulators.
UPA does not intend to use a V string structure,
therefore this figure is misleading.

Table 3-3

UPA-41 Delete this table and substitute Table 3-3 which is
R-13 attached.

Page 49, paragraph 3.2.4, line 2

UPA-42 Delete "poles" and insert structures. Delete "120 feet"
R-13 and insert 110 feet.

Page 49, paragraph 3.2.4, line 6
UPA-43 Delete the period and add or less.
R-26

Page 49, paragraph 3.3.1, subparagraph 2, line 1
UPA-44 The equipment to be installed at the Benton County
R-21 Substation will be owned, operated and maintained by
UPA.

Page 49, paragraph 3.3.1, subparagraph 3, line 1
UPA-45 NSP, UPA and Cooperative Power Association (CPA) have
R-21 made application for a 345 kV transmission line from
the Sherburne County generating station to the Benton
County Substation. UPA will own, operate and
maintain transformation facilities at the Benton County
Substation for this project.

Page 50, paragraph 1, line 1
UPA-46 By MEQB resolution dated September 21, 1978, microwave
R-22 facilities are not to be considered an associated facility
for purposes of this application.

Page 50, paragraph 3.3.2, subparagraph 2, line 3
UPA-47 The substation at Oak Park which may be built in the
R-26 1990's would be served from the Duelm-Mayhew tap line,
not the Milaca Substation directly.

Page 51, paragraph 3.4.3, line 3
UPA-48 It is the policy of UPA to always follow guidelines
R-26 contained in the publication, "Criteria for Electric
Transmission Systems."

Page 52, paragraph 3, line 4
UPA-49 Delete "60-80" and insert 55-80.
R-13

Page 52, paragraph 4, line 10
UPA-50 Delete "Appendix F" and add Appendix C, page 165.

Page 52, paragraph 3.4.4, subparagraph 1
UPA-51 Delete the entire paragraph and insert, "Concrete
R-13 foundations will be required for structures for the
proposed HVTL if lattice steel towers or unguyed
angles are designated. Also if soil conditions are
adequate for direct imbedment, concrete may be used
for backfill on steel or concrete structures."

Page 52, paragraph 3.4.4, subparagraph 2, line 6
UPA-52 Delete "cement" and insert concrete.

R-13

Page 52, paragraph 3.4.4, subparagraph 2, line 7
UPA-53 Add before the sentence beginning "The 15-40 cubic
R-13 yards..." Where foundations are required for unguyed angle
structures and lattice steel towers, approximately
15-40 cubic yards of soil may be excavated.

Page 54, paragraph 3.4.7
UPA-54 A clear distinction must be made between right of way
R-24 cleanup done during construction on a continuous basis
and "final" right of way cleanup. The extent to which
clean up is done during construction is not as great
as final cleanup. Removal of excess material and general
construction debris will be done on a continuous basis
during construction; however, repairing damages done
on the right of way, removing temporary guard poles, and
certain other activities are completed only during
final right of way cleanup.

Page 55, paragraph 3.8, line 6
UPA-55 The statement beginning "Long term health problems..."
R-1 is true; however, it should be qualified by adding that
no basis exists for such claims from 230 kV alternating
current transmission lines.

Page 56, paragraph 3.8.1, line 7
UPA-56 Corona is a phenomenon also associated with 230 kV
R-26 transmission lines.

Page 56, paragraph 3.8.2, line 5
UPA-57 The statement beginning "With respect to public
R-1 health and safety..." is misleading. For lines 230 kV
and below the electrical field is not a predominant
concern with respect to public health and safety during
normal operation. At higher voltages such fields have
caused some people to be concerned; however, no
controversy exists over lower voltage lines.

Page 57, paragraph 3.8.2.1, subparagraph 1, line 5
UPA-58 After "depends on the" insert type of conductive
R-1 material.

Page 57, paragraph 3.8.2.1, subparagraph 3, line 7
UPA-59 The statement that an electric field can produce an
R-1 induced voltage on conductive objects which "can be
potentially hazardous" is misleading. It is virtually

impossible under practical fault conditions to create a situation where a hazardous voltage can be induced on large conductive objects under a 230 kV transmission line.

Page 58, paragraph 3.8.2.2, subparagraph 2, line 3
UPA-60 Add a parenthesis after "ground" and delete the
R-1 period.

Page 58, paragraph 3.8.2.2, subparagraph 2, line 7
UPA-61 Delete "one-fourth" and insert one-fifteenth.
R-1

Page 60, paragraph 3.9.1, subparagraph 3, line 3
UPA-62 The \$110,000 per mile estimate cost utilizing wooden
R-13 H-frame structures is for an alignment along the
reference centerline in routes A and B. No cost
estimates have been provided for reference centerlines
in other routes.

