MPUC Docket No. E-6472/GS-06-668
OAH Docket No. 12-2500-17512-2

BEFORE THE
MINNESOTA OFFICE OF ADMINISTRATIVE HEARINGS
100 Washington Square, Suite 1700
Minneapolis, Minnesota 55401-2138

FOR THE
MINNESOTA PUBLIC UTILITIES COMMISSION
127 7th Place East, Suite 350
St. Paul, Minnesota 55101-2147

In the Matter of a Joint LEPGP Site Permit,
HVTL Route Permit and Pipeline (Partial Exemption)
Route Permit Application for the Mesaba Energy Project

PREPARED DIRECT TESTIMONY AND EXHIBITS OF

EXCELSIOR ENERGY INC., MEP-I LLC, AND MEP-II LLC

PAUL A. YOUNG

JANUARY 16, 2007

EXCELSIOR ENERGY, INC.

BEFORE THE MINNESOTA PUBLIC UTILITIES COMMISSION

PREPARED DIRECT TESTIMONY OF

PAUL A. YOUNG

Q Please state your name, current employment position and business address.

A Paul A. Young. I am currently Senior Vice President and Director of Operations at Laramore, Douglass & Popham ("LDP"). My business address is 16476 Chesterfield Airport Rd., Suite 220, St. Louis, Missouri 63017.

Q Would you please describe your educational and professional background.

A I have a Bachelor of Science in Electrical Engineering from the University of Missouri–Rolla and a Masters of Science in Telecommunications Systems from DePaul University. I am a certified Professional Engineer. I have almost 20 years of experience in electrical engineering, including experience with high voltage substations for utility projects. I have held my current position with LDP since 2003. My resume is appended as Exhibit ___ (PAY-1).

Q On whose behalf are you testifying?

A I am testifying on behalf of MEP-I LLC, MEP-II LLC, and Excelsior Energy Inc. (collectively "Excelsior"), the developers of the Mesaba Energy Project (the "Project").

Scope and Summary

Q What is the scope of your testimony in this proceeding?

A The purpose of my testimony is to sponsor several sections of Excelsior's Joint Application and Environmental Supplement. The general subject of my testimony includes transmission line construction, engineering and operational design.

In particular, I am sponsoring and am available to answer questions regarding the following sections:

Joint Permit Application

Section 4.1 (Electrical Design)

Section 4.2 (Generator Outlet Routes)

Section 4.3 (Structures and Right-of-Way Requirements)

Section 4.4 (Transmission Line Construction)

Section 4.5 (Transmission Line Operation and Maintenance)

Section 4.6 (Electric and Magnetic Fields and Noise)

Section 4.7 (Transmission Line Cost)

Section 6.2.4 (Predicted Electric and Magnetic Fields)

Section 6.2.5 (Mitigation Measures)

Section 6.2.6 (Minimum Setback Requirements)

Environmental Supplement

Section 1.12.1.1 (Electric Transmission)

Section 1.12.1.2 (Generator Outlet Routes)

Section 1.12.1.3 (Structures and Right-of-Way Requirements)

Section 1.12.1.4 (Conductors)

Section 1.12.1.6 (Construction)

Section 1.12.1.7 (Operation and Maintenance)

Section 1.12.1.8 (Electric and Magnetic Fields and Noise)

Section 3.11 (Electromagnetic Fields)

During the preparation of the Joint Application and the Environmental Supplement, LDP personnel under my supervision worked closely with Excelsior in

drafting and reviewing these sections. The sections incorporate field reports and analysis that I prepared or that LDP personnel under my supervision prepared.

Joint Application and Environmental Supplement

Q Please briefly describe the information contained in the sections you are sponsoring?

A The sections deal with how the transmission lines will be constructed, operated and maintained. The sections also touch on safety issues such as the potential to exposure from electric and magnetic fields and line setback requirements.

Q Is there anything in particular you would like to address about the sections you are sponsoring?

A Yes. We have worked with Excelsior to update our analysis on transmission line operation. The Joint Application and Environmental Supplement reflect this analysis for the West Range Site. For the East Range Site, however, I would like to point out one change. If the East Range Site is selected, Excelsior will operate each of the two required 345 kV HVTL conductors at 230 kV during Phase I of the Project.

Q Has Excelsior addressed the issue of electric and magnetic fields?

