THE STATE OF NEW HAMPSHIRE

BEFORE THE

NEW HAMPSHIRE SITE EVALUATION COMMITTEE

DOCKET NO. 2015 - 06

SUPPLEMENTAL PRE-FILED TESTIMONY OF JOHN KAYSER

IN SUPPORT OF THE
APPLICATION OF NORTHERN PASS TRANSMISSION LLC
AND PUBLIC SERVICE COMPANY OF NEW HAMPSHIRE
D/B/A EVERSOURCE ENERGY
FOR A CERTIFICATE OF SITE AND FACILITY TO CONSTRUCT A NEW HIGH VOLTAGE TRANSMISSION LINE AND RELATED FACILITIES IN NEW HAMPSHIRE

April 17, 2017

Q. Please state your name, title, and business address.

A. My name is John Kayser. I am a Project Manager in the Transmission and Distribution division at Burns & McDonnell. My business address is Burns & McDonnell, 27 Pearl Street, Portland, ME.

Q. What is your role in the Project?

A. I am a Construction Project Manager. I am working on planning for management and oversight of the construction for the Northern Pass Transmission Project ("Northern Pass" or the "Project") proposed by Northern Pass Transmission LLC ("NPT") and Public Service Company of New Hampshire d/b/a Eversource Energy ("PSNH") (collectively the "Applicants").

Q. What is the purpose of your supplemental testimony?

A. The purpose of my supplemental pre-filed testimony is to provide updates to the construction management activities and techniques that will be used on the Project.

Q. During the discovery process and in the pre-filed testimony submitted by interveners, concerns were raised regarding blasting. Will blasting be required to construct the Project?

A. Yes.

Q. Where will blasting occur?

A. As described in response to data requests, NPT does not know the specific locations where blasting will be required to complete the work. NPT anticipates that blasting will occur for site development of the Franklin Converter Terminal, Deerfield Substation, Scobie Pond Substation and the transition stations. The locations and amount of blasting required for the trenching operations is not known at this time. This will be determined during the construction phase as the underground contractor encounters rock and is able to determine the depth and character of rock along the route. NPT also anticipates that blasting may be required for the construction of access roads, work pads and foundations for the overhead transmission line structures. The exact locations for blasting will be determined during the design and construction phase and will depend on the amount and the character of rock encountered.

Q. Will blasting contractors have all required licenses and certifications?

A. Yes. All blasting contractors that will complete work on the project will have all required licenses and certifications and will have received training in the safe use and handling

of explosives from the International Society of Explosive Engineers. The contractors will be required to submit copies of all licenses, certifications and training in order to document the fulfillment of those requirements to NPT's satisfaction prior to doing any work.

Q. How will public safety be ensured during blasting?

A. Access to the area where blasting is to occur will be controlled to prevent any unauthorized entry. Each blast will be preceded by a security check of the affected area and then a series of warning whistles will sound. Communications will be made with the job site supervisors and local officials (as required) to ensure the safest blasting operation. All personnel in the vicinity of the blast area will be warned. The audible warning signals will follow the sequence shown below as per U.S. Army Corps of Engineers (USACE) EM 385-1-1, Section 29.

1. Three whistles (or air blast) – five-minute pre-warning, prior to blast
2. Two whistles (or air blast) – one-minute pre-warning, prior to blast
3. One long whistle (or air blast) – all clear, directly after blast

The blast site will be examined by the "Blaster-in-Charge" prior to the "all clear" signal to determine that it is safe to resume work. No whistle or air blast to indicate "all clear" will be sounded until the blasting area has been secured and determined safe.

Blasting mats will be used for all blast rounds. The placement and number of mats will be determined by the Blaster-in-Charge.

Q. How will blasting materials be stored?

A. On-site storage of explosive materials will be in accordance with the Bureau of Alcohol, Tobacco and Firearms (ATF) 27 CFR 55 and USACE EM 385-1-1. Copies of inventory logs will be maintained in compliance with ATF regulations and will be available for review as required.

Q. Will the blasting contractor be providing additional information prior to conducting any blasting operations on the Project?

A. Yes. Prior to the commencement of any blasting the contractor will develop a detailed General Blasting Plan, a Blasting Safety Plan, an Emergency Response Plan and a Pre-Blast Inspection Survey for review and approval by NPT. In addition to the above plans, the contractor will develop, and submit for approval to NPT, an Individual Blasting Plan for each area a minimum of 24 hours prior to blasting.

Q. How will the Applicants confirm the underground construction plans are completed in accordance with the New Hampshire Department of Transportation ("NHDOT")?