Page 60, paragraph 3.9.1, subparagraph 4, line 1
UPA-63 The previous comment also applies to this paragraph.
R-13 UPA has revised the cost estimates for route A as
follows:

Lattice towers	\$204,000 per mile
Single shaft concrete poles	\$138,00 per mile
Single shaft steel poles	\$204,000 per mile

Table 3-4
UPA-64 The table is misleading and inaccurate as presented.
R-26 It is suggested that the attached table be inserted
in place of the table contained in the draft EIS.

Chapter 4:

Page 63, paragraph 4.1.a
UPA-65 No fee title for the transmission line is required.
R-10 It is UPA's policy to acquire easements only for the
necessary right of way.

Page 64, paragraph 4.2.1, subparagraph 1, line 10
UPA-66 The statement beginning "In addition..." is misleading.
R-10 Certain types of construction may be permitted within
the right of way of a 230 kV transmission line. UPA
does not restrict the owner's rights to use and enjoy
the land provided his use and enjoyment does not
interfere with UPA's rights of constructing, operating
and maintaining the transmission line. The owner
may cultivate, use and otherwise occupy the easement,
subdivide and improve the easement with streets, curbs,

gutters and underground utilities and other similar improvements where no poles, guys or anchors are located. UPA has occasionally permitted the construction of buildings such as garages, commercial facilities and industrial plants beneath existing transmission lines.

Page 64, paragraph 4.2.2, subparagraph 1

UPA-67 While it is true that a high voltage transmission line can
R-13 cause physical disruptions and linear constraints for future land uses, the presence of a transmission line can also be an opportunity for development provided the transmission line right of way is integrated into development plans. Many examples exist in large metropolitan areas of residential, commercial and recreational development around high voltage transmission lines. A high voltage transmission line right of way can have a positive impact on land-use patterns by providing buffer zones between different types of land uses. While it is true that in some cases a detrimental impact can result, it is also equally true that a positive impact can result from the presence of a high voltage transmission line right of way on land-use patterns.

Page 65, paragraph 4.2.3, subparagraph 1

UPA-68 It is not universally true that the construction of a
R-13 high voltage transmission line changes the use and character of the land over which it passes. For the most part, a high voltage transmission line across agricultural land does not change land use at all. The statement contained in the draft Environmental Impact Statement is not necessarily true. UPA takes issue with the inference that a high voltage transmission line causes negative public attitudes toward an area crossed by the transmission line. It is our experience that for the most part, the public is neutral to the presence or absence of a transmission line. Other factors weigh more heavily in an individual's decision to purchase property. A number of studies have been conducted by independent appraisers which have indicated that property values may not be diminished as a result of the presence of a high voltage transmission line.

Page 65, paragraph 4.2.3, subparagraph 3, line 2

UPA-69 The landowners lose certain rights in the land. The
R-10 statement as contained in the draft Environmental Impact Statement is misleading by not qualifying the extent of the rights that are provided to the utility

by the landowners. The landowner retains rights to his property and may use his land to the extent that his use does not interfere with the utility's right to construct, operate and maintain a high voltage transmission line.

Page 65, paragraph 4.2.3, subparagraph 3, line 7

UPA-70 As stated above, several studies have been completed
R-10 which indicate that real estate value is not affected by the presence of a utility easement.

Page 65, paragraph 4.2.3, subparagraph 5, line 3

UPA-71 The statement that a landowner must adjust his
R-15 agricultural operations to minimize safety hazards is misleading in that it is not absolutely necessary that in each and every case such adjustment is required. For the most part, agricultural operations may continue as prior to the transmission line.

Page 66, paragraph 4.2.4, lines 1 to 14

UPA-72 This is not relevant to the subject HVTL and no
R-15 conclusion can be reached from this as to the subject HVTL.

Page 70, paragraph c, line 3

UPA-73 Insert after the word "avoided," or other steps taken
R-26 for protection.

Figures 4.2 and 4.3

UPA-74 The presence of a transmission line right of way
R-16 does not interfere with the operation of irrigation systems as shown. It is only the location of structures which may adversely affect irrigation systems. Right of way would be less than 200 feet as shown.

Figure 4.4

UPA-75 Structures may be located across a quarter section
R-16 field such that a single center pivot irrigation system with reverse capability may operate effectively.

Page 74, paragraph 2, line 10

UPA-76 Structures may be located across a quarter section
R-16 field such that a single center pivot irrigation system with reverse capability may operate effectively.

Page 78, paragraph 4, line 4

UPA-77 The sentence beginning, "This means that..." should be
R-26 changed to read as follows: This means that the cable is about 135 feet from the south edge of the railroad right of way in those situations where the railroad and highway right of way adjoin.. The reference

centerline is on the south edge of the railroad right of way.

Page 79, paragraph 1, line 1

- UPA-78 Delete "4,800" and insert 4,600. UPA and Northwestern
R-26 Bell Telephone Company are reevaluating this value and will present updated information at the hearings.