A Yes. Regardless of route and design alternatives, which are discussed in detail in Section 2.2 of the Joint Application, electric and magnetic fields and noise levels will be in compliance with all applicable State and Federal laws. Nevertheless, Excelsior has identified and will be implementing certain mitigation measures, as discussed in the Joint Application. Excelsior has considered two alternative sites and many transmission line route and design alternatives. Construction specifics will be dependant upon the site, route, and design selections and permits.

Q Are there any significant changes to the electric and magnetic fields analysis occasioned by the change in plan to operate the East Range Site conductors at 230 kV?

A Operating the HVTL conductors at a lower voltage (i.e., 230 kV instead of 345 kV) during Phase I of the Project will decrease noise as well as electric fields in the vicinity of the HVTL, magnetic fields can increase at the lower voltage. I have attached updated Figures 4.6-13 through 4.6-16 to quantify the changes; which were developed at the lowest point of conductor sag under maximum current for normal operating conditions. These calculated electric and magnetic field values provide representative long term exposure for the lowest point of the conductor under normal operating conditions. Appended as Exhibit ___ (PAY-2).

Q Can you give some examples of mitigation measures that Excelsior will take to reduce the potential for exposure to electric and magnetic fields?

A Distance, for example, is a factor in reducing exposure to electric and magnetic fields. Excelsior has considered this mitigation factor in route and design selections in part to avoid residences. Further, the configuration and distance between phases can impact exposure. By proposing a double circuit configuration for both the West and East Range Sites and utilizing A-B-C, C-B-A phasing arrangements, Excelsior will reduce such potential for magnetic field exposure.

Conclusion

Q Does this conclude your testimony?

A Yes.

EXHIBITS

EXHIBIT ___ (PAY-1)

PAUL A. YOUNG, P.E.
ELECTRICAL ENGINEER

EDUCATION:

University of Missouri – Rolla, B.S.E.E.
DePaul University, M.S. Telecommunications Systems

REGISTRATION:

Professional Engineer - Arizona, Iowa, Illinois, Missouri, Wisconsin, Georgia, South Dakota, California, Vermont, Michigan, Kentucky, New York, Minnesota, NCEES

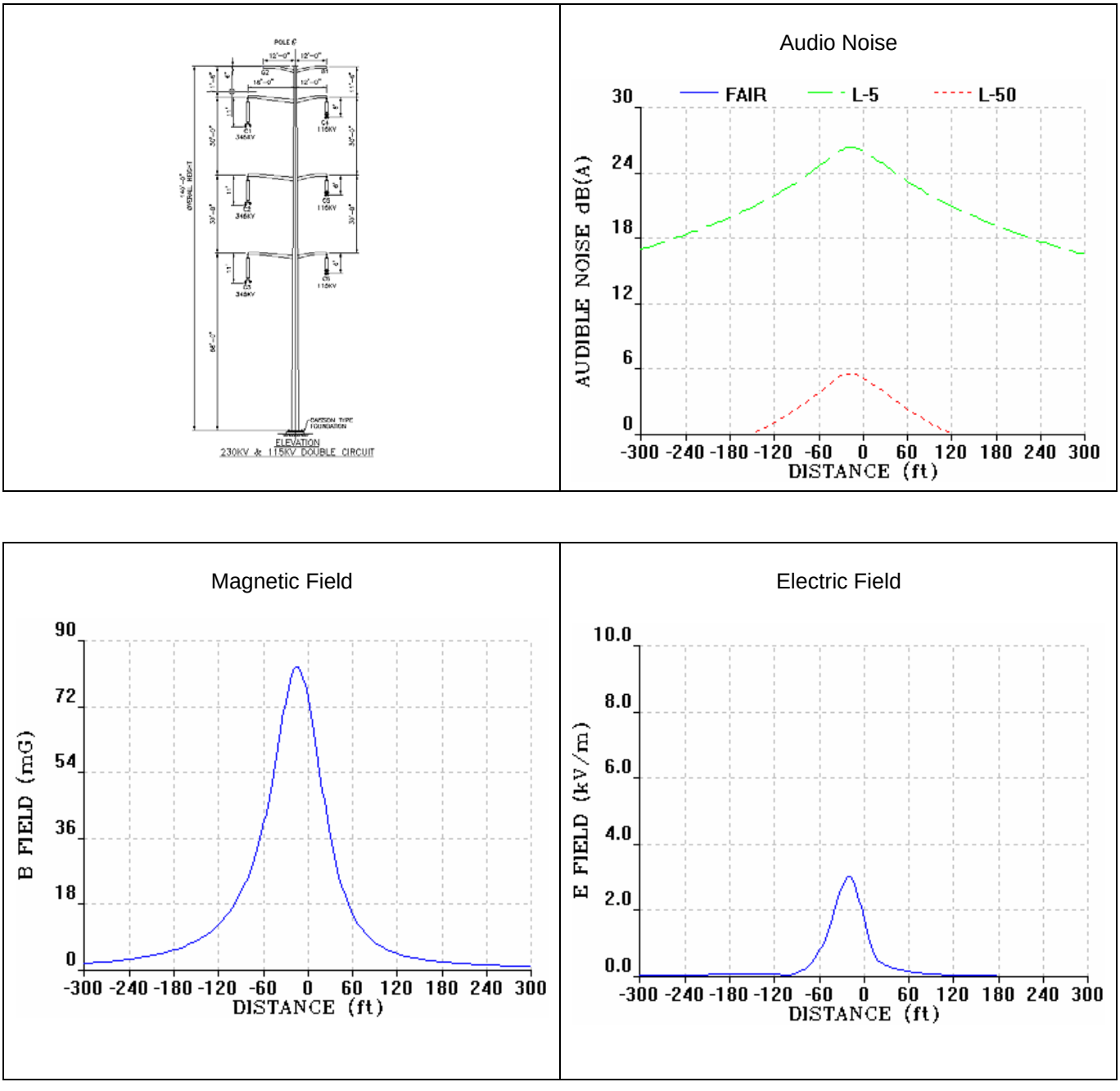
EXPERIENCE:

'03 - Date	Laramore Douglass and Popham	Senior Electrical Engineer, Project Manager and Principal. Responsibilities include the design development and management of projects to build electrical transmissions and substations, with voltages from 34.5kV and up. Project manager for Central SX Substation upgrade, Blount Substation Location Study, including consideration of both overhead and underground transmission alternates, and Colton Transmission Line Project. Senior Engineer for Design of Mendota Hills and McGirr Road Substations. Areas of substation design experience included development of one-line, three-line, current and potential diagrams; equipment control, alarm, and SCADA schematic and interconnection wiring drawings; and physical layout, foundation and grounding drawings. Responsibilities also included specification of materials.
'01-'03	Fru-Con Engineering	Senior Electrical Engineer. Developed Electrical Documents for several simple cycle combustion turbine sites. Areas of design included development of one-line, three-line, current and potential diagrams; equipment control, alarm, and SCADA schematic and interconnection wiring drawings; and physical layout, foundation and grounding drawings. Responsibilities also included specification of materials.
'99-'01	Laramore Douglass and Popham	Senior Electrical Engineer and Principal. Developed schematics, interconnection diagrams, trench and raceway layout, and cable schedules for substation projects. Responsibilities include project management, power system analysis and detailed engineering for industrial and utility substation projects through 345kV
'96-'98	Perkins & Will	Senior Electrical Engineer. Designed and specified of electrical systems for health care, educational, and calling center facilities. As Senior Associate, was responsible for budgeting accuracy, staffing and scheduling for the electrical aspects of design projects
'95-'96	Howard R. Green Co.	Senior Project Engineer. Designed and specified electrical systems for municipal water and wastewater treatment plants. Systems included power distribution up to 15kV, lighting, grounding, and lightning protection
'92-'95	IES Utilities, In.	Project Engineer. Design, specification, and project management for high voltage substations up to 161kV. Responsibilities included the specification of transformers, breakers, switches, structures, control building, and control panels as well as the preparation of construction specifications
'90-'92	Engineering Associates	Electrical Engineer. Responsibilities included the design and specification of electrical systems for health care and office facilities
'87-'90	IES Utilities, Inc.	Electrical Engineer. Responsibilities included the design of electrical modifications and additions to the companies' nuclear generation facility

EXHIBIT ___ (PAY-2)

Figure 4.6-13 Electric and Magnetic Field and Noise Values-230kV / 115 kV Double Circuit

EMF Report for 230kV –Bundle (••) Pheasant 1272 MCM 54/19 // 115kV Grosbeak 636 MCM 26/7



Note: Structure insulated at 345kV operating at 230kV

Figure 4.6-14 Electric and Magnetic Field and Noise Values-230kV / 115 kV Double Circuit

