STATE OF MINNESOTA PUBLIC UTILITIES COMMISSION

ROUTE PERMIT FOR A
HIGH-VOLTAGE TRANSMISSION LINE AND ASSOCIATED FACILITIES

IN
ST. LOUIS COUNTY

ISSUED TO
MINNESOTA POWER

PUC DOCKET NO. E015/TL-21-141

In accordance with the requirements of Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850 this route permit is hereby issued to:

MINNESOTA POWER

Minnesota Power is authorized by this route permit to construct and operate (1) approximately 14 miles of new 115 kilovolts (kV) transmission line between the Ridgeview, Haines Road, and Hilltop Substations; (2) construction of a new approximately one-mile extension connecting an existing 230 kV transmission line to the Arrowhead Substation; (3) upgrades to the Ridgeview, Hilltop, Haines Road, and Arrowhead substations; and (4) reconfiguration, rebuild, and upgrade to existing transmission lines and communications infrastructure in the Project area – located in the cities of Duluth and Hermantown, St. Louis County, Minnesota. Thermal upgrades to the existing 98 Line would be located within the city of Proctor and Midway Township, St. Louis County, Minnesota.

The high-voltage transmission line and associated facilities shall be built within the route identified in this permit and as portrayed on the route maps and in compliance with the conditions specified in this permit.

Approved and adopted this 3rd day of April, 2023

BY ORDER OF THE COMMISSION

Will Seuffert,
Executive Secretary

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ATTACHMENTS

1 ROUTE PERMIT

The Minnesota Public Utilities Commission (Commission) hereby issues this route permit to Minnesota Power (Permittee) pursuant to Minnesota Statutes Chapter 216E and Minnesota Rules Chapter 7850. This permit authorizes the Minnesota Power to construct and operate an (1) approximately 14 miles of new 115 kilovolts (kV) transmission line between the Ridgeview, Haines Road, and Hilltop Substations; (2) construction of a new approximately one-mile extension connecting an existing 230 kV transmission line to the Arrowhead Substation; (3) upgrades to the Ridgeview, Hilltop, Haines Road, and Arrowhead substations; and (4) reconfiguration, rebuild, and upgrade to existing transmission lines and communications infrastructure in the Project area – located in the cities of Duluth and Hermantown, St. Louis County, Minnesota. Thermal upgrades to the existing 98 Line would be located within the city of Proctor and Midway Township, St. Louis County, Minnesota and as identified in the attached Route Maps, hereby incorporated into this document as Attachment 3.

1.1 Pre-emption

Pursuant to Minn. Stat. § 216E.10, this permit shall be the sole route approval required to be obtained by the Permittee for construction of the transmission facilities and this permit shall supersede and preempt all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local and special purpose governments.

2 PROJECT DESCRIPTION

The Duluth Loop Project includes: (1) construction of approximately 14 miles of new 115 kV transmission line between the Ridgeview, Haines Road, and Hilltop Substations; (2) construction of a new approximate one-mile extension connecting an existing 230 kV transmission line to the Arrowhead Substation; (3) upgrades to the Ridgeview, Hilltop, Haines Road, and Arrowhead substations; and (4) reconfiguration, rebuild, and upgrade to existing transmission lines and communications infrastructure in the Project area.

The proposed route for the 115 kV transmission line is referred to as the Proposed 115 kV Route and the proposed route for the 230 kV line is referred to as the Proposed 230 kV Route. The terms “Proposed Route” are used in this permit when both the Proposed 115 kV Route and the Proposed 230 kV Route are being discussed as well as the required substation expansion and work areas.

2.1 Project Location

County	City or Township Name	Township	Range	Section
St. Louis	Duluth	50N	14W	4, 5, 7, 8, 9, 18
St. Louis	Hermantown	50N	15W	13-17, 21, 28-36
St. Louis	Duluth	49N	15W	1, 2
St. Louis	Proctor	49N	15W	3
St. Louis	Midway	49N	15W	4

2.2 Substations and Associated Facilities

Hilltop Substation Modifications

The existing Hilltop Substation is located in Duluth, Minnesota. The substation will be expanded by about 0.1 acres on existing Minnesota Power property to accommodate the construction of a new 115 kV transmission line entrance. This new 115 kV transmission line entrance will include a substation dead-end structure, circuit breaker, two switches, and bus work. The existing 230/115 kV transformer has a rating of 187 MVA and will be replaced with a 230/115 kV transformer with a rating of 373 MVA. The 115 kV circuit breaker, two switches, and some substation conductors on the low side of the 230/115 kV transformer will be replaced with higher ampacity equipment. A 230 kV circuit breaker will be added between the 230/115 kV transformer position and the 230 kV transmission line position. The three existing 115 kV transmission line circuit breakers will also be replaced as an additional asset renewal component of the project.

Ridgeview Substation Modifications

The existing Ridgeview Substation is located in Duluth, Minnesota. The Ridgeview Substation will be expanded by about 3.6 acres on existing Minnesota Power property to accommodate a new 115 kV transmission line entrance, a future 115 kV transmission line entrance, and a future capacitor bank in a ring bus configuration. The existing substation bus will be reconfigured and expanded to a six position 115 kV ring bus with three 115 kV transmission line positions, two 115/14 kV transformer positions, and a future 115 kV transmission line position. An aging 115/14 kV transformer will be replaced and relocated to a shared ring bus position with the future capacitor bank.

Haines Road Substation Modifications

The existing Haines Road Substation is located in Hermantown, Minnesota. Within the existing substation, a 115 kV circuit breaker will be added to an existing transmission line entrance. Some existing substation conductors will be replaced with high ampacity conductors.

