ATTACHMENT R

Flood Action Plan

Spire STL Pipeline Project

Flood Plan

FERC Docket No. CP17-40-000 and CP17-40-001

December 2017

Public

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Acronyms and Abbreviations

Spire	Spire STL Pipeline LLC
WT	wall thickness

Flood Plan

The following discussions provide a Flood Plan for Spire STL Pipeline LLC's ("Spire") Spire STL Pipeline Project.

1.0 Background Information

Based on weather.gov, the Missouri River has the following stages:

- Action Stage: 23 feet
- Flood Stage: 25 feet
- Moderate Flood Stage: 30 feet
- Major Flood Stage: 36 feet

Based on weather.gov, the Mississippi River has the following stages:

- Action Stage: 28 feet
- Flood Stage: 30 feet
- Moderate Flood Stage: 35 feet
- Major Flood Stage: 40 feet

1.1 Action Stage

Around the clock monitoring of river level predictions will occur. Crews will be at a ready state to go back to the drilling setups during non-drilling hours.

1.2 Flood Stage

By the time of flood stage all non-essential equipment and materials will be removed from the area. Regular patrols within 0.5-mile of construction activities will take place in areas of known flooding to determine the location of flood waters compared to the drilling operation.

1.3 Moderate Flood Stage/Major Flood Stage

If flood waters are predicted to rise and are within 0.5-mile of construction activities or within 0.25-mile of an egress route, then drilling operations will be suspended and the site evacuated. Pipe that is strung and welded together will either be buried or capped, with 5,600 pound set on weights applied. For the 0.375 wall thickness ("WT") pipe weights will be set 17 feet apart and for the 0.500 WT pipe weights will be set 23 feet apart. For horizontal directional drills during the pilot hole phase, a thick mixture of bentonite will be left near the hole opening along with the typical bentonite drilling fluid in the remainder of the hole to prevent flood waters from entering the drill. During pullback operations, a thicker bentonite solution will be inserted in the void space between the pipe and the soil. The pipe will be capped to avoid flood waters entering the pipe.