A. On or before December 15, 2016, NPT submitted a more advanced design to the NHDOT for its review and comment. NPT recently received a full set of comments on that design. Subsequently, on April 3, 2017, the NHDOT issued a final decision with conditions, namely, a Recommended Approval with Certain Permit Conditions that will protect public safety, mobility and the economic investment made to the roadway infrastructure with the State's highway right-of-way.

NPT is currently incorporating NHDOT comments and suggestions on the underground design and construction plan, and will continue to work with NHDOT to ensure that the final design complies with the conditions of the April 3, 2017 approval. As part of the finalization of the underground design, NPT personnel will be engaged with NHDOT in an iterative process that will result in a final design and construction plan that conforms to the NHDOT final approval and permit conditions.

Q. Will the Project develop a comprehensive schedule for the work?

A. Yes, a comprehensive schedule will be developed that will include design and construction tasks. The schedule will incorporate all aspects of the construction work needed to design and construct the overhead transmission line elements, underground transmission line elements, substation modifications and upgrades, transition stations and the converter terminal. The schedule will be updated throughout the life of the Project as tasks are completed or the sequence or duration of activities change during the life of the Project.

Q. Please describe the proposed construction work hours for the Project.

A. As originally anticipated, construction activities, for the most part, will take place during daytime hours. In general, it is expected that the construction activities will be from 7:00 am to 7:00 pm Monday through Saturday. Normal work hours may be extended, however, due to exigent circumstances (including, without limitation, as appropriate to maintain a safe work environment), when required for system reliability or integrity, and other rules pertaining to the operation of the Project, including testing, equipment outages, or to perform critical work activities for construction and testing purposes. The Applicants will work with local officials to accommodate any specific concerns to the extent practical. In addition, NPT will work with

municipal officials to limit any impacts when circumstances require extended work hours, including any necessary work on Sundays.

Q. Will there be any night work on the Project?

A. NPT will work with host municipalities, to the extent feasible, to reach an agreement when establishing work hour protocols prior to starting construction activities in specific areas that may be designed or required for night construction. For example, there may be instances where night work is preferable to daytime work in some areas. The Project will address those areas on a case-by-case basis and will work with municipalities to establish work hours that reduce disruption to the extent practicable. To the extent a municipality prefers to have construction ongoing during the night, the Applicants will further work with that municipality to establish a schedule.

Q. Have you reviewed the NHDES Final Decision issued on March 1, 2017? If so, will the Project be able to comply with the specific conditions and requirements of those permits?

A. Yes, I have reviewed the NHDES Final Decision. The Applicants will comply with all of the conditions listed in the Final Decision.

Q. During discovery and in the pre-filed testimony submitted by interveners, concerns were raised about the removal, storage, and disposal of soil spoils generated during the underground construction. Please describe how this issue will be addressed.

A. The removal, storage and disposal of excess material that is generated during the underground construction will be managed by the underground construction contractor. The underground construction contractor will develop a plan for the disposal of excess material that will be submitted to NPT for approval. The contractor will identify interim storage areas for the excess materials prior to final disposition at an off-site disposal facility approved by NPT. The contractor will comply with all state and federal regulations and will follow the Material Handling Guideline that was developed by the Project and is part of the contract between NPT and the General Contractor.

Q. During discovery and in the pre-filed testimony submitted by interveners, concerns were raised about the Project being able to be constructed within the existing public road right-of-way ("ROW") without using private property. Please explain how NPT will assure that it will not use private property to construct the Project.

A. NPT's contractor has surveyed the public highway ROW along the underground route and will design and construct the Project within the limits identified in that survey. Specifically, the contractor will be required to develop its construction plans to remain within the ROW. The contractor will be required to submit its detailed work plans to NPT for approval prior to commencing work.

Q. During discovery and in the pre-filed testimony submitted by interveners, concerns were raised about "frac outs" during trenchless installation. Does the Project have an inadvertent return mitigation plan? If so, please describe.

A. NPT requires that trenchless installation contractors submit an inadvertent return mitigation plan for approval by NPT. The contractors will develop and submit this plan after the underground design is finalized and prior to construction. The plan will detail processes and procedures the contractor will employ in the event of an inadvertent return during the trenchless installation. By way of example, please refer to Attachment A, NPT_DIS 055670.pdf, a draft Northern Pass Transmission Project, Operations and Monitoring Plan for HDD Crossings (April 2015), which was provided in response to a data request. This plan includes a description of the drilling operation and monitoring plan by site condition, remediation steps in the case of an accidental fluid release and a communication protocol regarding the release.