Arrowhead Substation Modifications

The existing Arrowhead Substation is located in Hermantown, Minnesota. Within the existing substation, a 230 kV transmission line entrance will be added to accommodate the proposed 230 kV reconfiguration establishing the Arrowhead – Hilltop 230 kV Line (108 Line). This new 230 kV transmission line entrance will include a substation dead-end structure, circuit breaker, two switches, and bus work.

Communication Infrastructure Modifications

Modifications to communications infrastructure in the Project area will be completed as part of the Duluth Loop Project to improve overall communication capabilities of the transmission system. To accommodate reconfigurations, some sections of existing Optical Ground Wire (OPGW) to an adjacent splice box will be replaced due to age and condition.

Transmission Line Upgrades

The following reconfiguration, rebuild, and upgrades are required to existing transmission lines in the Project area as part of the Duluth Loop Project:

- Reconductor of 115 kV Haines Road – Swan Lake Road Line No. 52 (52 Line);
- Reconductor of 115 kV Swan Lake Road – Ridgeview Line No. 19 (19 Line);
- A segment of existing 115 kV Arrowhead – 15th Ave West Line No. 71 (71 Line) will be reconstructed as a double circuit line with the new 115 kV Hilltop – Haines Road Line No. 176 (176 Line).
- Existing 115 kV Arrowhead – Haines Road Line No. 58 (58 Line) will be uncrossed from existing 115 kV Arrowhead – Colbyville Line No. 57 (57 Line) to become 115 kV Arrowhead – Colbyville 115 kV Line No. 58 (58 Line);
- Existing 115 kV Arrowhead – Colbyville Line No. 57 (57 Line) will be uncrossed from existing 115 kV Arrowhead – Haines Road Line No. 58 (58 Line) and connected to existing 115 kV Haines Road – Swan Lake Road Line No. 52 outside of Haines Road Substation to become 115 kV Arrowhead – Swan Lake Road Line No. 57 (57 Line);
- Existing 230 kV Arrowhead – Iron Range Line No. 98/Tap to Hilltop (98 Line Tap) will be upgraded to a higher thermal rating; and

- Existing 98 Line Tap will be disconnected from existing 230 kV Arrowhead – Iron Range Line No. 98 and extended to the Arrowhead Substation to become the 230 kV Arrowhead – Hilltop Line No. 108 (108 Line).

2.3 Structures

The proposed transmission structures for the Project are wood pole, H-frame structures and steel monopole structures. Structure heights and span lengths are a function of span properties, topography, wire, voltage, tension, route, and other factors. The height and span lengths provided here are typical values expected for the majority of tangent type structures based on similar facilities. Actual span lengths and structure heights may vary outside typical values as necessary.

The new 115 kV wood H-frame structures will be approximately 50 to 80 feet tall with spans of approximately 500 to 1,000 feet. The new 115 kV steel monopole structures will be approximately 65 to 110 feet tall with spans of approximately 250 to 700 feet.

The new 230 kV steel monopole structures will be approximately 65 to 110 feet tall with spans of approximately 250 to 700 feet. In certain locations such as angles, along highways, constrained areas, or environmentally sensitive areas, other specialty structure types may be required. Less common structure configurations for dead-ends, angles, crossings, and transpositions will also be necessary.

2.4 Conductors

The conductors for the 115 kV transmission line will consist primarily of 666 ACSS (Aluminum Conductor Steel Supported) on new construction and reconstruction. A 636 ACSR (Aluminum Conductor Steel Reinforced) conductor may be used for the 115 kV transmission line in some areas to match existing conductors. The conductors for the 230 kV transmission line will consist of 954 ACSR to match existing conductors. Typical transmission line construction with H-Frame structures have two shield wires. Typical transmission line construction with monopole structures have a single shield wire but may have up to two. Typical transmission line construction has a single OPGW in a shield wire position for communication purposes, although this varies, and lines may have no OPGW or two OPGW cables.

The table below details specifics on the various structure and conductor types as presented in the route permit application.

Line Type	Conductor	Structure		Foundation	Height (feet)	Span (feet)
		Type	Material			
115 kV Single Circuit	666 ACSS	H-frame	Wood	Direct Embed	50-80	500- 1,000
115 kV Single Circuit	666 ACSS	Monopole	Steel	Concrete Pier	65-110	250-700
115 kV Doble Circuit	666 ACSS	Monopole	Steel	Concrete Pier	65-110	250-500
230 kV Single Circuit	954 ACSR	Monopole	Steel	Concrete Pier	65-110	250-700

3 DESIGNATED ROUTE

The route designated by the Commission in this permit is the route described below and shown on the Route Maps in Attachment 3 of this permit. The route is generally described as follows:

The Proposed 115 kV Route between the Ridgeview, Haines Road, and Hilltop Substations follows existing transmission lines for most of its length, utilizing existing transmission line corridors where practical to minimize environmental impacts.

The Proposed 115 kV Route from north to south begins at the existing Ridgeview Substation and follows the existing 19 Line and 56 Line, within an east-west corridor, going west for about 1.2 miles from the Ridgeview Substation. Within this corridor, the proposed 115 kV transmission line will be located between the existing 19 and 56 Lines. This new line will become designated as the 19 Line and the existing 19 Line in this corridor will be reconstructed and be redesignated as part of the new 52 Line. At the point where the existing 56 Line turns north and the existing 19 Line turns southwest, the Proposed 115 kV Route will follow the existing 19 Line corridor. The centerline of the new construction shifts to the south side of the existing 19 Line and existing 52 Line to continue south and west for approximately 2.7 miles to enter the Haines Road Substation on the west side of Miller Trunk Highway. Throughout this segment, the existing conductor and structures will be replaced as needed.