Page 79, paragraph 1, line 2

- UPA-79 Delete "21,700" and insert 28,700. UPA and Northwestern
R-26 Bell Telephone Company are reevaluating this value and will present updated information at the hearings.

Page 80, paragraph 5, line 3

- UPA-80 Delete "covona," insert corona.
R-26

Page 80, paragraph 6, line 3

- UPA-81 After the words "...is presently obtained..." insert
R-26 and the receiving equipment is in proper operating condition.... It has been UPA's experience that the presence of a high voltage transmission line normally does not interfere with television reception provided the receiving equipment is in proper operating condition.

Page 82, paragraph 3, line 12

- UPA-82 Delete "very little" and insert no. There is no
R-1 evidence to indicate that electric fields created by 230 kV alternating current transmission lines produce damage to vegetation in the immediate vicinity of the lines.

Page 84, paragraph 4.5.1

- UPA-83 According to the 8th Annual Revision of Overall
R-1 Reliability and Adequacy of the North American Bulk Power Systems prepared by the National Electric Reliability Council (NERC), dated August, 1978, there are 70,791 circuit miles of 230 kV alternating current transmission lines in the NERC area as of 1/1/78. A total of 8,848 circuit miles exist in the Mid-continent Area Reliability Coordination Agreement (MARCA) area as of that same date. Currently UPA owns and operates 455 circuit miles of 230 kV transmission facilities. No complaints or adverse electrical effects which might affect public safety have been reported to UPA. This experience is verified by other utilities in the country operating over 70,000 circuit miles of similar transmission facilities.

Page 85, paragraph preceding Field Effects.

UPA-84 UPA proposed a ground clearance which is in accordance
R-26 with the requirements of the National Electrical Safety
Code (NESC).

Page 86, third full paragraph, line 11

UPA-85 It is virtually impossible to achieve a situation underneath
R-26 a 230 kV line where very large vehicles can be energized
to produce a current above the let-go threshold.

Page 87, Section 4.5.2

UPA-86 Based on UPA's experience and experience obtained by
R-1 an industry operating over 70,000 circuit miles of 230
kV transmission facilities, there is no evidence of
adverse biological or health effects. This experience
is verified by the Rural Electrification Administration
REA) as stated in the REA supplement to the draft EIS.

Chapter 5:

Page 88, paragraph 5.1, subparagraph 6, line 1

UPA-87 The route segment node numbers are not consistent with
R-26 the map included at the end of Chapter 1 and at the
beginning of Chapter 5.

Page 89, paragraph 1, line 3

UPA-88 The route segment node numbers are not consistent with
R-26 the map included at the end of Chapter 1 and at the
beginning of Chapter 5.

Page 89, paragraph 2, line 12

UPA-89 The route segment node numbers are not consistent with
R-26 the map included at the end of Chapter 1 and at the
beginning of Chapter 5.

Page 90, paragraph 3, line 1

UPA-90 While it is true that UPA selected the reference
K-3 centerline for all routes, the reference centerlines
chosen for routes C and D were not based on UPA's
preliminary planning and engineering criteria. They
are based solely on the presence of existing right of
way.

Page 90, paragraph 3, line 11

UPA-91 The reference centerlines are for comparative purposes
R-3 only and do not represent the final right of way
location for the transmission line. A fuller explanation
of the intent and purpose of reference centerlines is
given on Page 110 of the Application.

Page 90, paragraph 5, line 1

UPA-92 Delete "calculated" and insert estimated from aerial
R-26 photographs, maps and field inspections.

Table 5-1

The following will increase the accuracy of the table.

- UPA-93
R-26 Regarding the sixth and eighth line items on each of the five page a's, it would be clearer to say "# homes within 500' of RCL" and "# of farmsteads within 500' of RCL."
- UPA-94
R-26 Route A, page a
 Number of angles (30°-90°) under segment 7A-10; delete 2 and insert 3. Delete 4 and insert 5 in the total column.
- UPA-95
R-26 Route A, page b
 Under "number of unpaved road crossings" for segment 5-5A, delete 1 and insert 0.
- UPA-96
R-26 Route B, page a
 Under total column for "Diagonal length, " delete 1.51 and insert 1.06.
- UPA-97
R-26 Route B, page a
 In "#Farmsteads 500' from right of way," delete "0" and insert 3 under segment 9-10. Delete 19 and insert 22 under total column.
- UPA-98
R-26 Route C, page a
 In "# Airports 5280'," delete 1 under segment 1-1A and insert 0; delete 3 under segment 13-11 and insert 1. Delete 4 under totals and insert 2.

Page 95, Route Segment 5A-5C, paragraph 1, line 2
UPA-99 UPA has expressed no preference for a centerline through
R-3 or around the city of Foley. UPA has proposed a route which allows for centerlines both through and around the city.

Page 96, paragraph 5, line 3
UPA-100 Delete "43" and insert 32 (Norman Avenue).
R-26

Page 96, paragraph 5, line 1
UPA-101 It should be pointed out that UPA suggested a reference
R-3 centerline around the downtown areas of the city of Foley through the industrial area.