Q. Please describe whether the Applicants intend to apply for and receive all local construction permits.

A. As part of the Applicants' application for a Certificate of Site and Facility, the Applicants have applied for all necessary permits and approvals to construct and operate the Project through the New Hampshire Site Evaluation Committee ("NHSEC"). Such applications to the NHSEC must contain the permit applications that were simultaneously submitted to, and meet the requirements of, each state agency having permitting or regulatory authority over an energy facility. Here, the Applicants have provided such permit applications as required by law. The final decisions of the agencies have been issued (with conditions) and will be

incorporated as enforceable conditions into the Certificate of Site and Facility issued by the NHSEC.

To further clarify my Direct Pre-Filed Testimony, dated October 16, 2015, it was not my intent to imply that the Applicants would, or were required to, apply for local or municipal permits during the construction process. To be clear, the Applicants are committed to complying with all Certificate conditions, as expressly enumerated in an Order and Decision, which may be based on certain federal, state or local regulations. Moreover, the Applicants will comply with the substance of various local ordinances and regulations to the extent the Applicants and a specific host municipality agree on such conditions through a formal written agreement or memorandum of understanding. As described in the Direct Pre-Filed Testimony and Supplemental Pre-filed testimony of William Quinlan and Samuel Johnson, the Applicants are working with numerous municipalities along the Project route to establish formal agreements relating to the construction of the Project. Once the Applicants and a host municipality have a signed such an agreement, we expect that the parties will submit that agreement to the NHSEC to be included among the Certificate conditions.

Q. During discovery and in the pre-filed testimony submitted by interveners, concerns were raised about damage to local and state roads during construction. Please explain how the Applicants will address any potential damage to local and state roads.

A. Following construction of the Project, all roadways will be restored to at least their pre-construction condition, or better in some cases, and will meet all NHDOT standards and guidelines, in a manner that does not impact the safe public use of the roadway after construction. On large projects, such as Northern Pass, the NHDOT will typically monitor the permitted work to assure that the applicant constructs the project in accordance with the requirements specified within the permit and/or licneses issued by NHDOT. Once constructed, the underground line will be similar to other existing infrastructure, such as a water or sewer line. NPT does not anticipate any additional maintenance issues with local or state-maintained roadways. NPT has included design requirements and will take additional precautions during the installation and restoration of the underground section to limit the possibility of potential issues and to support the integrity of the roadway subsurface.

Q. Have you reviewed the Dewberry Overhead Line Review report, dated November 15, 2016? Do you have any comments to make at this time?

A. Yes, I have reviewed the report. The short-term construction impacts noted in the report are typical of any overhead transmission project. The report also notes several long-term impacts. All of the long-term and short-term impacts stated in the report have been addressed by the conditions of the NHDES Final Decision approving the Project.

Q. Have you reviewed the Dewberry Underground Line Review report, dated December 28, 2016? Do you have any comments to make at this time?

A. Yes, I have reviewed the report. The report discusses certain impacts that are typical with the construction of a transmission line. The potential impacts, and methods to avoid, minimize, and mitigate such impacts, are established in the final permits and approvals issued by the New Hampshire Department of Environmental Services ("NHDES") and NHDOT. The Project is currently advancing the detailed design of the underground and is coordinating that effort with the NHDOT. Along with that effort the traffic control plans are under development that will address the concerns with traffic raised in the report. The Project will adhere to the conditions set by the NHDOT in the approval of the design and construction plan which will address the long-term impacts that are stated in the report.

Q. Have you reviewed the ECE Pre-Filed Technical Report Regarding the Assessment of HVDC Underground Cable Segments for the Northern Pass HVDC Project, submitted to the NHSEC on December 30, 2016? Do you have any comments to make at this time?

A. Yes, I have reviewed the report. The report identifies issues that are typical of any underground construction project located in public highways. The NHDOT final decision contains conditions that address public safety, mobility and the economic investment made to the roadway infrastructure within the State's highway right-of-ways. The underground contractor will develop a design and then a detailed construction plan and schedule that conform to the NHDOT Final Decision and related conditions.

Q. Does this conclude your supplemental testimony?

A. Yes, it does.

NORTHERN PASS TRANSMISSION PROJECT

Operations and Monitoring Plan for HDD Crossings

Prepared for:

EVERSOURCE ENERGY SERVICE COMPANY

April 2015

Prepared by:

Burns & McDonnell Engineering Company, Inc.

TABLE OF CONTENTS

1. INTRODUCTION

This *Monitoring and Operations Plan* ("M&O Plan") identifies the procedures that will be followed during the performance of horizontal directional drilling ("HDD") for the Northern Pass Transmission Line Project ("Project") proposed by Eversource Energy ("Owner"). The HDD activities for the Project will involve the installation of a +/-320-kilovolt (kV) HVDC underground transmission cable beneath certain rivers and streams in New Hampshire.