From the Haines Road Substation, the Proposed 115 kV Route continues west generally along the existing 58 Line corridor. This corridor contains the currently energized 58 Line and a

parallel deenergized line, known as 58D, which is currently supporting fiber optic communications. Both existing 58 Line and 58D will be rebuilt with new conductors and structures as necessary for approximately 3.5 miles to a point about 0.3 miles east of the intersection of the existing 58 and 57 Lines. At this point, the Proposed 115 kV Route turns south in a new alignment for about 1.5 miles crossing Maple Grove Road and Hermantown Road to the existing 57 Line corridor located south of the Midway River. The Proposed 115 kV Route continues south following the existing 57 Line corridor for about 1.4 miles to the existing 71 Line. The conductor and structures will be replaced as needed on the existing 57 Line. Next, from the intersection with the existing 71 Line, 71 Line and the new 115 kV line (176 Line) will be reconstructed as a 115/115 kV double circuit line, going south for about 0.1 miles then east for 1.5 miles on the existing 71 Line corridor. At a point about 0.25 miles east of Lavaque Road, the proposed 71 Line/176 Line 115/115 kV double circuit line would turn south for about 0.1 mile, then east for about 0.75 miles, then south for approximately 0.75 miles, and west for about 0.25 miles to enter the Hilltop Substation. Several segments of the existing 98 Line will be shifted and rebuilt at the end of this alignment to facilitate the changes.

The Proposed 230 kV Route begins at the Arrowhead Substation and goes north for about 0.1 miles, then northeast for approximately 0.1 miles, then north for about 0.1 miles, then east for about 0.1 miles, then north and east for about 0.3 miles to a connection with the existing 98 Line, which would then be redesignated 108 Line. The Proposed 230 kV Route is located mostly on Minnesota Power property with the exception of the northernmost 0.15 miles that spans the Canadian National Railroad and private property. The segment is parallel to existing 115 kV transmission lines. Approximately 0.5 miles of the existing 98 Line would be removed from the corner of the existing 90 Line and 98 Line to the new 108 Line tie-in, including the span over the Canadian National Railroad.

The final alignment must be located within this designated route. The identified route widths on the attached route maps provide the Permittee with flexibility for minor adjustments of the alignment or right-of-way to accommodate landowner requests and unforeseen conditions. The final alignment (i.e., permanent and maintained rights-of-way) will be located within this designated route unless otherwise authorized by this permit or the Commission.

4 RIGHT-OF-WAY

This Permit authorizes the Permittee to obtain a new permanent right-of-way for the transmission line up to 100 feet in width for the 115 kV line and up to 130 feet wide for the 230 kV line. The permanent right-of-way is typically 50 and 65 feet respectively on both sides of the transmission line measured from its centerline. It is sometimes necessary to secure extra

permanent right-of-way at angles to accommodate guy anchors if used. Narrower right-of-way widths at specific and isolated routing constraint points may or may not be possible and will need to be evaluated on a case-by-case basis.

The Project's anticipated alignment is intended to minimize potential impacts relative to criteria identified in Minn. R. 7850.4100. The actual right-of-way will generally conform to the anticipated alignment identified on the Route Maps, unless changes are requested by individual landowners and agreed to by the Permittee or for unforeseen conditions that are encountered or as otherwise provided for by this permit.

Any right-of-way modifications within the designated route shall be located so as to have comparable overall impacts relative to the factors in Minn. R. 7850.4100, as does the right-of-way identified in this permit, and shall be specifically identified and documented in and approved as part of the plan and profile submitted pursuant to Section 9.1 of this permit.

Where the transmission line parallels existing highway and other road rights-of-way, the transmission line right-of-way shall occupy and utilize the existing right-of-way to the maximum extent possible; consistent with the criteria in Minn. R. 7850.4100 and the other requirements of this permit; and for highways under the jurisdiction of the Minnesota Department of Transportation, the procedures for accommodating utilities in trunk highway rights-of-way.

4.1 Route Width Variations

Route width variations may be allowed to accommodate the potential site-specific constraints listed below. These constraints may arise from any of the following:

1. Unforeseen circumstances encountered during the detailed engineering and design process.
2. Federal or state agency requirements.
3. Existing infrastructure within the route, including but not limited to railroads, natural gas and liquid pipelines, high voltage electric transmission lines, or sewer and water lines.

Any alignment modifications arising from these site-specific constraints that would result in right-of-way placement outside of the designated route shall be specifically reviewed by the Commission under Minn. R. 7850.4900.

5 GENERAL CONDITIONS

The Permittee shall comply with the following conditions during construction and operation of the transmission line and associated facilities over the life of this permit.

5.1 Permit Distribution

Within 30 days of permit issuance, the Permittee shall provide all affected landowners with a copy of this permit and the complaint procedures. In no case shall the landowner receive this route permit and complaint procedures less than five days prior to the start of construction on their property. An affected landowner is any landowner or designee that is within or adjacent to the permitted route.

At the time of first contact, the Permittee shall also provide all affected landowners with a copy of the Department of Commerce's Rights-of-Way and Easements for Energy Facility Construction and Operation fact sheet.[1]

5.2 Access to Property

The Permittee shall notify landowners or their designee at least 14 days in advance but not greater than 60 days in advance of entering the property.

5.3 Construction and Operation Practices

The Permittee shall follow those specific construction practices and material specifications described in Minnesota Power's Application to the Commission for a route permit for the Duluth Loop Reliability Project, dated October 21, 2021, and the record of the proceedings unless this permit establishes a different requirement in which case this permit shall prevail.