Page 96, paragraph 7, line 5
UPA-102 Delete "43" and insert 4.
R-26

Page 96, paragraph 7, line 6
UPA-103 Delete "the CREC ROW" and insert this reference centerline.
R-26

Page 97, paragraph 1, line 1
UPA-104 Delete "the CREC ROW" and insert this reference
R-26 centerline.

Page 100, paragraph Segment 2-3, line 10
UPA-105 It is not necessarily true that no new right of way
R-23 will be required if the existing line is double
circuited. As indicated previously, new right of way
may be required for a temporary line to replace the
existing line during construction, or new right of way
may be required if the double circuit structures are
located next to the existing transmission line requiring
an offset of the right of way.

Page 104, paragraph 4, line 5
UPA-106 The wetland crossed by the reference centerline contains no
R-19 open water. It is a low area, part of which is periodi-
cally inundated depending upon the volume of water passing
through the county ditch. It would probably be classified
as either a Type 6 or Type 8 wetland.

Page 109, paragraph 5, line 10
UPA-107 Insert the word Minnesota before "Wild."
R-26

Page 120, paragraph 1
UPA-108 There appears to be portions of the text missing
R-26 from this section.

Page 120, paragraph 1, line 7
UPA-109 The sentence beginning "The presence of this road..."
R-26 is erroneous. The transmission line could probably
be placed between old Highway 23 and the Burlington
Northern (BN) Railroad. In any event the high voltage
transmission line right of way could not be placed
entirely within the BN right of way.

Page 123, paragraph Segment 8A-11, subparagraph 2, line 14
UPA-110 The reference centerline through the city of Milaca
R-3 would require that commercial buildings be directly
R-25 affected by the proposed transmission line. The
transmission line would require structures to be
located immediately adjacent to commercial establishments
and also require that conductors be located above
commercial buildings. This is particularly important
for the two bulk oil storage facilities located adjacent
to the railroad tracks in Milaca. It is UPA's policy
to avoid locating transmission facilities near existing
buildings to the extent practicable. It is for this
reason that UPA initially avoided proposing a route which
included the railroad right of way through downtown
Milaca.

UPA-111 UPA feels that it is preferable to avoid locating
R-25 transmission facilities near existing buildings, and
routes chosen for lower voltage transmission lines
reflect this preference. The alternate route proposed
by UPA (Route B) was selected with this policy in mind.
Field divisions, government survey lines and property
boundaries where no structures exist were identified
for location of the reference centerline on the
alternate route.

Page 123, paragraph 8A-11, subparagraph 3, line 2
UPA-112 Delete "within 100 feet of" and insert over the top of.
R-26

Page 123, paragraph 8A-11, subparagraph 3, line 5
UPA-113 Should the route through downtown Milaca be designated
R-25 by the Minnesota Environmental Quality Board (MEQB),
the bulk oil storage facilities would likely be
relocated because of the potential adverse reaction
that the public and the owners may have.

Page 123, paragraph 8A-11, subparagraph 3, line 9
UPA-114 There is no "hamburger stand" south of the railroad
R-26 tracks where the reference centerline has been depicted.

Page 124, paragraph 2, line 8
UPA-115 Because the BN Railroad tracks are elevated adjacent
R-25 to the Riverside Recreational Park, taller structures
may be required in this area. Therefore, the transmission
line may not be screened from park-user view by the
railroad tracks.

Page 124, Segment 7A-8A
UPA-116 The two paragraphs under this section apparently
R-26 belong immediately preceeding Page 120.

Page 125, paragraph 5.3, subparagraph 1, line 3
UPA-117 Up to this point in the document, only four main
R-26 routes have been identified.

Page 125, paragraph 5.3, subparagraph 1, line 6
UPA-118 Substitution of the alternate links could significantly
change the impact of not only a portion of a route
but also the entire route.

Page 126, paragraph 3, line 6
UPA-119 As stated previously, the reference centerline south
R-3 of the downtown area of Foley through an industrial
area was not proposed by the CREC nor is it a center-
line alignment. The reference centerline was proposed
by UPA and falls entirely within the route described
by UPA in the Application.

Page 127, paragraph 2, line 10
UPA-120 Delete "rather than between those ROW's and the high-
R-6 way."

Page 127, paragraph 2, lines 18 and 19
UPA-121 Delete everything in parenthesis.
R-26

Page 128, paragraph 2, line 10
UPA-122 The sentence beginning, "Present laws do not permit..."
is true in most, but not all situations.

Page 131, paragraph 1, line 4
UPA-123 Certain impacts can be minimized through careful
R-20 scheduling; however, it should be recognized that
Minnesota has one outdoor construction season that
extends from that time in the spring when ground
moisture is reduced to that time in the fall when
the ground freezes. It should not be expected that
construction be done during the winter solely for
the purpose of avoiding impacts on crop land. The
winter construction season is too short and too
inefficient to provide adequate time for completion
of construction on schedule.

