



Spire STL Pipeline Project

Implementation Plan

FERC Docket Nos. CP17-40-000 and CP17-40-001

August 2018

Public



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Acronyms and Abbreviations

AI	Agricultural Inspector
dBA	a-weighted decibels
Dth/d	dekatherms per day
EA	Environmental Assessment
EI	Environmental Inspector
Enable MRT	Enable Mississippi River Transmission, LLC
FERC	Federal Energy Regulatory Commission
HDD	horizontal directional drill
IDNR	Illinois Department of Natural Resources
Ldn	day-night sound level
M&R	metering and regulating
NSA	Noise sensitive area
OEP	Office of Energy Projects
Order	Order Issuing Certificates dated August 3, 2018
Plan	Upland Erosion Control, Revegetation and Maintenance Plan
Procedures	Wetland and Waterbody Construction and Mitigation Procedures
Project	Spire STL Pipeline Project
REX	Rockies Express Pipeline LLC
SHPO	State Historic Preservation Office
Spire	Spire STL Pipeline LLC
Spire Missouri	Spire Missouri Inc.
USFWS	United States Fish and Wildlife Service



Implementation Plan

Project Facilities

Spire STL Pipeline LLC (“Spire”), a wholly owned subsidiary of Spire Inc., is planning to construct, operate, and maintain the Spire STL Pipeline Project (“Project”), as approved by the Federal Energy Regulatory Commission (“FERC”) Order Issuing Certificates dated August 3, 2018 (“Order”) in Docket Nos. CP17-40-000 and CP17-40-001. The Project is located in Scott, Greene, and Jersey Counties, Illinois; and St. Charles and St. Louis Counties, Missouri. The Project as proposed will consist of approximately 65 miles of new, greenfield, 24-inch-diameter steel pipeline in two segments. The first, approximately 59 mile segment (referred to as the “24-inch pipeline” portion of the Project) will originate at a new interconnect with the Rockies Express Pipeline LLC (“REX”) pipeline in Scott County, Illinois and extend through Greene and Jersey Counties in Illinois before crossing the Mississippi River and extending east through St. Charles County, Missouri. The 24-inch pipeline then crosses the Missouri River into St. Louis County, Missouri, and terminates at a new interconnect with the Project’s foundation shipper, Spire Missouri. The second segment of new, greenfield pipeline (referred to as the “North County Extension”) will consist of a 24-inch-diameter steel pipeline which will extend approximately six miles from the Spire Missouri interconnect through the northern portion of St. Louis County and terminate at a new interconnect with the Enable Mississippi River Transmission, LLC (“Enable MRT”) and Spire Missouri. The total length of the Project pipeline will be approximately 65 miles. The overall design capacity of the Project pipeline is expected to be 400,000 dekatherms per day (“Dth/d”). No compression will be required. The Project also includes the construction of three new metering and regulating (“M&R”) stations that provide interconnects with (1) REX in Illinois, (2) Spire Missouri in Missouri, and (3) Enable MRT and Spire Missouri in Missouri.

A revised Table 1.6-1 showing the status of environmental permits, approvals, and consultations applicable to the Project is included in Attachment A.

Project Variances

- Spire hereby requests approval from the FERC of certain variances to the certificated Project. These variances were made at the request of affected landowners or to enhance constructability. Other minor modifications were made due to additional environmental studies conducted on previously inaccessible tracts or due to parcel rectification. All changes are described in a table included in Attachment B of this Implementation Plan and incorporated into the construction alignment sheets provided in Attachment C. In addition, Spire is filing: Updated construction alignment sheets (Attachment C) and survey corridor maps (Attachment D – Public and Privileged Information);
- Typical facility plot plans (Attachment E);
- An updated Noxious Weed/Invasive Plant Control and Mitigation Plan (Attachment F); and
- Updated waterbody and wetland crossing tables (Attachment G).



Where variances were located outside the previously surveyed corridor, additional field surveys and consultations (if required) were undertaken and are reflected in recent correspondence, updated survey reports, and necessary permit packages. All correspondence not previously filed with the FERC is included in Attachment H.

Implementation of the FERC Certificate Conditions

The purpose of this Implementation Plan is to provide information for maintaining compliance with the Environmental Conditions¹ and requirements as required by Condition No. 6 and, specifically, to identify:

- how Spire will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests);
- how Spire will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;
- the number of EIs assigned, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;
- company personnel, including EIs and contractors, who will receive copies of the appropriate material;
- the location and dates of the environmental compliance training and instructions Spire will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change);
- the company personnel and specific portion of Spire’s organization having responsibility for compliance;
- the procedures (including use of contract penalties) Spire will follow if noncompliance occurs; and
- for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:
 - completion of all required surveys and reports;
 - the environmental compliance training of onsite personnel;
 - the start of construction; and
 - the start and completion of restoration.

This section of the Plan addresses and, where appropriate, provides specific implementation plans related to the Environmental Conditions included in the Appendix of the Order. The Order contained 22 Environmental Conditions that apply to the Project. Spire’s response to each Environmental Condition is contained in the following sections.

¹ The term “Environmental Conditions” in this Implementation Plan refers to the specific conditions included in the Appendix of the FERC Certificate Order.