5.3.1 Field Representative

The Permittee shall designate a field representative responsible for overseeing compliance with the conditions of this permit during construction of the project. This person shall be accessible by telephone or other means during normal business hours throughout site preparation, construction, cleanup, and restoration.

[1] http://mn.gov/commerce/energyfacilities/documents/Easements%20Fact%20Sheet_08.05.14.pdf

The Permittee shall file with the Commission the name, address, email, phone number, and emergency phone number of the field representative 14 days prior to commencing construction. The Permittee shall provide the field representative's contact information to affected landowners, residents, local government units and other interested persons 14 days prior to commencing construction. The Permittee may change the field representative at any time upon notice to the Commission, affected landowners, residents, local government units and other interested persons.

5.3.2 Employee Training and Education of Permit Terms and Conditions

The Permittee shall inform and educate all employees, contractors, and other persons involved in the construction and ongoing operation of the transmission line of the terms and conditions of this permit.

5.3.3 Public Services, Public Utilities, and Existing Easements

During construction, the Permittee shall minimize any disruption to public services or public utilities. To the extent disruptions to public services or public utilities occur these will be temporary, and the Permittee will restore service promptly. Where any impacts to utilities have the potential to occur the Permittee will work with both landowners and local agencies to determine the most appropriate transmission structure placement.

The Permittee shall consult with landowners, townships, cities, and counties along the route and consider concerns regarding tree clearing, distance from existing structures, drain tiles, pole depth and placement in relationship to existing roads and road expansion plans.

The Permittee shall cooperate with county and city road authorities to develop appropriate signage and traffic management during construction.

5.3.4 Temporary Work Space

The Permittee shall limit temporary easements to special construction access needs and additional staging or lay-down areas required outside of the authorized right-of-way. Temporary space shall be selected to limit the removal and impacts to vegetation. Temporary easements outside of the authorized transmission line right-of-way will be obtained from affected landowners through rental agreements and are not provided for in this permit.

Temporary driveways may be constructed between the roadway and the structures to minimize impact using the shortest route possible. Construction mats should be used to minimize impacts on access paths and construction areas.

5.3.5 Noise

The Permittee shall comply with noise standards established under Minn. R. 7030.0010 to 7030.0080. Construction and maintenance activities shall be limited to daytime working hours to the extent practicable to ensure nighttime noise level standards will not be exceeded.

5.3.6 Aesthetics

The Permittee shall consider input pertaining to visual impacts from landowners or land management agencies prior to final location of structures, rights-of-way, and other areas with the potential for visual disturbance. Care shall be used to preserve the natural landscape, minimize tree removal and prevent any unnecessary destruction of the natural surroundings in the vicinity of the project during construction and maintenance. The Permittee shall work with landowners to locate the high-voltage transmission line to minimize the loss of agricultural land, forest, and wetlands, and to avoid homes and farmsteads. Structures shall be placed at a distance, consistent with sound engineering principles and system reliability criteria, from intersecting roads, highways, or trail crossings.

5.3.7 Soil Erosion and Sediment Control

The Permittee shall implement those erosion prevention and sediment control practices recommended by the Minnesota Pollution Control Agency Construction Stormwater Program.

The Permittee shall implement reasonable measures to minimize erosion and sedimentation during construction and shall employ perimeter sediment controls, protect exposed soil by promptly planting, seeding, using erosion control blankets and turf reinforcement mats, stabilizing slopes, protecting storm drain inlets, protecting soil stockpiles, and controlling vehicle tracking. Contours shall be graded as required so that all surfaces provide for proper drainage, blend with the natural terrain, and are left in a condition that will facilitate re-vegetation and prevent erosion. All areas disturbed during construction of the facilities shall be returned to pre-construction conditions.

In accordance with Minnesota Pollution Control Agency requirements, the Permittee shall obtain a National Pollutant Discharge Elimination System (NPDES)/State Disposal System (SDS) Construction Stormwater permit from the Minnesota Pollution Control Agency.

5.3.8 Wetlands and Water Resources

Wetland impact avoidance measures that shall be implemented during design and construction of the transmission line will include spacing and placing the power poles at variable distances to span and avoid wetlands, watercourses, and floodplains. Unavoidable wetland impacts as a result of the placement of poles shall be limited to the immediate area around the poles. To minimize impacts, construction in wetland areas shall occur during frozen ground conditions where practicable and shall be according to permit requirements by the applicable permitting authority. When construction during winter is not possible, wooden or composite mats shall be used to protect wetland vegetation. Soil excavated from the wetlands and riparian areas shall be contained and not placed back into the wetland or riparian area. Wetlands and riparian areas shall be accessed using the shortest route possible in order to minimize travel through wetland areas and prevent unnecessary impacts. No staging or stringing set up areas shall be placed within or adjacent to wetlands or water resources, as practicable. Power pole structures shall be assembled on upland areas before they are brought to the site for installation.

Areas disturbed by construction activities shall be restored to pre-construction conditions. Restoration of the wetlands will be performed by the Permittee in accordance with the requirements of applicable state and federal permits or laws and landowner agreements.

All requirements of the U.S. Army Corps of Engineers (wetlands under federal jurisdiction), Minnesota Department of Natural Resources (Public Waters/Wetlands), and County (wetlands under the jurisdiction of the Minnesota Wetland Conservation Act) shall be met.

5.3.9 Vegetation Management

The Permittee shall minimize the number of trees to be removed in selecting the right-of-way specifically preserving to the maximum extent practicable windbreaks, shelterbelts, living snow fences, and vegetation in areas such as trail and stream crossings where vegetative screening may minimize aesthetic impacts, to the extent that such actions do not violate sound engineering principles or system reliability criteria.