Page 131, paragraph 5.3.2.2, subparagraph 2, line 4
UPA-124 A substation is designed very carefully so that utility
R-1 employees working within the substation are fully
protected from ground fault conditions. Delete everything
in parenthesis.

Page 132, paragraph 1, line 4
UPA-125 Delete "15,000" and insert 5,000.
R-26

Page 133, first full paragraph, line 13
UPA-126 The likelihood of a train-transmission line accident
R-1 is also related to the frequency of train passage as
well as the distance over which the train and transmission
line parallel each other.

Page 135, paragraph 1, line 4
UPA-127 Delete C and insert D.
R-26

Page 138, paragraph 1, line 9
UPA-128 System reliability could be a problem if the Benton
R-23 County-Riverton line must be taken out of service for
an extended period of time for double circuit
conversion.

Page 138, paragraph 2, line 11
UPA-129 Delete 3-3 and insert 3-4.
R-26

UPA-130 Page 138, paragraph 2, line 12
R-13 Delete \$140,000 and insert \$110,000. Delete "\$216,000" and add \$204,000. These estimates are for routes A and B only.

UPA-131 Page 138, paragraph 3, line 3
R-26 Accessibility along route B would be achieved along the right of way.

UPA-132 Page 140, paragraph 5.5.4
R-23 Nowhere in the discussion of the potential for expansion are the costs of providing for future double circuiting mentioned. This is an important aspect of the consideration concerning the potential for expansion.

UPA-133 Page 141, paragraph 1, line 1
R-26 The line should be changed to read "...steel, ~~or~~ concrete or wood.

UPA-134 Page 141, paragraph 5.5.6.1, subparagraph 2
R-26 Additional transformation facilities would be required if the voltage of the transmission facilities were change from 230 to 138 kV.

UPA-135 Insert after the sentence ending "...138 kV."
R-26 Utilities have experienced reasonable reliability with solid dielectric cables in applications up to 69 kV. Reliability of higher voltages is questionable. Electric Power Research Institute (EPRI) has sponsored a test program with Westinghouse Electric Corporation at Walt's Mill. The program consisted of accelerated life cycle tests on six different 138 kV cables. All six of the cables failed or had operating problems. Since the initial test, one manufacturer managed to modify a design and complete the accelerated life cycle test. To date, only one utility in the United States has had any reasonable experience with 138 kV cables.

Chapter 6:

UPA-136 Page 144, paragraph 3, subparagraph a, line 2
R-10 Delete "will" and insert may.

UPA-137 Page 144, paragraph 3, subparagraph a, lines 3 and 4
R-10 The phrase, "immediate vicinity" is not defined in the document. UPA has no control over the construction of buildings adjacent to the right of way easement. Construction of buildings within the easement will not be permitted without the prior consent of UPA.

UPA-138 Page 145, paragraph at top, subparagraph b
R-10 It is not an absolute that the transmission line creates a linear constraint on future development. Depending upon the particular future land-use contemplated, the transmission line may create a linear constraint.

Page 145, paragraph at top, subparagraph d
UPA-139 While the operation of a transmission line may create
R-1 a variety of public health and safety concerns to
certain individuals, the design of the subject
transmission line is such that no health or safety
problems are reasonably anticipated from its operation.

Page 145, paragraph at top, subparagraph g, line 1
UPA-140 Delete "creates" and insert may create.
R-10

Page 145, paragraph 2, subparagraph c, line 2
UPA-141 Herbicides will be used only in compliance with
R-10 government-approved regulations and with landowners'
knowledge and consent. If used, the approved herbicides
should have minimal effect on plants and animals within
the easement area.

Page 145, paragraph 2, subparagraph f
UPA-142 If avian collision with a high voltage transmission
R-11 line is in fact a problem--there is some dispute over
the significance of the problem--collisions by birds
normally occur with small sized conductors, such as on
a distribution line or telephone line. Collisions
with transmission line towers have not been documented.

Page 145, paragraph 3, line 2
UPA-143 The sentence beginning, "Although significant for the
R-10 entire project..." should be deleted and replaced with
the following sentence: However, these effects are
randomly distributed throughout the entire length
of the transmission line and their cumulative effect
is not significant.

Page 146, paragraph 6.2.1.c
UPA-144 Long tunnel views will be impossible to avoid since for
R-10 most routes the transmission line will parallel existing
linear features, i.e., the railroad.

Page 147, subparagraph f
UPA-145 Restoration and complete cleanup of the right of way
R-24 will be accomplished following construction.

Page 147, subparagraph g
UPA-146 Such planning, considering only compaction, would
R-26 indicate winter construction. Planning will consider all
adverse effects on agricultural land, including soil
compaction, and construction will be accomplished so as
to minimize to the extent practicable adverse impacts.

