STATE OF NEW HAMPSHIRE
PUBLIC UTILITIES COMMISSION

DE 08-017

PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE

Petition for License to Construct and Maintain Electric Lines Over and Across the Public Waters of the Piscataquog River in the Town of Weare

Order *Nisi* Granting License

ORDER NO. 24,828

March 7, 2008

On February 7, 2008, Public Service Company of New Hampshire (PSNH) filed a petition pursuant to RSA 371:17 for a license to construct and maintain electric lines across the Piscataquog River in Weare. The petition states that PSNH had previously constructed and currently operates and maintains a three-phase 34.5 kV distribution line, designated as the 327 circuit, in Weare. PSNH requests a license to remove the 327 circuit and replace it with a new 34.5 kV distribution line. According to the company, if the existing 327 circuit 34.5 kV line at the river crossing is not replaced, PSNH could not maintain reliable electric service in the Weare area if another contingency were to occur. The replacement would be designated as the 3271 34.5kV line.

The petition states that the existing 327 line crosses the Piscataquog River in a location approximately 1,200 feet north of the intersection of Riverdale Road and Parker Station Road. PSNH attests that the new 3271 line will run parallel to the existing line, offset approximately 30 feet to the west. PSNH explained that it owns permanent 135 foot wide easements for its lines and facilities on both sides of the Piscataquog River at the crossing location, and that the new crossing will be constructed entirely within the limits of its easements. According to the petition,

the proposed construction does not require any permits from the Department of Environmental Services or the Department of Transportation.

PSNH investigated a multitude of weather and loading conditions for its design. The conditions investigated include: the National Electrical Safety Code (NESC), American National Standards Institute (ANSI) C2-2007 Heavy Load Conditions (0 degrees F, 4 pounds per square foot wind loading, and ½ inch radial ice); minus 20 degrees F and 105 degrees F ambient temperatures for the neutral conductor; and NESC ANSI C2-2007 Heavy Load Conditions, minus 20 degrees F, 105 degrees F, and 212 degrees F for the phase conductors. PSNH used these design conditions to determine the minimum clearance of the conductors to the water and land surfaces of the crossing and the minimum distances between the phase wires and the neutral conductor.

PSNH determined that the 100-year flood level at this location of the Piscataquog River is 311.5 feet using the Federal Emergency Management Agency (FEMA) Hillsborough County Flood Insurance Study dated June 2, 1993 and the National Geodetic Vertical Datum of 1929. For purposes of this petition, PSNH used the more conservative 100-year flood for water elevations in its design of conductor clearance over the Piscataquog River.

PSNH calculated the surface area of the crossing according to Note 19 to Table 232-1 of the NESC and found that the surface area was 10+/- acres. For crossing of waters suitable for sailing of 20 acres or less, NESC Table 232-1.7.a requires a minimum water surface clearance of 20.5 feet for phase conductors, and 17.5 feet for neutral conductors that meet Rule 230C1. NESC Table 232-1.2 also requires that the minimum clearance to the land surface where vehicle traffic is possible to be 18.5 feet for phase conductors, and 15.5 feet for neutral conductors that

meet Rule 230C1.

PSNH found that the minimum distance to land and water surfaces occurred when the phase conductors were at 212 degrees F and that the minimum distance to land and water surfaces for the neutral conductor occurred when it was at 105 degrees F. The minimum distance between the phase conductors and the neutral conductor occurred when the phase conductor was at 212 degrees F and the neutral conductor was at 90 degrees F.

As designed by PSNH, the maximum sag of the phase conductors would occur at a conductor temperature of 212 degrees F. At this elevated conductor temperature, PSNH calculates that the phase conductors would remain 24.6 feet above the 100-year flood level of 311.5 feet. At this temperature, the phase conductors remain 37.3 feet above the land on the north side of the river and 38.0 feet above the land on the south side of the river. PSNH calculates that the maximum sag of the neutral conductor occurs at a temperature of 105 degrees F. At this temperature, PSNH calculates that the neutral conductor would remain 19.4 feet above the 100-year flood level of 311.5 feet. At this temperature, the neutral conductor remains 30.9 feet above the land on the west side of the river and 32.3 feet above the land on the south side of the river. These design standards meet the NESC standards.

