APPENDIX G

Sabal Trail HDD Contingency Plan

Best Drilling Practices Plan for the Sabal Trail Project

Sabal Trail
TRANSMISSION SM

November 2014

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1.0 INTRODUCTION

Sabal Trail Transmission, LLC ("Sabal Trail"), a joint venture between affiliates of Spectra Energy Partners, LP and NextEra Energy, Inc., is seeking a Certificate of Public Convenience and Necessity from the Federal Energy Regulatory Commission ("FERC") pursuant to Section 7 (c) of the Natural Gas Act authorizing the construction and operation of the Sabal Trail Project ("Project").

The Project is a new natural gas transmission pipeline comprised of a combination of lease capacity and new greenfield pipeline construction that will provide approximately 1,075,000 dekatherms per day ("Dth/d") of new firm natural gas transportation capacity. Sabal Trail will acquire the capacity created by Transcontinental Gas Pipe Line Company, LLC's ("Transco") Hillabee Expansion Project (FERC Docket No. PF14-6-000) pursuant to a capacity lease, which extends from Transco's Compressor Station 85 in Choctaw County, Alabama to an interconnection with the new greenfield pipeline in Tallapoosa County, Alabama. Sabal Trail will construct, own and operate the greenfield pipeline, which will extend from Tallapoosa County, Alabama to a new interconnection hub ("the Central Florida Hub") in Osceola County, Florida. At the Central Florida Hub, the Project will connect with the Florida Southeast Connection Pipeline Project, currently being proposed by Florida Southeast Connection, LLC ("FSC") (FERC Docket No. PF14-2-000 and CP14-554-000). In addition, at or near the Central Florida Hub, the Project will interconnect with Gulfstream Natural Gas System, LLC ("Gulfstream") and Florida Gas Transmission Company, LLC ("FGT"). The greenfield portion of the Project will have an initial capacity of 830,000 Dth/day with a proposed in-service date of May 1, 2017. Through a series of phased compressor station expansions to meet the future capacity needs of Sabal Trail's customers, the Project capacity will increase to approximately 999,000 Dth/day by 2020 and 1,075,000 Dth/day by 2021. References in this Resource Report to the Sabal Trail Project or Project are references to the greenfield portion of the Project only.

The construction of the Project will involve the use of the horizontal directional drilling ("HDD") installation technique for the purpose of avoiding environmentally sensitive resources or obstructions that occur along the Project pipeline route. This Best Drilling Practices Plan ("Plan") has been developed to minimize or quickly resolve possible inadvertent effects by identifying appropriate corrective actions for various potential scenarios that may be encountered during HDD operations. The purpose of this document is to provide a description of proposed HDD work activities, the HDD working procedures, monitoring of inadvertent returns of drilling fluid (including training and reporting), response to HDD operations, and proposed cleanup techniques in the event that inadvertent returns occur during HDD activities on the Project. The following sections of this Plan provide the processes and procedures to be implemented in the case of inadvertent returns or releases of drilling fluid during HDD activities.

2.0 BEST AVAILABLE DRILLING PRACTICES

2.1 Description of the Work

The HDD method requires establishing staging areas at both ends of the proposed crossing, typically known as the entry and exit points or workspaces. The process commences with the drilling of a pilot hole along a predetermined path beneath the obstruction, wetland or waterbody. Once the pilot hole has been completed, the drilled hole is enlarged with one or more passes of a reamer until the diameter of the hole is adequate to complete the pull-back (installation) of the pipeline. Once the reaming pass(es) are completed, prefabricated pipe segments are then pulled through the hole to complete the installation. Additional welding to join the prefabricated segments may be required during the pullback process. While the HDD method is a commonly used, proven technology, there is the potential for unintended effects that could occur as a result of the drilling. The proposed drilling program is expected to be initiated in 2016 during the Project construction period and will be completed in 2017.

2.2 Drilling Fluids

The HDD process uses drilling fluids to facilitate many of the HDD operations. Drilling fluid is a slurry composed of water and bentonite clay (typically 95 percent water) intended to maintain hole stability, lubricate the drilling head and reduce soil friction. Bentonite clay (sodium montrmorillonite) is a naturally occurring clay, usually mined in Wyoming, which is extremely hydrophilic and can absorb up to ten times its weight in water.