Tall growing species located within the transmission line right-of-way that endanger the safe and reliable operation of the transmission facility will be removed by the Permittee. The

Permittee shall leave undisturbed, to the extent possible, existing low growing species in the right-of-way or replant such species in the right-of-way to blend the difference between the right-of-way and adjacent areas, to the extent that the low growing vegetation will not pose a threat to the transmission facility or impede construction.

5.3.10 Application of Pesticides

The Permittee shall restrict pesticide use to those pesticides and methods of application approved by the Minnesota Department of Agriculture, Minnesota Department of Natural Resources, and the U.S. Environmental Protection Agency. Selective foliage or basal application shall be used when practicable. All pesticides shall be applied in a safe and cautious manner so as not to damage adjacent properties including crops, orchards, tree farms, apiaries, or gardens. The Permittee shall contact the landowner or designee to obtain approval for the use of pesticide at least 14 days prior to any application on their property. The landowner may request that there be no application of pesticides on any part of the site within the landowner's property. The Permittee shall provide notice of pesticide application to affected landowners and known beekeepers operating apiaries within three miles of the project site at least 14 days prior to such application.

5.3.11 Invasive Species

The Permittee shall employ best management practices to avoid the potential spread of invasive species on lands disturbed by project construction activities.

5.3.12 Noxious Weeds

The Permittee shall take all reasonable precautions against the spread of noxious weeds during all phases of construction. When utilizing seed to establish temporary and permanent vegetative cover on exposed soil the Permittee shall select site appropriate seed certified to be free of noxious weeds. To the extent possible, the Permittee shall use native seed mixes. The Permittee shall consult with landowners on the selection and use of seed for replanting.

5.3.13 Roads

The Permittee shall advise the appropriate governing bodies having jurisdiction over all state, county, city or township roads that will be used during the construction phase of the project. Where practical, existing roadways shall be used for all activities associated with construction

of the facility. Oversize or overweight loads associated with the facility shall not be hauled across public roads without required permits and approvals.

The Permittee shall construct the least number of site access roads it can. Access roads shall not be constructed across streams and drainage ways without the required permits and approvals. Access roads shall be constructed in accordance with all necessary township, county or state road requirements and permits.

The Permittee shall promptly repair private roads or lanes damaged when moving equipment or when accessing construction workspace, unless otherwise negotiated with the affected landowner.

5.3.14 Archaeological and Historic Resources

The Permittee shall make every effort to avoid impacts to identified archaeological and historic resources when constructing the transmission facility. In the event that a resource is encountered, the Permittee shall contact and consult with the State Historic Preservation Office and the State Archaeologist. Where feasible, avoidance of the resource is required. Where not feasible, mitigation must include an effort to minimize project impacts on the resource consistent with State Historic Preservation Office and State Archaeologist requirements.

Prior to construction, workers shall be trained about the need to avoid cultural properties, how to identify cultural properties, and procedures to follow if undocumented cultural properties, including gravesites, are found during construction. If human remains are encountered during construction, the Permittee shall immediately halt construction and promptly notify local law enforcement and the State Archaeologist. Construction at such location shall not proceed until authorized by local law enforcement or the State Archaeologist.

5.3.15 Avian Protection

The Permittee in cooperation with the Minnesota Department of Natural Resources shall identify areas of the project where bird flight diverters will be incorporated into the transmission line design to prevent large avian collisions attributed to visibility issues. Standard transmission design shall incorporate adequate spacing of conductors and grounding devices in accordance with Avian Power Line Interaction Committee standards to eliminate the risk of electrocution to raptors with larger wingspans that may simultaneously come in contact with a conductor and grounding devices.

5.3.16 Restoration

The Permittee shall restore the right-of-way, temporary work spaces, access roads, abandoned right-of-way, and other public or private lands affected by construction of the transmission line. Restoration within the right-of-way must be compatible with the safe operation, maintenance, and inspection of the transmission line. Within 60 days after completion of all restoration activities, the Permittee shall advise the Commission in writing of the completion of such activities.

5.3.17 Cleanup

All waste and scrap that is the product of construction shall be removed from the right-of-way and all premises on which construction activities were conducted and properly disposed of upon completion of each task. Personal litter, including bottles, cans, and paper from construction activities shall be removed on a daily basis.

5.3.18 Pollution and Hazardous Wastes

All appropriate precautions to protect against pollution of the environment must be taken by the Permittee. The Permittee shall be responsible for compliance with all laws applicable to the generation, storage, transportation, clean up and disposal of all wastes generated during construction and restoration of the right-of-way.

5.3.19 Damages

The Permittee shall fairly restore or compensate landowners for damage to crops, fences, private roads and lanes, landscaping, drain tile, or other damages sustained during construction.

5.4 Electrical Performance Standards

5.4.1 Grounding

The Permittee shall design, construct, and operate the transmission line in a manner so that the maximum induced steady-state short-circuit current shall be limited to five milliamperes root mean square (rms) alternating current between the ground and any non-stationary object within the right-of-way, including but not limited to large motor vehicles and agricultural equipment. All fixed metallic objects on or off the right-of-way, except electric fences that

parallel or cross the right-of-way, shall be grounded to the extent necessary to limit the induced short-circuit current between ground and the object so as not to exceed one milliampere rms under steady state conditions of the transmission line and to comply with the ground fault conditions specified in the National Electric Safety Code. The Permittee shall address and rectify any induced current problems that arise during transmission line operation.

