NextEra Energy Transmission New York, Inc.

(NEETNY)

Empire State Line

Case 18-T-0499

Appendix V

Comprehensive Gas and Pipeline Facilities Safety Plan

June 2020

1.0 Purpose

This Appendix V is NextEra Energy Transmission New York Inc.'s (NEETNY) Comprehensive Gas Line Safety Plan for the Empire State Line Project (Project). Project design and construction will comply with the electric and magnetic field standards established by the Commission in Opinion No. 78-13, issued June 19, 1978, and the Statement of Interim Policy on Magnetic Fields of Major Electric Transmission Facilities, issued September 11, 1990. Construction will also avoid adverse effects on the cathodic protection system and physical conditions of existing structures and any fuel gas pipelines within the Project ROW and within 25 feet of the edge of the Project ROW.

Construction practices will be implemented by the Construction Contractor to avoid impacts to underground utilities and will comply with the requirements for the protection of underground facilities set forth in 16 NYCRR Part 753 "Protection of Underground Facilities." Initial coordination has been conducted with the owners of underground utilities that could be impacted during construction. Encroachments over underground utility ROWs will not be avoidable. However, NEETNY will work directly with the affected utilities to minimize or avoid impacts and promote safety during construction.

Copies of the permits are not included in this appendix because applications have not yet been submitted to the owners of the utilities. Applications and supporting documentation will be submitted to the utilities prior to the commencement of Project construction. Supporting crossing exhibits and Certificates of Insurance will be provided in support of any applications to the affected utility companies. Copies of the permits will be incorporated into this appendix once issued by the respective utilities.

2.0 Crossing Methods

NEETNY and the Construction Contractor will work directly with each affected utility to apply for necessary encroachment and crossing permits. The following methods will be used in the crossing of underground utilities:

1. Crossing of underground utilities will include the installation of temporary timber bridging to avoid impacts or rutting over pipelines as shown on attached drawing EST-D-P002-105;
2. NEETNY has submitted typical crossing exhibits to the utilities, along with equipment specifications for the type, model, size and axle weight of all equipment proposed to cross pipelines;
3. Load testing will be conducted by the utility to determine protection methods required for temporary access over their pipelines;

4. Affected utilities will determine the necessary cover required over each crossing and installation of additional protective material, if necessary; and
5. If the earthen cover is not sufficient for protection of the underground pipeline, the Construction Contractor will add additional protective cover, as identified by the utility owner.

3.0 Crossing Locations

The Construction Contractor will cross underground pipelines only in identified locations along the Project ROW as shown in EM&CP Appendix A - Plan & Profile Drawings. NEETNY will work with the affected utilities to identify crossing locations in the following manner:

1. Crossing locations will be identified within the proposed and approved access roads;
2. Crossing will be conducted at 90-degree angles, to the maximum extent possible, but not at less than 45 degrees;
3. Longitudinal occupancy of the pipeline ROW will be minimized;
4. Crossing locations will be provided to the underground utilities to coordinate areas of avoidance and/or additional crossing requirements; and
5. Encroachment into the pipeline ROW will not commence without an approved pipeline inspector, if required being onsite to confirm crossing locations and safety procedures during the initial road or power line installation.

4.0 Emergency Access Procedures

The Construction Contractor will implement the following measures in the field to ensure inspection, maintenance, and emergency access to underground utilities:

1. Equipment or materials will not be stored within pipeline ROWs;
2. Soil or topsoil stockpiles will not be stored within pipeline ROWs;
3. Vehicle and equipment parking will not be allowed within pipeline ROWs;
4. Access will not be constructed to allow the impoundment of water or erosion of earthen cover over existing underground facilities;
5. Stormwater measures will not be installed on pipeline ROWs that could prevent emergency access;
6. Fencing will not be installed within the pipeline ROW that inhibits access or light of sight inspection;

7. Obstructions will not be installed to prevent clear visible inspection by aerial measures from utility owners;
8. The ROW will be maintained in free and clear manner to facilitate emergency access; and
9. If a pipeline is hit and ruptured during construction, the Construction Contractor will evacuate crew members, call 911 and notify the utility.

5.0 Survey Marking

Prior to construction, the Construction Contractor will notify Dig Safely New York to identify underground utility locations. The Construction Contractor will meet with the utility representative to identify the location of the underground utility. After the pipeline is located in the field, flagging will be installed to delineate the approved crossing location, tolerance limits and ROW setbacks. The following marking techniques will be used in the field:

1. Stakes or surface markings will be provided at the center of the line and at an interval that is necessary to clearly indicate the location and direction of the pipeline run;
2. Stakes and surface markings will be color-coded in accordance with New York State Law to identify the type of underground facility and owner;
3. Stakes and surface marking will indicate the size and diameter of the underground facility or encasement;
4. Each stake and surface marking will indicate the depth in inches of the underground facility, if known;
5. Surface markings will consist of paint, dye or equivalent material which is color coded and contrasts with the ground or equivalent surface; and
6. Where conditions exist to render centerline staking or marking impractical or confusing, the operator may indicate the location of the underground facility by offset staking or remote tie-in markings which will clearly indicate the location of and run direction.