EMF Report for 230kV – Lapwing 1590 MCM 45/7 / 115kV Grosbeak 636 MCM 26/7

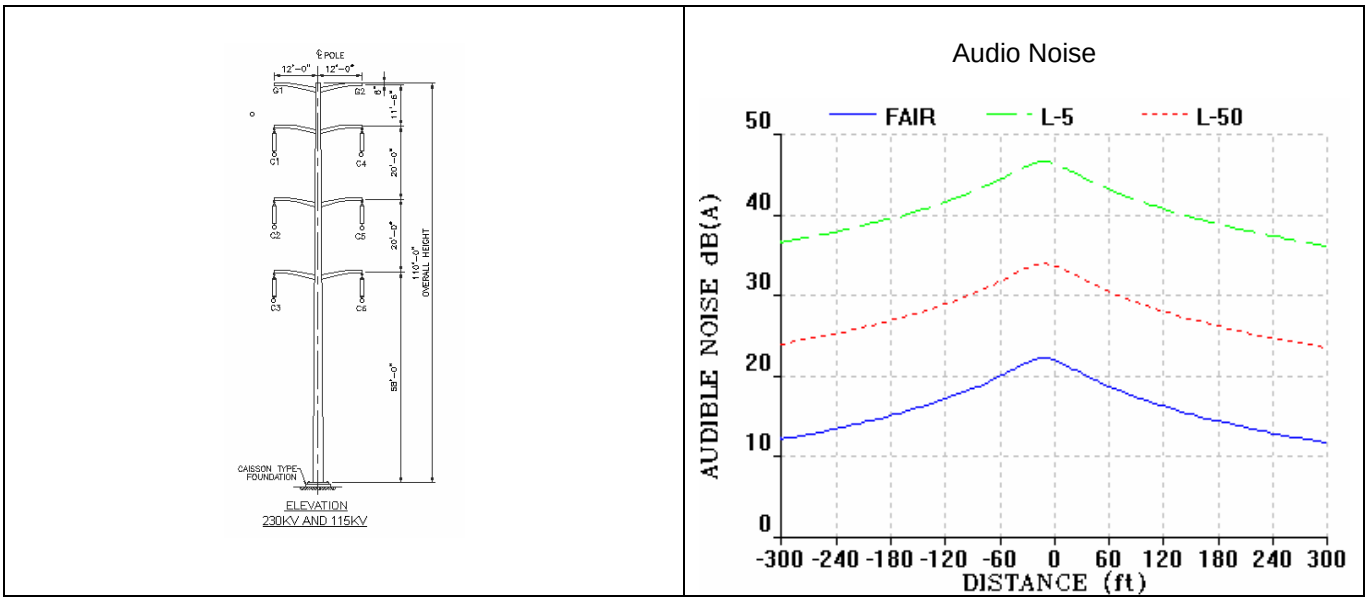
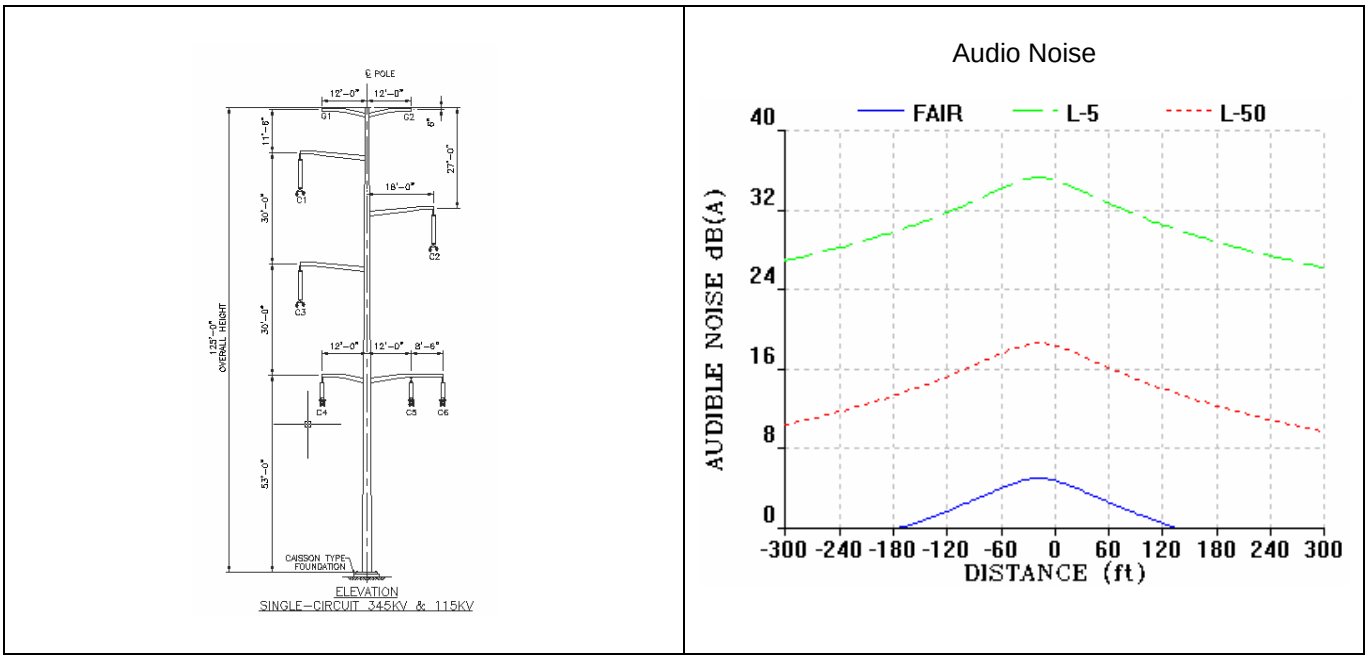