Depending on subsurface conditions encountered, certain additives may also be introduced in the drilling fluid mixture. These additives include lost circulation materials (LCMs) and special polymers. Lost circulation materials may be used during inadvertent return events and/or in certain cases when drilling fluid circulation seems to be diminishing. Lost circulation materials may be used to attempt to seal conduits or to aid in reestablishment of drilling fluid returns to the entry and/or exit pits. Many types of LCMs are available for use during HDD operations that are inert and environmentally benign. These can include wood fibers, cotton seed husks, ground walnut shells and other natural materials. Special polymers that swell to several times their original size when introduced to water can also be used. These polymers are industrial grade equivalents of food grade polymers that are used to swell and absorb fluids in the food industry. The type of products used is typically left to the discretion of the HDD Superintendent and the Environmental Inspector. Both of these types of products are readily available should the need arise.

Bentonite is non-toxic to the aquatic environment and is a non-hazardous substance. The composition of the drilling fluids and its engineering properties are specified and tested to ensure their suitability for the given subsurface conditions encountered along the alignment and at each individual HDD location.

The slurry is designed to:

- Stabilize the hole against collapse;
- Lubricate, cool, and clean the cutters;
- Transport cuttings by suspension and flow to entry and exit points; and
- Reduce soil friction and required pull loads during pilot hole, reaming, and carrier pipe installation.

Although intended to facilitate the HDD process, there is the potential for inadvertent migration or loss of drilling fluids from the bored hole. However, drilling fluids that are released will likely contain a lower concentration of bentonite when they surface because the mixture may be filtered and somewhat diluted as it passes through existing sediments of various types.

Inadvertent releases may occur as a result of rock fractures, low density soils, and unconsolidated geology, which were not foreseen during the design phase. Inadvertent returns are readily detected at the surface as seepage (pooling of drilling mud at the surface) or a loss of circulation of the drilling fluid. When the operator observes a loss of drilling fluid returning, it is an indicator that seepage may be occurring outside of the hole. Loss of drilling fluid returns is only an indicator as some loss of drilling fluid is expected, such as where loose sediments are encountered and more drilling fluid is required to be added to fill the voids.

2.3 HDD Working Procedures

Prior to the start of drilling operations, site-specific HDD Procedures will be reviewed with the HDD contractor. At a minimum, the HDD Procedures will address the following:

<u>Return Circulation</u> – Once it is indicated to the driller that drilling fluid circulation is dissipating or that a release has occurred, the driller has the following options (or any combination of these options):

- Decrease pump pressure;
- Decrease penetration rate;
- Retract the drill string a distance to restore circulation ("swab" the hole);
- Introduce additional drilling fluid flow along the hole using "weeper" subs; and
- Introduce lost circulation additives to the drilled hole.

Inadvertent Returns at In-accessible Locations - If inadvertent returns are observed on the ground surface along portions of the alignment that are inaccessible; the following procedures will be followed:

- Contractor will ensure all reasonable measures within the limitations of current technology have been taken to re-establish circulation; and
- Continue drilling utilizing a minimal amount of drilling fluid as required to penetrate the formation or to maintain a successful carrier pipe pull back.

Inadvertent Returns at Accessible Locations – If inadvertent returns are observed on the ground surface along portions of the alignment that are accessible, containment and recovery operations will be completed in accordance with the procedures discussed in Section 4.0.

3.0 MONITORING OF INADVERTENT RETURNS

3.1 Personnel and Responsibilities

The actions in this Plan are to be implemented by the following personnel:

Chief Inspector – Sabal Trail will designate a Chief Inspectors ("CI") for the Project. The CI will have overall authority for construction activities that occur on their designated portion of the Project.

Environmental Inspector – At least one Environmental Inspector ("EI") will be designated by Sabal Trail to monitor the HDD activities. The EI will have peer status with all other craft inspectors and will report directly to the CI who has overall authority. The EI, along with all other inspectors and inspection personnel, will have the authority to stop activities that violate the environmental conditions of the FERC certificate (if applicable), other federal and state permits, or landowner requirements, and to order corrective action.

HDD Superintendent – The HDD Superintendent is the senior on-site representative of the HDD contractor. The HDD Superintendent has overall responsibility for implementing this Plan on behalf of the HDD contractor. The HDD Superintendent will be familiar with the aspects of the drilling activity, the contents of the Plan and the conditions of approval under which the activity is permitted to take place. The HDD Superintendent will make available a copy of this Plan to the appropriate construction personnel. The HDD Superintendent will ensure that workers are properly trained and familiar with the necessary procedures for response to an inadvertent release.