6.0 Construction Activity Limitations

Construction activities impacting underground utilities will be limited to crossing with heavy equipment. Crossings are anticipated to be done through the installation of timber bridges and any soils to meet the minimum earthen cover requirements set by each utility.

At no time shall construction activities of any kind be conducted within fifteen (15) feet of any NYSEG gas pipeline or related facility or in violation of another gas pipeline owners' standard / rules without prior

notification to the owner(s) and without providing the owner or owner's appointed representative the opportunity to be present.

Other limited activities around underground facilities include:

- Construction equipment will not be allowed to encroach into pipeline ROWs without written approval by the utilities;
- Construction equipment will only be allowed to cross at approved locations, provided in writing by the utility;
- Stockpiling of soil or topsoil on the pipeline ROW will not be allowed;
- Material or equipment storage on the pipeline ROW will not be allowed;
- Parking of vehicles or equipment will not be allowed on the pipeline ROW;
- If excavations are required, hand digging will be required when the excavation is within 18 inches of the pipeline;
- Grade cuts within the pipeline ROW are not allowed, unless approved by the utility in writing;
- Blasting within the pipeline ROW will not occur without an approved Blasting Plan approved in writing by the utility owner;
- Vibration equipment will not be allowed within 25 feet of the of the pipeline;
- No temporary or permanent obstructions will be allowed within the pipeline ROW; and
- Pipeline restoration will occur immediately after construction is complete within the ROW and will be conducted in accordance with the approved encroachment permit.

7.0 Cathodic Protection

NEETNY will evaluate the effects of the Project on NYSEG's existing cathodic protection system for the gas facilities' and Metering and Regulation (M&R) station to ensure compatibility with the electric facility design and that AC interference imposed upon the existing gas facilities are mitigated to safe levels according to the National Association of Corrosion Engineers (NACE) guidelines. If further AC interference from the Project is detected after the Project is placed into service, the Certificate Holder shall implement AC interference testing procedures. As soon as is practical to do so, corrective action with respect to the gas facilities' existing cathodic protection system, safety hazards and fault threats shall be taken by the Certificate Holder to ensure measured voltages on the natural gas pipeline and at the M&R station are not higher than safe levels stated in NACE guidelines.

8.0 AC Mitigation Design and Construction

ARK Engineering & Technical Services, Inc., was retained by NEETNY to investigate AC electrical interference effects to the existing facility's gas, fuel, and brine pipeline and station components. The existing pipelines are subject to AC electrical interference effects from five (5) existing NYPA and NYSEG electric transmission circuits and the proposed 345 kV NEETNY electric transmission circuit which will parallel and cross the pipeline segments. Upon installation of the proposed NEETNY circuit, these studies also examined the relocation of existing two (2) NYSEG electric transmission circuit tap locations. The tap locations of the NYSEG Niagara to Dysinger Tap and Dysinger Tap to Rochester electric transmission circuits are to be relocated approximately one thousand seven hundred (1,700) feet to the West.

The ARK study presents the predicted AC electrical interference effects on the pipelines during normal peak load conditions on all electric transmission circuits within the overall existing system ROW. Normal peak load conditions, as determined by NEETNY, are considered to be peak load conditions during normal operation. These predicted AC electrical interference effects take into consideration any of the existing mitigation systems which may exist along the pipeline segment(s).

Single phase-to-ground fault conditions on the electric transmission circuits were also simulated to determine AC inductive and conductive coupling effects to the pipelines.

Normal peak load electric circuit conditions were used to calculate steady-state AC interference effects to the pipelines. The induced AC pipeline voltage values used in this analysis and their effects are outlined in NACE Standard SP0177-2019. This standard indicates that pipeline AC touch voltages of 15 Volts or more are considered a safety hazard for personnel.

NACE Standard SP21424-2018 outlines AC corrosion mechanisms that may occur on cathodically protected pipelines. This standard defines levels of AC density, the effect on pipelines, and remediation methods. For this project an AC density limit of 30A/m2 (based on a simulated 1 cm2 holiday) been defined as the design limit.

Single phase-to-ground fault conditions were used to calculate touch and step potential values. IEEE Standard 80 outlines touch and step potential issues and calculations for above ground electric substation facilities. The pipeline industry also uses this standard for calculation of step and touch potentials at aboveground pipeline appurtenances associated with AC Interference effects.

These calculations determine electric shock limits based on local factors. The voltage limit calculation is determined by the ground potential rise at the site along with the soil resistivity and known body current limits.

With the addition of the proposed NEETNY 345 kV electric transmission circuit and relocation of two (2) existing circuits, the AC mitigation system design proposed by ARK Engineering reduces the pipeline AC electrical interference effects to acceptable levels for personnel safety and pipeline integrity.

9.0 Safety Training Requirements

The Construction Contractor will provide all contractor and subcontractor employees with pipeline safety training prior to allowing access to the ROW. The Construction Contractor will work with all individuals on the identification of underground facilities; staking and/or marking identification; training on types of facilities crossed by roads or the ROW; restrictions and limitations for the underground facility type; emergency contact, evacuation and notification procedures; and maintenance of training logs. Individuals will receive the necessary pipeline safety training provided by the Construction Contractor and sign for receipt of training. The Construction Contractor will be responsible for maintenance of the training records and updating individuals on an as-needed basis.