



New Neptune Cable Opens Electric Transmission Corridor From Mid-Atlantic to New England Long Island, New York

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On Thursday, October 14, 2003, 50 million people in eight Northeast States and Canada were victims of the largest electrical blackout in North American history. This event spurred infrastructure repair and replacement of the electrical grid. The Neptune Project, a valuable regional transmission corridor running from New England across Long Island to the Mid-Atlantic region, is one resulting project of this major blackout.

CETCO GEOTHERMAL GROUT™ was used to grout the trenchless construction sections of the new electrical transmission cable that delivers up to 660 megawatts of new electric power supply to the Long Island Power Authority (LIPA) system. 660 Megawatts is sufficient to meet the average annual demand for 600,000 homes. The new cable connecting LIPA to the New Jersey, Maryland, and Pennsylvania electric grids will connect Long Island to the Mid-Atlantic power grid for the first time.



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Neptune Regional Transmission System, LLC (Neptune RTS) was selected to provide access to the Mid-Atlantic electricity network and to its diverse source of supply to meet Long Island’s growing energy demand. The Neptune cable extends from Sayreville, New Jersey, beneath the Raritan River and Raritan Bay, under water for a distance of 51 miles, at a target depth of generally four feet below the seabed.

The cable made landfall approximately 1,000 feet offshore of Jones Beach, on Long Island. It was installed underground along the Wantagh State Parkway right of way for a distance of approximately 14 miles before interconnecting with the LIPA substation at Newbridge Road in Levittown, New York.

Brian Dowart, P.E., P.G., with Haley & Aldrich, was the engineer for the directional drilling portions of the project. GEOTHERMAL GROUT was used to grout the horizontal directional boreholes and was pumped up to 2,250 feet for some legs of the project.

CETCO Drilling Products manufactures GEOTHERMAL GROUT, a specially blended high solids bentonite grout, which when added to sand forms a thermally conductive grouting material. GEOTHERMAL GROUT is mixed to meet a range of thermal conductivities depending on the specific conditions of the site geology. Depending on the soil type, these ranges can be from 0.40 to 1.00 Btu/hr/ft/F.





The directional drilling contractor for this project was Mears/HDD using an American Augers DD140 horizontal directional drill. The grouting portion of the project was performed by Thermo Forte/P&P Quickset. The final products were combined bundles of HDPE ducts that ranged from 2" to 16" in diameter.



The thermally enhanced grout was engineered to conduct heat away from the electrical transmission cable to the duct wall. The mix was 52 lbs of GEOTHERMAL GROUT to 2,350 lbs sand per yard of grout.



16,152 linear feet or 3.06 miles of ducts placed into directional drilled boreholes were grouted using GEOTHERMAL GROUT. One of the major bores was 2,350 feet under a roadway. Despite the long distance of the boreholes, the GEOTHERMAL GROUT mixture was pumped the total distance without incident.

The Neptune Project, not a typical geothermal heat pump application, shows the versatility and pumping capabilities of GEOTHERMAL GROUT. GEOTHERMAL GROUT has been carefully developed as a thermally conductive grout used to heighten the performance of closed loop ground source heat pump systems. More information and a Technical Data Sheet can be found at www.cetco.com/dpg.



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