HDD Operator – The HDD Operator is the HDD contractor's driller operating the drilling rig and mud pumps. The HDD Operator is responsible for monitoring circulation back to the entry and exit locations. In the event of loss of circulation, the HDD Operator must communicate the event to the HDD Superintendent and HDD contractor field crews. The HDD Operator is responsible for stoppage or changes to the drilling program in the event of observed inadvertent returns.

HDD Contractor Personnel – During HDD installation, field crews will be responsible for monitoring the HDD alignment along with Sabal Trail's field representatives'. Field crews, in coordination with the EI, are responsible for timely notifications and responses to observed releases in accordance with this Plan. The EI ultimately must approve the action plan for mitigating the release.

3.2 Training

Prior to drilling, the HDD Superintendent, CI, and the EI will verify that the HDD Operator and field crew receive the following site-specific training but not limited to:

- Project specific safety training;
- Review provisions of this Plan and site-specific permit requirements;
- Review location of sensitive environmental resources at the site;
- Review drilling procedures for release prevention;
- Review the site-specific monitoring requirements;
- Review the location and operation of release control equipment and materials; and
- Review protocols for reporting observed inadvertent returns.

3.3 Monitoring & Reporting

Appropriate Monitoring & Reporting actions will be:

- If the HDD Operator observes a loss of circulation, the Operator will notify the HDD Superintendent and field crews of the event and approximate position of the cutting head;
- Where practical, a member of the field crew will visually inspect the ground surface near the position of the cutting head. Surface waters, wells, and mapped springs within 2,000 feet of the HDD site will also be visually inspected.
- If an inadvertent release is observed:
    - Field crew will notify (via hand-held radio or cell phone) the HDD Operator;
    - The HDD Operator will temporarily cease pumping of the drilling fluid and notify the HDD Superintendent and CI;
    - The CI will notify and coordinate a response with the EI;
    - The EI will notify FERC and the appropriate permitting authorities as necessary of the event and proposed response and provide required documentation within 24 hours; and
- The CI will prepare a report that summarizes the incident.
- After the HDD installation is complete, perform final clean-up (*see* Section 5.0 below).

3.4 Mapped Springs

The monitoring program proposed for mapped springs involves the establishment of a baseline turbidity level in springs that are 2,000 feet downgradient from the HDD activities proposed for the Project. Prior to the start of HDD activity, a baseline turbidity level will be established at the springs to be monitored by collecting samples at six hour intervals over a 24 hour period. This monitoring program will allow Sabal Trail to determine if drilling mud and/or sediments from construction activities have entered the spring system. Turbidity monitoring will be conducted in accordance with the schedule below, or as required in any permits issued by the United States Army Corps of Engineers ("USACE"), GAEPD, FDEP, and/or other state regulatory agencies.

Field sampling for turbidity will follow the Standard FDEP sampling protocols (FDEP, 2014). Water samples will be analyzed for turbidity using a portable turbidity meter. Turbidity readings, water levels, rainfall rates, seasonal and environmental changes, and water appearance will be recorded during every

sampling event. Water samples will be collected from large springs using a Van Dorn sample bottle deployed from the bank or boat/canoe. All necessary safety precautions will be taken. The turbidity meter will be calibrated daily in accordance with FDEP (FDEP, 2014) calibration standards. Rainfall rates will be recorded from the nearest weather station with available data.

With the proposed incorporation of the reroute that will replace the crossing of the Withlacoochee River (as addressed in the November filing with the FERC), the monitoring program will address only one mapped spring that has been identified as occurring within 2,000 feet and downstream of Project HDDs. Monitoring of this spring is subject to granting of access permission and safety of the access point at the time of monitoring. Sabal Trail will work with the landowners where applicable to gain access to springs for monitoring.

Spring Monitoring Locations								
Spring ID	**Location**	**Nearest Distance from Pipeline (feet)**	**Nearest Milepost**	**Magnitude**	**HDD Crossing Milepost**	**HDD Crossing Name**	**Distance from HDD Crossing**	**Access**
Suw923972 (Suwannee)	Lat 30 24 15.92, Long 83 09 27.76	1,040	TBD	4	TBD	Suwannee River	1,040 feet downstream of crossing	Owner: Trustees of the Internal Improvement Trust Fund, Suwannee River State Park

Source: FDEP. 2011. Spring Locations in Florida – 2011. Florida Geographic Data Library.

If an inadvertent release is reported, this spring will be sampled twice per day (morning and afternoon) until the turbidity returns to background levels or until the turbidity levels are below the 29 NTUs above background in accordance with the Florida Department of Environmental Protection ("FDEP") Surface Water Criteria for Class III, Predominantly Fresh Waters (Florida Administrative Code 62-302.530).