5.4.2 Electric Field

The transmission line shall be designed, constructed, and operated in such a manner that the electric field measured one meter above ground level immediately below the transmission line shall not exceed 8.0 kV/m rms.

5.4.3 Interference with Communication Devices

If interference with radio or television, satellite, wireless internet, GPS-based agriculture navigation systems or other communication devices is caused by the presence or operation of the transmission line, the Permittee shall take whatever action is necessary to restore or provide reception equivalent to reception levels in the immediate area just prior to the construction of the line.

5.5 Other Requirements

5.5.1 Safety Codes and Design Requirements

The transmission line and associated facilities shall be designed to meet or exceed all relevant local and state codes, the National Electric Safety Code, and North American Electric Reliability Corporation requirements. This includes standards relating to clearances to ground, clearance to crossing utilities, clearance to buildings, strength of materials, clearances over roadways, right-of-way widths, and permit requirements.

5.5.2 Other Permits and Regulations

The Permittee shall comply with all applicable state rules and statutes. The Permittee shall obtain all required permits for the project and comply with the conditions of those permits unless those permits conflict with or are preempted by federal or state permits and regulations. A list of the permits known to be required is included in the permit application. The Permittee shall submit a copy of such permits to the Commission upon request.

6 SPECIAL CONDITIONS

Special conditions shall take precedence over other conditions of this permit should there be a conflict.

6.1 Vegetation Management Plan

The Permittee shall develop a vegetation management plan (VMP), in coordination with the Vegetation Management Working Group (VMWG), using best management practices established by the DNR and BWSR. The Permittee shall file the VMP and documentation of the coordination efforts between the Permittee and the coordinating agencies with the Commission at least 14 days prior to the plan and profile required under this permit. The Permittee shall provide all landowners along the route with copies of the VMP. The Permittee shall file an affidavit of its distribution of the VMP to landowners with the Commission at least 14 days prior to the plan and profile.
The VMP shall include, at a minimum, the following:

(a) short term and long-term management objectives.

(b) a description of planned restoration and vegetation activities, including how the route will be prepared, timing of activities, and how seeding will occur (broadcast, drilling, etc.), and the types of seed mixes to be used.

(c) a description of how the route will be monitored and evaluated to meet management objectives.

(d) a description of management tools used to maintain vegetation (e.g., mowing, spot spraying, hand removal, etc.), including timing/frequency of maintenance activity.

(e) identification, monitoring and management plan for noxious weeds and invasive species (native and non-native) on route; and

(f) a plan showing how the route will be revegetated and corresponding seed mixes.

Seed mixes, seeding rates, and cover crops should follow best management practices.

6.2 Snowmobile Trail

The Permittee shall coordinate with the Night Riders Snowmobile Trail Association to minimize impacts to the Hermantown Snowmobile Trail. At least 14 days prior to the plan and profile submittal, the Permittee shall file with the Commission a summary of coordination including the location of and accommodation of the snowmobile trail.

6.3 Blanding's Turtle

The Permittee shall implement the following measures during construction to avoid and or mitigate for impacts to the Blanding's turtle:

(a) do not perform construction within wetlands during hibernation season, between October 15th and April 15th, unless the Permittee files documentation with the Commission that wetlands are unsuitable for Blanding's turtle hibernation;

(b) provide the DNR-developed Blanding's turtle flyer to all contractors working in the construction area;

(c) monitor for turtles during construction and report any sightings to the DNR Nongame Specialist; and

(d) if turtles are in imminent danger, move by hand out of harm's way, otherwise leave undisturbed.

6.4 Wildlife-Friendly Erosion Control

The Permittee shall use only "bio-netting" or "natural netting" types of erosion control materials and mulch products without synthetic (plastic) fiber additives.

6.5 Keene Creek Tributary

The Permittee shall coordinate with DNR staff on construction and maintenance activities at Keene Creek's tributary crossings. The Permittee shall file with the Commission a summary of the coordination at least 14 days prior to the plan and profile submittal.

6.6 Third Party Monitor

Prior to any construction, the Permittee shall propose a scope of work and identify one independent third party monitor on behalf of the Department of Commerce. The scope of work shall be developed in consultation with and approved by the Department of Commerce. This third-party monitor will report directly to and will be under the control of the Department of Commerce with costs borne by the Permittee. The Permittee shall file the scope of work, and the name, address, email, phone number, and emergency phone number of the third-party monitor with the Commission at least 14 days prior to the plan and profile required of this permit, and upon changes to the scope of work or third-party monitor contact information.

7 DELAY IN CONSTRUCTION

If the Permittee has not commenced construction or improvement of the route within four years after the date of issuance of this permit the Permittee shall file a report on the failure to construct and the Commission shall consider suspension of the permit in accordance with Minn. R. 7850.4700.

8 COMPLAINT PROCEDURES

Prior to the start of construction, the Permittee shall submit to the Commission the procedures that will be used to receive and respond to complaints. The procedures shall be in accordance with the requirements of Minn. R. 7829.1500 or Minn. R. 7829.1700, and as set forth in the complaint procedures attached to this permit.

Upon request, the Permittee shall assist the Commission with the disposition of unresolved or longstanding complaints. This assistance shall include, but is not limited to, the submittal of complaint correspondence and complaint resolution efforts.

9 COMPLIANCE REQUIREMENTS

Failure to timely and properly make compliance filings required by this permit is a failure to comply with the conditions of this permit. Compliance filings must be electronically filed with the Commission.

9.1 Plan and Profile

At least 30 days before right-of-way preparation for construction begins on any segment or portion of the project, the Permittee shall provide the Commission with a plan and profile of the right-of-way and the specifications and drawings for right-of-way preparation, construction, structure specifications and locations, cleanup, and restoration for the transmission line. The documentation shall include maps depicting the plan and profile including the right-of-way, alignment, and structures in relation to the route and alignment approved per this permit.