The protocols and procedures identified in this M&O Plan will be followed by the Company's HDD contractor(s) for each HDD crossing. As a result of permit and certificate conditions for the Project, additional conditions may be identified for specific HDD river crossings. The M&O Plan, along with any such site-specific conditions, will be incorporated into the HDD contract(s) for the Project.

2. OVERVIEW OF PLAN ELEMENTS

The M&O Plan will consist of the following conditions and corresponding operational and monitoring protocols:

Condition	Operational Parameters	Actions
Condition 1: Normal Directional Drilling Conditions	No drilling fluid release	• Exit pit bentonite removal • Perform routine drilling data collection • Conduct routine visual monitoring
Condition 2: Loss of Circulation	Loss of circulation during drilling	• Slow down drilling and adjust drill operation to regain circulation • Perform focused visual monitoring • Restart or continue drilling if no release is detected but continue to visually observe drill alignment and adjacent area(s)
Condition 3– Drilling Fluid Release and Remediation	Drilling fluid release confirmed	• Take appropriate steps to stop loss. • Perform monitoring to define release area • Notify regulatory agencies • Perform bentonite sampling and notify NHDES of test results • Provide NHSDES with copies of manifests of remediation and material disposal

The following sections of this M&O Plan provide details regarding each of the three conditions identified above.

3. DESCRIPTION OF DRILLING OPERATIONS AND MONITORING, BY CONDITION

3.1 CONDITION 1: NORMAL DRILLING CONDITIONS

Drilling Operations

Documentation of the composition of all drilling fluids to be used will be maintained at the jobsite and be available for review by the Company and their designated representatives, as well as by the New Hampshire Department of Environmental Services ("NHDES") and the U.S. Army Corps of Engineers ("ACOE"). Documentation shall include complete manufacturers literature and Material Safety Data Sheets ("MSDSs"). No fluid will be utilized that does not comply with permit requirements and environmental regulations.

The HDD Contractor shall maximize recirculation of drilling fluid surface returns and provide solids control and fluid cleaning equipment of a configuration and capacity that can process surface returns and produce drilling fluid suitable for reuse.

The HDD Contractor shall at all times provide and maintain instrumentation which will accurately locate the pilot hole, measure drill string axial and torsional loads, and measure drilling fluid discharge rate and pressure. The Company and their designated representatives, as well as the NHDES and the ACOE, will have access to these instruments and their readings at all times. A log of all recorded readings shall be maintained and will become a part of the "As-Built" information to be supplied by the HDD contractor.

Monitoring Plan

Monitoring will consist of visual observation during the directional bore. A log shall be kept of all survey monitoring, by the monitoring contractor, and available for inspection by the Company, its designated representatives, NHDES, and ACOE. If a release is detected and confirmed during routine monitoring, *Condition 3* will be implemented.

3.2 CONDITION 2: LOSS OF CIRCULATION

Drilling Requirements

Loss of drilling fluid circulation can indicate a blockage of the fluid return path, the release of drilling fluids into a void around the directional drill, or a pending or actual breakout of the fluid into the waterbody or onto adjacent land surfaces. The following procedures shall be conducted if loss of circulation occurs.

- The HDD Contractor will take immediate steps to identify and resolve the problem
- If the circulation loss is a frac-out, steps will be taken to control the size of the drilling mud loss to the environment.
- The HDD Contractor shall immediately notify the Company of *Condition 2.*
- The HDD Contractor shall perform a visual check along the alignment path and the

proximal area to assess if drilling fluid has reached the surface or sediment/water interface.

- The HDD Contractor shall take steps to restore contained circulation. The steps shall include "sizing" the hole and adjusting drilling fluid properties to encourage annular flow. Sizing involves withdrawing the drill string to mechanically clean the drilled pilot hole. The HDD Contractor may, at his option, employ lost circulation material.

- If circulation is regained the HDD Contractor will notify the Company and *Condition 2* will continue until a complete survey of the drill alignment is performed, as specified under *Condition 2, Monitoring Plan*. If releases are not identified and contained circulation is re-established, the drilling and monitoring will change to *Condition 1* and drilling fluid circulation will continue to be closely monitored.

- If circulation is not re-established, the drill path will continue to be monitored to locate the potential release and the Company will seek out the advice of NHDES and ACOE. If a release is not detected, drilling will be continued and *Condition 2, Monitoring Plan*, will continue.

Monitoring Plan

- Perform visual monitoring or focused fathometer monitoring as per *Condition 1*.