In addition, PSNH calculated that the minimum distance between the phase conductors and the neutral conductor occurs when the phase conductors are at their emergency temperature of 212 degrees F and the neutral conductor is at 90 degrees F, the air ambient. Under these conditions, the minimum vertical clearance would be 5.0 feet between the neutral conductor and the phase conductor directly above it. NESC Table 235-5, Section 2a. requires that the minimum distance between the phase conductors and the neutral conductor be 20.9 inches. The design

standards meet the NESC requirements.

PSNH states that the use and enjoyment by the public of these waters will not be diminished in any material respect as a result of the proposed electric line crossing. PSNH further attests that the construction of the crossing will be constructed, maintained, and operated in accordance with the requirements of the NESC, ANSI C2-2007.

On February 28, 2008, Staff filed a memorandum with the Commission recommending that the Commission grant the petition. Among other things, Staff reports that, if the facilities are constructed, operated and maintained as proposed, PSNH will be conforming to sound engineering standards and complying with the 2007 edition of the National Electrical Code.

Based on the information presented by PSNH and Staff's recommendation, we find this crossing necessary for PSNH to meet the reasonable requirements of reliable service to the public within PSNH's authorized franchise area pursuant to RSA 371:17. We further find that the requested license may be exercised without substantially affecting the public rights in the affected waters as required by RSA 371:20. We approve the petition on a *nisi* basis to provide any interested party the opportunity to submit comments or to request a hearing.

Based upon the foregoing, it is hereby

ORDERED *NISI*, that subject to the effective date below, PSNH is authorized, pursuant to RSA 371:17 *et seq.*, to construct, maintain and operate electric lines over and across the public waters described in its petition and depicted in its exhibits submitted February 7, 2008 and on file with this Commission; and it is

FURTHER ORDERED, that all construction and future reconstruction to this approved crossing shall conform to the requirements of the National Electrical Safety Code and all other applicable safety standards in existence at that time; and it is

FURTHER ORDERED, that PSNH maintains and operates this crossing in conformance with the National Electrical Safety Code; and it is

FURTHER ORDERED, that PSNH provide a copy of this order to the Town Clerk of Weare, the Attorney General, the owners of the land bordering on said public waters at the location of the crossing, and, pursuant to RSA 422-B:13, the New Hampshire Department of Transportation and the Office of Secretary, U.S. Department of Commerce by first class mail, no later than March 17, 2008, and to be documented by affidavit filed with this office on or before April 7, 2008; and it is

FURTHER ORDERED, that PSNH cause a copy of this Order *Nisi* to be published once in a statewide newspaper of general circulation or of circulation in those portions of the state where operations are conducted, such publication to be no later than March 17, 2008 and to be documented by affidavit filed with this office on or before April 7, 2008; and it is

FURTHER ORDERED, that all persons interested in responding to this Order *Nisi* be notified that they may submit their comments or file a written request for a hearing which states the reason and basis for a hearing no later than March 24, 2008 for the Commission's consideration; and it is

FURTHER ORDERED, that any party interested in responding to such comments or request for hearing shall do so no later than March 31, 2008; and it is

FURTHER ORDERED, that this Order *Nisi* shall be effective April 7, 2008, unless PSNH fails to satisfy the publication obligation set forth above or the Commission provides otherwise in a supplemental order issued prior to the effective date.

By order of the Public Utilities Commission of New Hampshire this seventh day of March, 2008.

Thomas B. Getz
Chairman

Graham J. Morrison (KNS)
Commissioner

Clifton C. Below (KNS)
Commissioner

Attested by:

Debra A. Howland
Executive Director & Secretary

CHRISTOPHER J ALLWARDEN
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03/07/08 Order No. 24,828 issued and forwarded to all parties.
Copies given to PUC Staff.

Docket #: 08-017 Printed: March 06, 2008

FILING INSTRUCTIONS: PURSUANT TO N.H. ADMIN RULE PUC 203.02(a),

WITH THE EXCEPTION OF DISCOVERY, FILE 7 COPIES (INCLUDING COVER LETTER) TO:

DEBRA A HOWLAND
EXEC DIRECTOR & SECRETARY
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