The Permittee may not commence construction until the 30 days has expired or until the Commission has advised the Permittee in writing that it has completed its review of the documents and determined that the planned construction is consistent with this permit. If the Permittee intends to make any significant changes in its plan and profile or the specifications and drawings after submission to the Commission, the Permittee shall notify the Commission at least five days before implementing the changes. No changes shall be made that would be in violation of any of the terms of this permit.

9.2 Status Reports

The Permittee shall report to the Commission on progress during finalization of the route, design of structures, and construction of the transmission line. The Permittee need not report

more frequently than monthly. Reports shall begin with the submittal of the plan and profile for the project and continue until completion of restoration.

9.3 Notification to Commission

At least three days before the line is to be placed into service, the Permittee shall notify the Commission of the date on which the line will be placed into service and the date on which construction was complete.

9.4 As-Builts

Within 90 days after completion of construction, the Permittee shall submit copies of all final as-built plans and specifications developed during the project.

9.5 GPS Data

Within 90 days after completion of construction, the Permittee shall submit to the Commission, in the format requested by the Commission, geo-spatial information (e.g., ArcGIS compatible map files, GPS coordinates, associated database of characteristics) for all structures associated with the transmission line and each substation connected.

10 PERMIT AMENDMENT

This permit may be amended at any time by the Commission. Any person may request an amendment of the conditions of this permit by submitting a request to the Commission in writing describing the amendment sought and the reasons for the amendment. The Commission will mail notice of receipt of the request to the Permittee. The Commission may amend the conditions after affording the Permittee and interested persons such process as is required.

11 TRANSFER OF PERMIT

The Permittee may request at any time that the Commission transfer this permit to another person or entity. The Permittee shall provide the name and description of the person or entity to whom the permit is requested to be transferred, the reasons for the transfer, a description of the facilities affected, and the proposed effective date of the transfer.

The person to whom the permit is to be transferred shall provide the Commission with such information as the Commission shall require to determine whether the new Permittee can comply with the conditions of the permit. The Commission may authorize transfer of the permit after affording the Permittee, the new Permittee, and interested persons such process as is required.

12 REVOCATION OR SUSPENSION OF THE PERMIT

The Commission may initiate action to revoke or suspend this permit at any time. The Commission shall act in accordance with the requirements of Minn. R. 7850.5100, to revoke or suspend the permit.

ATTACHMENT 1

Complaint Handling Procedures for Permitted Energy Facilities

MINNESOTA PUBLIC UTILITIES COMMISSION
COMPLAINT HANDLING PROCEDURES FOR
PERMITTED ENERGY FACILITIES

A. Purpose

To establish a uniform and timely method of reporting and resolving complaints received by the permittee concerning permit conditions for site or route preparation, construction, cleanup, restoration, operation, and maintenance.

B. Scope

This document describes complaint reporting procedures and frequency.

C. Applicability

The procedures shall be used for all complaints received by the permittee and all complaints received by the Minnesota Public Utilities Commission (Commission) under Minn. R. 7829.1500 or Minn. R. 7829.1700 relevant to this permit.

D. Definitions

Complaint: A verbal or written statement presented to the permittee by a person expressing dissatisfaction or concern regarding site or route preparation, cleanup or restoration, or other permit conditions. Complaints do not include requests, inquiries, questions or general comments.

Substantial Complaint: A written complaint alleging a violation of a specific permit condition that, if substantiated, could result in permit modification or suspension pursuant to the applicable regulations.

Unresolved Complaint: A complaint which, despite the good faith efforts of the permittee and a person, remains unresolved or unsatisfactorily resolved to one or both of the parties.

Person: An individual, partnership, joint venture, private or public corporation, association, firm, public service company, cooperative, political subdivision, municipal corporation, government agency, public utility district, or any other entity, public or private; however organized.

E. Complaint Documentation and Processing

1. The permittee shall designate a representative responsible for filing complaints to the Commission's eDocket system. This person's name, phone number and email address shall accompany all complaint submittals. The name and contact information for the representative shall be kept current in eDockets.

2. A person presenting the complaint should, to the extent possible, include the following information in their communications:

    a. name, address, phone number, and email address;
    b. initial date of the complaint;
    c. tract, parcel number, or address of the complaint;
    d. a summary of the complaint; and
    e. whether the complaint relates to a permit violation, a construction practice issue, or other type of complaint.

3. The permittee shall document all complaints by maintaining a record of all applicable information concerning the complaint, including the following:

    a. docket number and project name;
    b. name of complainant, address, phone number and email address;
    c. precise description of property or parcel number;
    d. name of permittee representative receiving complaint and date of receipt;
    e. nature of complaint and the applicable permit condition(s);
    f. summary of activities undertaken to resolve the complaint; and
    g. a statement on the final disposition of the complaint.

F. Reporting Requirements

The permittee shall commence complaint reporting at the beginning of project construction and continue through the term of the permit, unless otherwise required below. The permittee shall report all complaints to the Commission according to the following schedule:

Immediate Reports: All substantial complaints shall be reported to the Commission the same day received, or on the following working day for complaints received after working hours. Such reports are to be directed to the Commission's Public Advisor at 1-800-657-3782 (voice messages are acceptable) or publicadvisor.puc@state.mn.us. For e-mail reporting, the email subject line should read "PUC EFP Complaint" and include the appropriate project docket number.