Page 147, paragraph 6.2.3.c

UPA-147 Not all "environmental damage" can be rectified as
R-15 indicated.

Page 159, paragraph 1, line 3

UPA-148 Delete "overlapping" and insert complementary.
R-26

Page 163, paragraph 2, line 5

UPA-149 Delete "nine" and insert eleven.
R-26

Page 163, paragraph 2, line 10

UPA-150 The route segment node numbers are not consistent with
R-26 the map included at the end of Chapter 1 and at the
beginning of Chapter 5.

UPA-151
R-13

TABLE 3-3
APPROXIMATE MATERIAL REQUIREMENTS

(per mile)

<u>Structure Type</u>	<u>Estimated Material Requirements*</u>			
	<u>Wood</u>	<u>Steel</u>	<u>Concrete</u>	<u>Limestone</u>
Wood Pole H-Frame	50	2		
Single Shaft-Steel		45	9	25
Single Shaft-Concrete		5	185	20
Lattice Steel		38	100	

* Wood and steel requirements are in tons. Concrete and limestone requirements are in cubic yards. Most angle structures will be guyed except for lattice steel structures.

SOURCE: UPA (1979)

UPA-153
R-13
TABLE 3-4

		Characteristics				Foundation Requirements		Material and Installation ² Cost/Structure (1978 dollars)					
		# Per Mile	Total Above Ground Height	Land area Per Base	# guys(range) On guyed structures	Direct embed	Concrete	Cost Per Mile Tangent ³	light (3-30°) angle guyed	light (3-30°) angle unguyed	heavy (30-90°) angle guyed	heavy (30-60°) cost unguyed ⁴	total ⁵ cost per mi
Single Circuit (S.C.)	H-Frames	6.4-10.0	70-90'	44-88 ft ²	2-20	Yes		78,000	5,500	NA	7,900	NA	110,000
	Lattice Towers	5.5-8.0	85-110'	900-1000 ft ²	NA	No	Yes	114,000	NA	37,000	NA	58,000	204,000
	Steel Poles	6-12	95-115'	10-50 ft ²	1-14	Yes		153,300	9,200	35,000	15,800	85,500	204,000
	Concrete Poles	6-12	90-110'	10-50 ft ²	1-14	Yes		95,500	6,500	NA	11,200	NA	138,000
Double Circuit 230/230 ¹	H-Frame	-----	-----	-----	-----	NOT APPLICABLE-----		-----	-----	-----	-----	-----	-----
	Lattice Towers	5.5-8.0	115-140'	1500-2000 ft ²	NA	No	Yes	Use multiplier of 1.5 x S.C.					
	Steel Poles	6-16	105-120'	15-100 ft ²	1-14	Yes		Use multiplier of 1.6 x S.C.					
	Concrete Poles	9-16	95-105'	15-100 ft ²	1-14	No	Yes	Use multiplier of 1.7 x S.C. 2 poles used for angles					

- ¹ Add to these figures, if appropriate, the cost of \$40,000 per mile (1978 dollars) to remove the MR line.
- ² Any costs given here are to be used only for relative comparison among themselves.
- ³ These costs are costs for a line with only tangent structures, i.e., conductor and other misc. construction costs are included. These costs exclude Engineering, Administration and ROW/Environmental costs.
- ⁴ Preliminary estimate only; detailed design of each application is required.
- ⁵ Includes design, engineering, ROW clearing and construction costs; does not include costs for ROW easements and environmental requirements.

SOURCE: UPA



DEPARTMENT OF THE ARMY
ST. PAUL DISTRICT, CORPS OF ENGINEERS
1135 U. S. POST OFFICE & CUSTOM HOUSE
ST. PAUL, MINNESOTA 55101

REPLY TO
ATTENTION OF:
NCSCO-RF

4 OCT 1977

Mr. Michael Sullivan
Minnesota Environmental Quality Board
Room 100, Capitol Square Building
550 Cedar Street
St. Paul, Minnesota 55101

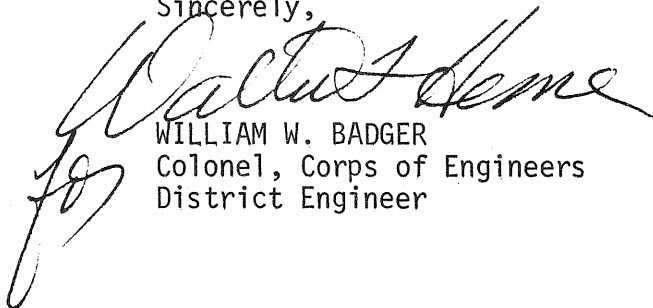
Dear Mr. Sullivan:

We have reviewed the Draft Environmental Impact Statement on Benton County, Milaca, Minnesota, 230 kV transmission line. Our comments are inclosed.

Thank you for the opportunity to review this document.

