

DE 05-099

UNITIL ENERGY SYSTEMS, INC. AND FIBERTECH NETWORKS, LLC

**Petition for License to Construct and Maintain Electric Lines and a Communications
Cable Over and Across the Public Waters of the Merrimack River
in the City of Concord, New Hampshire**

Order *Nisi* Approving Petitions

ORDER NO. 24,493

July 21, 2005

On May 20, 2005, Unitil Energy Systems, Inc. (Unitil) filed a petition under RSA 371:17 with the New Hampshire Public Utilities Commission (Commission) for a license to construct and maintain electric lines over and across the Merrimack River in the City of Concord, New Hampshire. On that date, Unitil also filed a petition under RSA 371:17 with the Commission on behalf of Fibertech Networks, LLC (FN) for a license to construct and maintain a communications cable over and across the Merrimack River at the same location and on the same structures as the electric lines. Unitil states on behalf of FN that the addition of a fiber optic communications cable will provide enhanced communications between several State of New Hampshire buildings. Unitil states that the existing licensed 4.16 kilovolt (kV) electric crossing at this location must be raised to accommodate the addition of the communication cable. Unitil supplemented the petitions and revised the profile drawing on June 24, 2005 and on July 8, 2005. Staff, on July 15, 2005, filed a memorandum recommending approval of the petitions.

Unitil proposes to rebuild the existing 4.16 kV distribution line river crossing to accommodate the installation of the new communications cable. The existing overhead electric line is designated the 1H4 line and will be reconstructed in place on the southerly side of, and

parallel to, State of New Hampshire Highway Route 4 (Loudon Road) in Concord, New Hampshire.

In support of its petition, Unitil submitted a profile drawing of the crossing (Unitil Exhibit #1), an unmarked profile drawing of the crossing as submitted for the existing license (Unitil Exhibit #1A assigned by the Commission), a photograph of the existing crossing (Unitil Exhibit #2), and a copy of Commission Order No. 20,923 (August 4, 1993) granting the existing license (Unitil Exhibit #3).

Unitil states that the proposed crossing will consist of structure #12 on the west bank and structure #13 on the east bank (Unitil Exhibit #1). Structure #12 will be a new 65 foot, class 1, single wood pole on the westerly side of the crossing and will replace the existing 50 foot single pole wood structure. Structure #13 will be a new 65 foot, class 1, single wood pole on the easterly side of the crossing and will replace the existing 55 foot single pole wood structure. The span distance between these two structures will be 449 feet.

Unitil investigated a multitude of weather and loading conditions for the design of the crossing, including the National Electrical Safety Code (NESC), American National Standards Institute (ANSI) C2-2002 Heavy Loading Conditions (0 degrees F, 4 pounds per square foot wind loading, and ½ inch radial ice), minus 20 degrees F conductor temperature, 212 degrees F conductor temperature, and 120 degrees F conductor temperature. Unitil used these design conditions and combinations thereof to determine the minimum clearance of the conductors to the water surface and the minimum distances between the phase conductors and the neutral conductor. Both combinations are depicted in the profile drawing, Unitil Exhibit #1.

The three-phase conductors will be 266 MCM 18/1 ACSR conductors, constructed in a horizontal configuration with 5.5 foot spacing, tensioned to 3,500 pounds at 212 degrees F, and sagged to NESC, ANSI C2-2002 Heavy Loading Conditions. The 266 MCM 18/1 ACSR neutral conductor will be mounted on the poles and will be located 14.0 feet below the center phase conductor. The neutral conductor will be tensioned to 3,500 pounds at 212 degrees F and sagged to NESC, ANSI C2-2002 Heavy Load Conditions. The communications cable is a 144 count fiber optic cable mounted on the poles and will be located 8.5 feet below the neutral conductor. The communications cable will be lashed to a 3/8 inch steel utility grade messenger cable and tensioned to 3,000 pounds at 60 degrees F and also sagged to NESC, ANSI C2-2002 Heavy Load Conditions.

Unitil determined that according to NESC Table 232-1, Note 19, the design water surface area for the crossing is 54.8 acres. For water areas greater than 20 acres and up to 200 acres that are suitable for sailing, NESC (Table 232-1) requires that the primary conductor clearances to the water surface be 28.5 feet. According to Unitil's calculations, the maximum phase conductor sag will occur at a conductor temperature of 212 degrees F. At this elevated conductor temperature, the phase conductors remain 47.7 feet above the Merrimack River 100 year flood level of 232.5 feet, which exceeds the NESC Table 232-1 requirements.