Monthly Reports: During project construction, restoration, and operation, a summary of all complaints, including substantial complaints received or resolved during the preceding month, shall be filed by the 15th of each month to Will Seuffert, Executive Secretary, Public Utilities Commission, using the eDockets system. The eDockets system is located at:

https://www.edockets.state.mn.us/EFiling/home.jsp. If no complaints were received during the preceding month, the permittee shall file a summary indicating that no complaints were received.

If a project has submitted twelve consecutive months of complaint reports with no complaints, monthly reports can terminate by a letter to eDockets notifying the Commission of such action. If a substantial complaint is received (by the company or the Commission) following termination of the monthly complaint report, as noted above, the monthly reporting should commence for a period of one year following the most recent complaint or upon resolution of all pending complaints.

If a permittee is found to be in violation of this section, the Commission may reinstate monthly complaint reporting for the remaining permit term or enact some other commensurate requirement via notification by the Executive Secretary or some other action as decided by the Commission.

G. Complaints Received by the Commission

Complaints received directly by the Commission from aggrieved persons regarding the permit or issues related to site or route preparation, construction, cleanup, restoration, or operation and maintenance will be promptly sent to the permittee.

The permittee shall notify the Commission when the issue has been resolved. The permittee will add the complaint to the monthly reports of all complaints. If the permittee is unable to find resolution, the Commission will use the process outlined in the Unresolved Complaints Section to process the issue.

H. Commission Process for Unresolved Complaints

Complaints raising substantial and unresolved permit issues will be investigated by the Commission. Staff will notify the permittee and appropriate persons if it determines that the complaint is a substantial complaint. With respect to such complaints, the permittee and complainant shall be required to submit a written summary of the complaint and its current position on the issues to the Commission. Staff will set a deadline for comments. As necessary, the complaint will be presented to the Commission for consideration.

I. Permittee Contacts for Complaints and Complaint Reporting

Complaints may be filed by mail or email to the permittee's designated complaint representative, or to the Commission's Public Advisor at 1-800-657-3782 or publicadvisor.puc@state.mn.us. The name and contact information for the permittee's designated complaint representative shall be kept current in the Commission's eDocket system.

ATTACHMENT 2
Compliance Filing Procedures for Permitted Energy Facilities

MINNESOTA PUBLIC UTILITIES COMMISSION
COMPLIANCE FILING PROCEDURE FOR
PERMITTED ENERGY FACILITIES

A. Purpose

To establish a uniform and timely method of submitting information required by Commission energy facility permits.

B. Scope and Applicability

This procedure encompasses all known compliance filings required by permit.

C. Definitions

Compliance Filing: A filing of information to the Commission, where the information is required by a Commission site or route permit.

D. Responsibilities

1. The Permittee shall file all compliance filings with Will Seuffert, Executive Secretary, Public Utilities Commission, through the eDockets system. The eDockets system is located at: https://www.edockets.state.mn.us/EFiling/home.jsp

General instructions are provided on the eDockets website. Permittees must register on the website to file documents.

2. All filings must have a cover sheet that includes:

    a. Date
    b. Name of submitter/permittee
    c. Type of permit (site or route)
    d. Project location
    e. Project docket number
    f. Permit section under which the filing is made
    g. Short description of the filing

3. Filings that are graphic intensive (e.g., maps, engineered drawings) must, in addition to being electronically filed, be submitted as paper copies and on CD. Paper copies and CDs should be sent to: 1) Will Seuffert, Executive Secretary, Minnesota Public Utilities Commission, 121 7th Place East, Suite 350, St. Paul, MN 55101-2147, and 2) Department of Commerce, Energy Environmental Review and Analysis, 85 7th Place East, Suite 500, St. Paul, MN 55101-2198.

The Commission may request a paper copy of any electronically filed document.

PERMIT COMPLIANCE FILINGS[1]

PERMITTEE: Minnesota Power
PERMIT TYPE: High-Voltage Transmission Line Route
PROJECT LOCATION: Duluth, Hermantown, Proctor, Midway Township, St. Louis County, MN.
PUC DOCKET NUMBER: E015/TL-21-141

Filing Number	Permit Section	Description of Compliance Filing	Due Date
1	5.1	Permit Distribution	30 days after permit issuance
2	5.3.1	Field Representative	14 days prior to commencing construction
3	5.3.10	Application of Pesticides	Notice 14 days prior to application
4	5.3.16	Site Restoration Report	60 days after completion of all restoration activities
5	5.5.2	List of Other Required Permits	Upon request
6	6.1	Vegetation Management Plan	At least 14 days prior to submitting the plan and profile
7	6.2	Snowmobile Trail	At least 14 days prior to submitting the plan and profile
8	6.5	Keene Creek Tributary	At least 14 days prior to submitting the plan and profile
9	6.6	Third Party Monitor	At least 14 days prior to submitting the plan and profile

[1] This compilation of permit compliance filings is provided for the convenience of the permittee and the Commission. It is not a substitute for the permit; the language of the permit controls.

Filing Number	Permit Section	Description of Compliance Filing	Due Date
10	7	Delay in Construction	Four years after permit issuance, as necessary
11	8	Complaint Procedures	Prior to commencing construction
12	9.1	Plan and Profile	30 days prior to commencing construction
13	9.2	Status Reports	Monthly through restoration
14	9.3	Notice of Operation and Completion of Construction	Three days prior to commercial operation
15	9.4	As-Builts	90 days after construction is complete
16	9.5	GPS Data	90 days after construction is complete
17	Complaint Reporting	Monthly Complaint Reports	See Route Permit Attachment 1
18	Complaint Reporting	Immediate Complaint Reports	By the following day throughout the life of the permit

ATTACHMENT 3
Route Permit Maps