- If a drilling fluid release is detected, *Condition 3* will be implemented immediately.

- If a release is not detected, drilling will continue under *Condition 1 or 2*, as applicable.

3.3 CONDITION 3: DRILLING FLUID RELEASE AND REMEDIATION

Operations

A. Drilling Fluid Release with Loss of Drilling Fluid Circulation

Should the monitoring team detect a drilling fluid release and the release does not pose a significant impact, as defined later in this section, then drilling may continue with the approval of NHDES.

If the release occurs on land, it shall be immediately contained with hand placed barriers (i.e. straw bales, sand bags, silt fences, etc.) and collected using pumps as practical. If the amount of the release is not great enough to allow collection, the affected areas shall be diluted with fresh water and the fluid will be allowed to dry and dissipate naturally. If the amount of the release exceeds that which can be contained with hand placed barriers, small collection sumps (less than 2 cubic yards) may be used. If the amount of the release exceeds that which can be contained and collected using small sumps, drilling operations shall be suspended until released volumes can be brought under control.

If the release occurs within a wetland or river, the HDD Contractor will immediately take steps to minimize the flow of mud and it shall be immediately contained to the extent practical with barriers placed by divers. The contained underwater release will then be collected using pumps as practical. If the amount of the underwater release exceeds that which can be contained and collected, drilling operations shall be suspended until released volumes can be brought under control.

Monitoring Plan

- In the event of a detected drilling fluid release, the Company will immediately contact the following agencies:

  ⇒ NHDES Spill Response and Complaint Investigation Section ("SRCIS") at 603-271-3899 (Monday–Friday, 8am to 4pm) or 603-223-4381 (Weekends and Evenings).

  ⇒ Bentonite Remediation Contractor (to be determined by the HDD Contractor(s) with the approval of the Company).

  ⇒ ACOE at 978-318-8335

  ⇒ The National Response Center at 800-424-8802

- The release area and the rest of the drill path will be monitored visually. The type of monitoring will depend on the width and depth of the river/stream crossing. The impacted area will be determined.

- The origin of the breakout will be located and marked at the surface with a buoy or equivalent.

- A sample of the released material shall be obtained and tested to determine its contents. When available, results of the sample analysis will be made available to NHDES.

- Down-current areas will be investigated to assess impacts.

- Visual observations will be used, as appropriate to the river/stream crossing, to allow the Company and NHDES to determine the significance of the release.

- For larger river crossings, a diving team will be assigned to the release area to monitor the status of the release and to cordon the release area to minimize the area of impact and facilitate the removal of deposited material. The dive team shall make measurements of the horizontal limits and depth of deposition of the drilling fluid. These measurements shall be made at slack tide during active drilling operations, while a release continues. The dive team also will make visual observations of the release point to assess changes in flow rates and to evaluate underwater containment and collection effectiveness.

4. SIGNIFICANT IMPACTS

The decision as to conditions which constitute a significant impact will be based on discussions between NHDES, ACOE, and the Company. NHDES and ACOE shall make the final determination or ruling concerning impact decisions and further actions.

5. POST DRILLING MONITORING AND SAMPLING PLAN

In the event of a drilling fluid release, a site-specific post-remediation sampling protocol specific to

the actual impact area(s) will be submitted to both NHDES and ACOE, and will be implemented by the Company. The protocol will be based upon the location, volume, and spatial extent of the release, as well as baseline data concerning the coastal resources in the potentially affected areas. The objective of the sampling and monitoring effort will be to assess the potential adverse effects on benthic communities within the release zone.

Pre-drilling benthic data, compiled in TBD to establish baseline benthic habitat conditions in the Project area, will be used for comparative purposes. Benthic samples archived as part of this survey will be analyzed, as appropriate, to supplement the data base.

In the vicinity of the release, core samples will be collected where possible, both to monitor depositional thickness and to evaluate benthic macroinvertebrate communities. Every effort will be made to follow a random sampling design in each impacted habitat, with comparisons made to non-impacted zones of the same habitat.

At a minimum, in the event of a drilling fluid release, an inspection of the entire drill path will be conducted within approximately 48 hours following the completion of drilling activities. A brief report summarizing the status of drilling fluid deposits shall be prepared and provided to NHDES and ACOE.

If requested by NHDES or ACOE, post-drill monitoring may be performed. The type of monitoring will depend on the characteristics of the river and whether any drilling fluid release occurred during the drill process. The monitoring approach specific to a crossing location will be determined in consultation with NHDES and ACOE.

6. EQUIPMENT

The specific equipment at each HDD crossing will be tailored to the characteristics of the crossing (e.g., river or stream width, depth).