NESC (Table 232-1) also requires that the neutral conductor clearance to the water surface be 25.5 feet. Unitil calculated that the maximum neutral conductor sag will occur at a conductor temperature of 120 degrees F. At this conductor temperature, the neutral conductor remains 36.8 feet above the Merrimack River 100 year flood level of 232.5 feet, which exceeds the requirements of NESC Table 232-1.

Further, NESC (Table 232-1) requires that the communications cable clearance to the water surface be 25.5 feet. According to Unitil's calculations on behalf of FN, the maximum communication cable sag will occur at NESC, ANSI C2-2002 Heavy Load Conditions. At these conditions, the communications cable remains 29.0 feet above the Merrimack River 100 year flood level of 232.5 feet, which exceeds the requirements of NESC Table 232-1.

NESC Table 235-6, Section 2a requires the minimum distance between phase conductors and the neutral to be 1.0 foot. Unitil determined 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 minus 20 degrees F. By inspection of Unitil Exhibit #1 as revised, Unitil has determined that under the described conditions, the clearance between the neutral and the phase conductor would be 4.8 feet, which exceeds the requirements of NESC Table 235-6, Section 2a.

Unitil avers there are no wetlands or other permits required in connection with the construction of the crossing. Unitil has stated that Unitil owns permanent easement rights for the construction, operation, and maintenance of overhead lines where structures #12 and #13 are located.

Unitil attests 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 aerial line crossings. Unitil further avers that the construction of the aerial electric lines and the communications cable will be constructed, maintained, and operated in accordance with the requirements of the NESC, ANSI C2-2002.

RSA 371:17 provides in part that whenever it is necessary, in order to meet the reasonable requirements of service to the public, that any public utility should construct a line of

poles or towers and wires and fixtures thereon over or across any of the public waters of New Hampshire, it shall petition the Commission for a license to construct and maintain the same. “Public waters,” as defined in RSA 371:17, means “all ponds of more than ten acres, tidewater bodies, and such streams or portions thereof as the Commission may prescribe.” Based on the information presented, the Commission prescribes the part of the Merrimack River under the proposed aerial electric lines and the communications cable as being “public waters” under RSA 371:17.

We find that the crossings requested in the Petition are necessary for Unitil to meet the reasonable requirements of reliable service to the public within Unitil’s authorized franchise area, and acknowledge the secondary benefit to the customers of FN with installation of the new fiber communications cable. We also find that the requested licenses may be exercised without substantially affecting the public rights in the waters of the Merrimack River. We determine that the crossings are in the public good and approve the petitions on a *Nisi* basis in order to provide any interested party the opportunity to submit comments on said petitions or to request a hearing.

Based upon the foregoing, it is hereby

ORDERED *NISI*, that subject to the effective date below, Unitil is authorized, pursuant to RSA 371:17 et seq., to construct, maintain and operate the aerial electric lines and the communications cable over and across the Merrimack River in Concord, New Hampshire described in their petitions and depicted on plans submitted May 20, 2005, supplemented and revised on June 24, 2005 and on July 8, 2005, and on file with this Commission; and it is

FURTHER ORDERED, that all construction and future reconstruction to these approved crossings shall conform to the requirements of the NESC and all other applicable safety standards in existence at that time; and it is

FURTHER ORDERED, that Unitil operate these new crossings in conformance with the NESC; and it is

FURTHER ORDERED, that Unitil shall provide a copy of this order to the (i) City Clerk of Concord, (ii) New Hampshire Attorney General and the owners of the land bordering on said public waters at the location of the river crossing, pursuant to RSA 371:19, and (iii) pursuant to RSA 422-B:13, New Hampshire Department of Transportation and the Office of Secretary, U.S. Department of Commerce, by first class mail, no later than August 1, 2005, and to be documented by affidavit filed with this office on or before August 15, 2005; and it is

FURTHER ORDERED, that Unitil shall 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 August 1, 2005 and to be documented by affidavit filed with this office on or before August 15, 2005; 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 August 8, 2005 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 August 15, 2005; and it is

FURTHER ORDERED, that this Order *Nisi* shall be effective August 19, 2005, unless Unitil 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 twenty-first day of July, 2005.

Thomas B. Getz
Chairman

Graham J. Morrison
Commissioner

Michael D. Harrington
Commissioner

Attested by:

Lori Normand
Assistant Secretary