3.5 Wells

Turbidity sampling, using the portable turbidity meter noted above and following the same testing and calibration protocols, will be conducted at drinking water wells within 150 feet of the HDD activity prior to initiating the HDD activity, where access is permitted and in coordination with the landowner. This sampling will establish baseline turbidity levels for these wells. A table of drinking water wells within 150 feet of the Sabal Trail HDD activities is provided below. This table will be updated as additional drinking water wells are identified during preconstruction surveys. If an inadvertent release from the HDD activity is confirmed, water samples will be taken from these drinking water wells and tested for turbidity on a daily basis until the turbidity levels return to the baseline levels.

If there are drinking water wells within 2,000 feet of the HDD activity, turbidity sampling will also be conducted prior to the HDD activity to establish a baseline turbidity level, where access is permitted and in coordination with the landowner. In the event of an inadvertent release during the HDD activity and a change in water quality is identified from the sampling of the drinking water wells within 150 feet of the HDD activity, additional turbidity sampling will be extended to these drinking water wells (2,000 feet of the HDD activity and for which a baseline turbidity level had been established). Sampling of these wells will continue daily until the turbidity levels return to baseline levels.

Well Monitoring Locations				
Milepost	**Distance from Centerline (feet)**	**Distance from Construction Work Area (feet)**	**HDD Crossing Name**	**Drinking Water (Y/N)**
464.57	85	80	US Highway 27	Unknown

4.0 RESPONSE TO INADVERTENT RETURNS

Typically, inadvertent releases are most often detected in the area near the entry or exit points of the drill alignment where the HDD path is at shallow depths, above bedrock, and in permeable/porous soils. In these occurrences the release will be assessed by the HDD Superintendent, EI, and CI to determine an estimated volume of the release. They will also assess the potential of the release to reach adjacent waterbodies, wetlands, or other types of infrastructure (e.g., wells). The HDD Superintendent will assess the drilling parameters (depth, type of formation, fluid flow rate, and drilling fluid characteristics) and incorporate appropriate changes.

The HDD Superintendent, EI, and CI will coordinate installation of appropriate containment structures and implement additional response measures. Site topography in conjunction with access for personnel and equipment to the release site are major factors in determining the methods used for containment and disposal. Typically, containment is achieved by excavating a small sump pit (approximately 5 cubic yards) at the site of the release and/or surrounding the release with hay bales, silt fence and/or sand bags. Once contained, the drilling fluid is either collected by vacuum trucks or pumped to a location where vacuum trucks can be accessed. The fluids are then transported either back to the HDD Drilling Rig or to a disposal site.

The EI in coordination with the HDD Superintendent and CI will determine when drilling operations can resume.

The site-specific response will follow the guidelines provided in the following sections.

4.1 Upland Locations

- Evaluate the amount of release to determine if containment structures are warranted and if they will effectively contain the release.
- Promptly implement appropriate containment measures as needed to contain and recover the slurry.
- If the release is within 50-foot of a wetland or waterbody, silt fence and/or hay bales will be installed between the release site and the wetland or waterbody.
- If the release cannot be contained, then the operator must suspend drilling operations until appropriate containment is in place.
- Remove the fluids using either a vacuum truck or by pumping to a location where a vacuum truck is accessible.
- After the HDD installation is complete, perform final clean-up (*see* Section 5.0 herein).

4.2 Wetland Locations

- Evaluate the amount of release to determine if containment structures are warranted and if they will effectively contain the release.
- Promptly implement appropriate containment measures to contain and recover the slurry;

- Efforts to contain and recover slurry in wetlands may result in further disturbance by equipment and personnel, and possibly offset the benefit gained in removing the slurry.
- If the amount of the slurry is too small to allow the practical collection from the affected area, the fluid will be diluted with fresh water or allowed to dry and dissipate naturally.

- If the release cannot be controlled or contained, immediately suspend drilling operations until appropriate containment is in place.
- Remove the fluids using either a vacuum truck or by pumping to a location where a vacuum truck is accessible.

4.3 Major Waterbody Locations

Sabal Trail's proposed HDDs are being designed to minimize the potential for inadvertent releases. Sabal Trail's Contractor(s) may also employee the techniques described below to reduce the probability of inadvertent returns.

Surface Casing – If deemed necessary, surface casing may be installed in certain instances. Surface casing provides a conduit to allow drilling fluids to return from the drill path back to the surface. Additionally, surface casing helps isolate the drill path from regions of unstable overburden material.