Sincerely,

1 Incl
As stated


WILLIAM W. BADGER
Colonel, Corps of Engineers
District Engineer

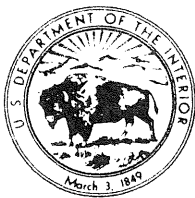
General Comments

- COE-1
R-19 1. Pursuant to Section 10 of the River and Harbor Act of 1899 a Department of the Army permit would be required for the crossing of any navigable water of the United States. The various alternative routes outlined in the draft EIS would require crossing the Rum River and West Fork River, both of which are navigable waters.
- COE-2
R-19 2. The numerous wetlands that would be crossed by the alternative routes would be covered by an existing Department of the Army nationwide permit for Utility Line Crossings (33 CFR 323.4-3). This nationwide permit covers only backfill or bedding for utility line crossings. Any additional discharge of fill material in wetlands for access or incidental to construction may require individual permits.

Additional Comments

- COE-3
R-4 Page 6 Floodplains. - What is meant by a critical facility? Why is the proposed transmission line not a critical facility?
- COE-4
R-9 Page 40 Nature Conservancy Areas. - What constitutes significant, undisturbed natural features? A description of the parcels with these areas should be included.
- COE-5
R-13 Page 47 Structures. - The wooden, two-pole H-frame structure would be the most desirable from an aesthetic viewpoint.
- COE-6
R-19 Page 55 Right of Way and Line Maintenance. - What are the special management practices that may be used in wetlands?
- COE-7
R-19 Page 84 Impacts on Water. - What measures would be taken to mitigate the listed impacts. They should be included in the Final EIS.
- COE-8
R-26 Pages 110-111 Missing from Draft.
- COE-9
R-26 Page 125 Summary of Route Impacts. - Route "A" discussed in the summary but is not shown on the map at the beginning of Chapter 5.
- COE-10
R-14 Page 141 Alternative Technologies. - The feasibility and cost for underground crossings of the Rum River, a State-designated Wild and Scenic River, should be discussed.
- COE-11
R-23 Page 151 Upgrade the Existing Lines. - The costs of upgrading the existing line to increase the current carrying capacity or increasing the voltage should be included.

Incl 1



United States Department of the Interior

OFFICE OF THE SECRETARY
NORTH CENTRAL REGION
175 WEST JACKSON BOULEVARD
CHICAGO, ILLINOIS 60604

ER 79/857

October 1, 1979

Mr. John S. Zolh
Assistant Administrator
Rural Electrification Administration
U.S. Department of Agriculture
Washington, D.C. 20250

Dear Mr. Zolh:

This responds to your letter requesting Department of the Interior review of the draft Environmental Impact Statement (EIS) on the Minnesota 107 Gopher 230 kV transmission line, Benton County, Minnesota.

From the standpoint of Interior's areas of responsibility the EIS adequately describes the project's impacts.

We offer the following suggestions to improve the final EIS:

Page 4, Chapter 1, Section 1.3. Major Environmental Impacts.

DOI-1
R-21

The Federal act that provides for the conservation of endangered and threatened species of fish, wildlife, and plants is entitled the "Endangered Species Act of 1973," not the "Rare and Endangered Species Act of 1973."

Page 155, Chapter 10.

In addition to citing U.S. Fish and Wildlife Service responsibilities under the Endangered Species Act of 1973, the following statement about the Fish and Wildlife Service's reviewing and commenting authority on project proposals should be included:

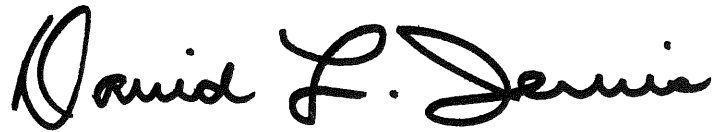
DOI-2

"The U.S. Fish and Wildlife Service of the Department of the Interior has broad responsibilities to protect the public interest in such areas as conservation and management and improvement of water quality, aesthetics, and general recreational use as related to fish and wildlife resources, and the preservation, maintenance, restoring, or enhancement of aquatic ecosystems. For the purpose of conserving fish and wildlife resources, the Fish and Wildlife Coordination Act, as amended in 1958, requires that any Federal agency or department proposing water development projects for construction or any private or public agency submitting application for projects to be constructed under Federal permit or license shall first consult with the U.S. Fish and Wildlife Service."

DOI-3 The Bureau of Mines is concerned with the effect that the project would
R-12 have on mineral resources in the area include quarry stone, sand, and
gravel. Sand and gravel are in plentiful supply throughout the region,
and pit operators, therefore, would not be significantly affected by
the project. Quarry stone crops out only in a few areas, however,
thereby limiting minable locations. The final EIS should mention any
disruption of quarrying that may be caused by construction of the
proposed facilities.

Thank you for this opportunity for review and comment.