Figure 4.6-15 Electric and Magnetic Field and Noise Values-230kV Delta Tower HVTL with 115kV Underbuild

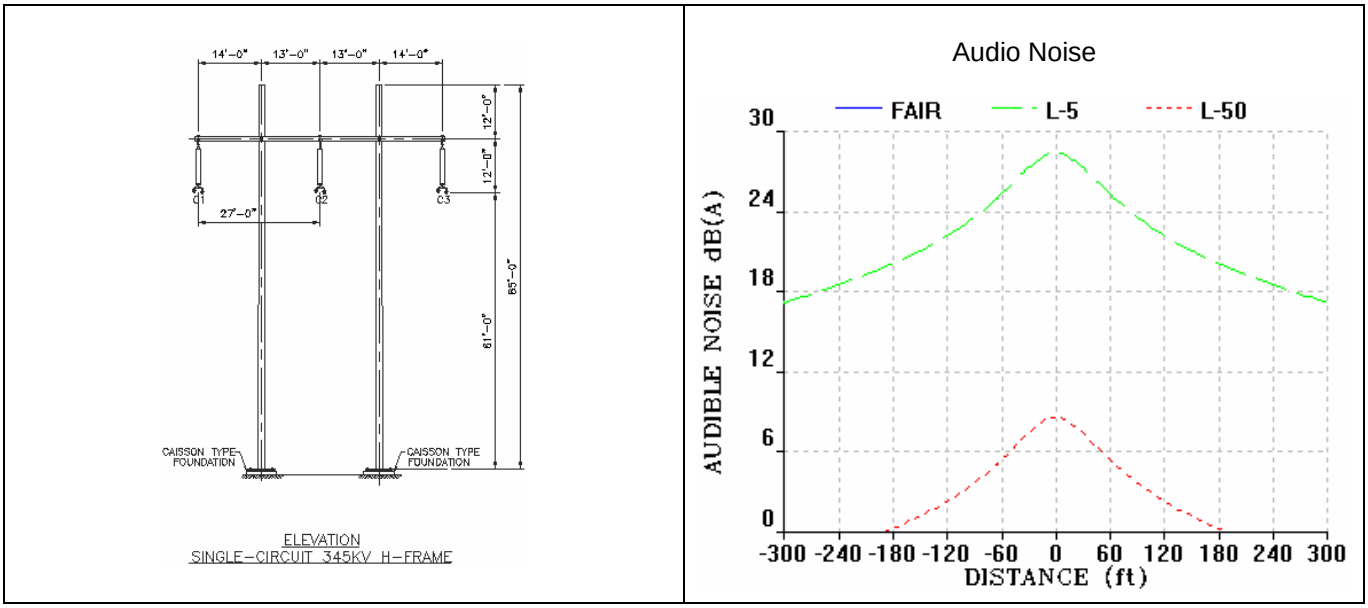
EMF Report for 230kV - Bundle (••) Pheasant 1272 MCM 54/19- 115kV Grosbeak 636 MCM 26/7



Note: Structure insulated at 345kV operating at 230kV

Figure 4.6-16 Electric and Magnetic Field and Noise Values-230kV H-Frame HVTL

EMF Report for 230kV – 1 CKT H-Frame Bundle (••) Pheasant 1272 MCM 54/19



Note: Structure insulated at 345kV operating at 230kV