Intersect Method – Sabal Trail's Contractor(s) may drill some of the pilot holes from both sides of the crossing and perform and intersect near a predetermined point, usually near the middle of the crossing. The intersect method is widely used in long, large diameter HDDs. The intersect method reduces the length that must be drilled from each end and thereby decreases the distance that drilling fluids need to be pumped in order to return to surface at the entry/exit points. Utilization of this method is particularly advantageous in longer crossings because the reduced distance that drilling fluid must be pumped subsequently decreases the fluid pressure required for the drilling fluid to travel back to the entry/exit points.

In the event of an inadvertent release in a flowing waterbody, the following approach will generally be followed after the inadvertent release has been isolated and the flow has stopped. Due to the unpredictable nature of the locations and environment in which inadvertent releases may appear, this description cannot encompass all possible approaches to clean-up under all conditions.

Agency staff and other experts will be consulted to the extent practicable in the development of remedial clean up techniques, as required. The following are standard response techniques that may be applied:

- If the bentonite material flows overland prior to entering the waterbody, installation of silt fencing or sandbag dams at the point of entry will be used to reduce or stop the flow; if the vent is directly into the waterbody, other means to isolate the vent site from the flowing waterbody will be used.
- Using a vacuum truck or pump(s), with a sufficient hose, personnel will remove the bentonite, working from downstream to upstream, to allow maximum visibility. Hand tools may be used to scarify the sediments and ensure removal to the maximum extent practicable.
- If necessary, water may be diverted using temporary barriers to isolate the impact area. Only a portion of the stream will be diverted to minimize dewatering impacts. Water will be able to pass through the site in its natural condition.
- If it is impracticable to remove the drill fluid from the surface water, a clear written explanation will be submitted to the applicable regulatory agencies.
- Any disturbed soils will be stabilized immediately.

- Exposed soils will have temporary erosion control measures established as soon as practical with permanent erosion controls established as soon as possible as described in the Project E&SCP.
- Disturbance of vegetation will be kept to a minimum and all disturbed vegetation will be restored.

In the event of an inadvertent release of drilling mud under pressure into dry ephemeral streams, a response plan similar to the above described will be implemented.

4.4 Mapped Springs

Specific emergency procedures will be addressed through the appropriate regulatory agency permitting process. It is important to understand that any significant rise or fall in water levels in the spring directly attributed to nearby river discharge or rainfall can dramatically alter water quality conditions. In the event of a suspected or confirmed inadvertent release, the site-specific response will follow measures outlined for surface waters in Section 4.3, to the extent practical.

Agency staff and other experts will be consulted to the extent practicable in the development of remedial clean up techniques, as required. The following are standard response techniques that may be applied:

- If there is a potential for bentonite material to flow overland and reach a spring, installation of silt fencing or sandbag dams will be used to reduce or stop the flow.
- If practical, bentonite entering the spring overland will be removed using a vacuum truck or pump. Hand tools may be used to scarify the sediments and ensure removal to the maximum extent practicable.
- Any disturbed soils will be stabilized immediately.
- Exposed soils will have temporary erosion control measures established as soon as practical with permanent erosion controls established as soon as possible as described in the Project E&SCP.
- Disturbance of vegetation will be kept to a minimum and all disturbed vegetation will be restored.

4.5 Wells

In the event an inadvertent release results in a change in the quality of the water within the drinking water wells sampled as described above in Section 3.5, Sabal Trail will provide an alternate source of water to the landowner until the well water quality returns to pre-construction conditions. If the well water quality does not return to pre-construction conditions after a suitable length of time, Sabal Trail will compensate the landowner for the installation of a new well or otherwise arrange for provision of a suitable water supply.

5.0 CLEAN-UP

After completion of the HDD installation, site-specific clean-up measures will be developed by the CI and the HDD Superintendent for approval by the EI. Potential for secondary impact from the clean-up process will be evaluated, as well as the benefits of clean-up activities.

The following measures may be used:

- Drilling mud will be cleaned up by hand using hand shovels, buckets and soft bristled brooms minimizing damage to existing vegetation.
- Fresh water washes may be employed if deemed beneficial and feasible.
- Containment structures will be pumped out and the ground surface scraped to bare topsoil minimizing loss of topsoil or damage to adjacent vegetation.

- The recovered drilling fluid will be recycled or disposed of at an approved upland location or disposal facility. Recovered drilling fluid will not be disposed of in streams or storm drains.
- All containment structures will be removed.
- Recovered materials will be collected in containers for temporary storage prior to removal from the site.

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