Sincerely yours,

A handwritten signature in black ink, reading "David L. Jervis". The signature is written in a cursive, flowing style with a large initial "D".

David L. Jervis
Regional Environmental Officer



UNITED STATES
ENVIRONMENTAL PROTECTION AGENCY
REGION V
230 SOUTH DEARBORN ST.
CHICAGO, ILLINOIS 60604

27 SEP 1979

Assistant Administrator - Electric
U.S. Department of Agriculture
Rural Electrification Administration
Washington, D.C. 20250

RE: 79-054-914
D-REA-F08008-MN

Dear Sir:

EPA-1 We have completed our review of the Draft Environmental Impact Statement (EIS) for Benton - Milaca, Minnesota 230 KV Transmission Line dated July 1979 which consists of a 230 KV transmission line from the Northern States Power (NSP) Benton County Substation to an United Power Association (UPA) Substation to be constructed on the east side of the City of Milaca. We have classified our attached comments as LO-2. Specifically, this means that although we have a lack of objections regarding the environmental impact of the action, we believe additional information should be provided in the Final EIS. The classification and date of our comments will be published in the Federal Register in accordance with our responsibility to inform the public of our views on proposed Federal actions under Section 309 of the Clean Air Act.

EPA-2 The Draft EIS was comprehensive and informative in describing both the trans-
R-18 mission line project and its impact upon the environment. However, a more detailed analysis should be presented in the Final EIS on soil information.

We appreciate the opportunity to review this Draft EIS. If you have any questions regarding our comments, please contact Rick Pitorak, at 312/353-2307.

Sincerely yours,

f. 1 Barbara J. Taylor, Chief
Environmental Impact Review Staff
Office of Federal Activities

Attachment

SOIL

The quality of soil information is generally inadequate for the purpose of evaluating the impact of the transmission line on the soil resource base. This information is necessary to assess the potential for construction and maintenance operations to impact water quality by increasing sediment levels in surface waters. As more detailed soil surveys are presently available for the area, we would like to see them presented. Realizing there will be some cartographic and interpretive problems to overcome in joining the 1932 and 1977 surveys, we think the results would be worth the effort. Detailed maps (i.e., 4" = 1 mile approximately) with an overlay of the proposed routes, and the necessary interpretive data for evaluating the soils for the project, should be included. With the aid of this detailed soil information, a projection should be made as to amounts of expected erosion and its control (suggestions on this topic include the use of fast growing temporary cover crops and mulching with straw during construction to reduce erosion losses and sediment pollution of surface waters, as well as removing topsoil before spreading spoil and replacing it when finished to preserve a desirable seedbed). Accurate estimates could also be made regarding the total amount of prime farmland to be removed from production by each alternative.

EPA-3
R-18

EPA-4
R-18

APPENDIX A
SAMPLE EASEMENT CONTRACT

This appendix contains a sample easement contract supplied by UPA. Inclusion of this information is for reference purposes only and does not constitute approval of its contents by the Minnesota Environmental Quality Board.

Similar documents have been used in the past by UPA. However, the precise easement agreement is a product of individual negotiations between the landowner and the utility.

E A S E M E N T

KNOW ALL MEN BY THESE PRESENTS, that (I)(We) the undersigned.....

.....
.....
whose post office address is.....
in consideration of one dollar and other good and valuable considerations, the receipt whereof
is hereby acknowledged, do hereby grant unto UNITED POWER ASSOCIATION, whose post office address
is Elk River, Minnesota, (the Association) and to its successors or assigns, the right to enter
upon the following described lands of the undersigned, situated in.....
County, Minnesota, to wit:

That part of

which lies within a distance of.....feet on each side of the following described
centerline. or extensions thereof:

and to construct, operate and maintain thereon, and in or upon all streets, roads or highways
abutting said lands, an electric transmission line or system consisting of.....
.....structures, together with the right of reasonable
ingress to and egress from the easement over and across the lands adjoining the easement, and
the right to occupy and use that part of the lands adjoining the easement necessary for the
performance of the construction and repair of the electric transmission line or system. The
grant of this easement shall include the right to cut down, trim, or in any manner eliminate all
trees, shrubbery or brush, and further to cut down from time to time all other dead, weak,
leaning or dangerous trees located on lands adjoining said easement that are tall enough to
strike the wires in falling.

The undersigned reserve(s) the right to cultivate, use and occupy said easement, except that,
without the prior written approval of the Association, the undersigned shall not erect thereon
any structures, or other objects or improvements, permanent or temporary, except fences,
streets, roads, and underground improvements, such as utilities.

The Association agrees to pay to the undersigned when construction of said line or system is
commenced on the above-described lands the further sum of \$.....

Further, the Association agrees to pay a reasonable sum for any damage caused to crops,
fences, roads or other improvements by the construction, operation, maintenance, or repair of
said line or system.

All facilities installed and placed by the Association on said lands shall remain the property
of the Association, removable at the option of the Association.