FERC Environmental Condition No. 1

Spire shall follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and as identified in the EA, unless modified by the Order.

Spire must:

- a. request any modification to these procedures, measures, or conditions in a filing with the Secretary;*
- b. justify each modification relative to site-specific conditions;*
- c. explain how that modification provides an equal or greater level of environmental protection than the original measure; and*
- d. receive approval in writing from the Director of the OEP before using that modification.*

Spire Response

Spire will follow the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests) and identified in the EA, as modified by the Order. Spire will:

- a) request any modification to these procedures, measures, or conditions in a filing with the Secretary;
- b) justify each modification relative to site-specific conditions;
- c) explain how that modification provides an equal or greater level of environmental protection than the original measure; and
- d) receive approval in writing from the Director of OEP before using that modification.



FERC Environmental Condition No. 2

The Director of OEP, or the Director’s designee, has delegated authority to address any requests for approvals or authorizations necessary to carry out the conditions of the Order, and take whatever steps are necessary to ensure the protection of environmental resources during construction and operation of the Project. This authority shall allow:

- a. the modifications of conditions of the Order;*
- b. stop work authority; and*
- c. the imposition of any additional measures deemed necessary to ensure continued compliance with the intent of the conditions of the Order as well as the avoidance or mitigation of unforeseen adverse environmental impact resulting from Project construction and operation.*

Spire Response

Spire understands and acknowledges the delegated authority of the Director of OEP (or the Director’s designee) to ensure the protection of environmental resources during construction and operation of the Project. The Director of OEP’s delegated authority includes the modification of conditions of the Order and the design and implementation of any additional measure deemed necessary (including stop-work authority) to assure continued compliance with the intent of the environmental conditions as well as avoidance or mitigation of adverse environmental impacts resulting from Project construction and operation.



FERC Environmental Condition No. 3

Prior to any construction, Spire shall file an affirmative statement with the Secretary, certified by a senior company official, that all company personnel, EIs, and contractor personnel would be informed of the EIs' authority and have been or would be trained on the implementation of the environmental mitigation measures appropriate to their jobs before becoming involved with construction and restoration activities.

Spire Response

Spire's affirmative statement, certified by Mike Geiselhart, President, is included as Attachment I.

All company personnel, EIs, and contractor personnel have been or will be informed of the EI's authority and have been or will be trained on the implementation of the environmental mitigation measures appropriate to their jobs before becoming involved with construction and restoration activities.



FERC Environmental Condition No. 4

The authorized facility locations shall be as shown in the EA, as supplemented by filed alignment sheets. As soon as they are available, and before the start of construction, Spire shall file with the Secretary any revised detailed survey alignment maps/sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order. All requests for modifications of environmental conditions of the Order or site-specific clearances must be written and must reference locations designated on these alignment maps/sheets.

Spire's exercise of eminent domain authority granted under the NGA Section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Spire's right of eminent domain granted under the NGA Section 7(h) does not authorize it to increase the size of its natural gas pipelines or aboveground facilities to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.

Spire Response

Spire has included updated, detailed construction alignment sheets at a scale not smaller than 1:6,000 with station positions for all facilities approved by the Order, included as Attachment C. Supporting documentation and mapping reflecting Project changes since the October 6, 2017 supplemental filing are included in Attachments B, C, and E of this Implementation Plan.

Spire understands that the exercise of eminent domain authority granted under NGA section 7(h) in any condemnation proceedings related to the Order must be consistent with these authorized facilities and locations. Spire also understands that the right of eminent domain granted under NGA section 7(h) does not authorize Spire to increase the size of its natural gas pipeline or aboveground facilities to accommodate future needs or to acquire a right-of-way for a pipeline to transport a commodity other than natural gas.



FERC Environmental Condition No. 5

Spire shall file with the Secretary detailed alignment maps/sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all route realignments or facility relocations, and staging areas, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary. Approval for each of these areas must be explicitly requested in writing. For each area, the request must include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened or endangered species would be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas shall be clearly identified on the maps/sheets/aerial photographs. Each area must be approved in writing by the Director of OEP before construction in or near that area.

This requirement does not apply to extra workspace allowed by the FERC Plan, and/or minor field realignments per landowner needs and requirements which do not affect other landowners or sensitive environmental areas such as wetlands.

Examples of alterations requiring approval include all route realignments and facility location changes resulting from:

- a. implementation of cultural resources mitigation measures;*
- b. implementation of endangered, threatened, or special concern species mitigation measures;*
- c. recommendations by state regulatory authorities; and*
- d. agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.*

Spire Response

Spire acknowledges that route realignments or facility relocations, and staging areas, new access roads, and other areas that would be used or disturbed and have not been previously identified in filings with the Secretary must be approved in writing by the Director of OEP.

The Construction Alignment Sheets included in Attachment C reflect the variances requested in this Implementation Plan. Spire is seeking OEP review and approval of the variances and minor modifications listed below.

Biological surveys are complete on the entire certificated route and variances, as included in permit applications submitted to the USACE on January 12, 2018 and July 2, 2018. Cultural resource surveys are complete on the entire certificated route and variances presented in this Implementation Plan. Concurrence from the State Historic Preservation Offices ("SHPOs") has been received. These statements include the modifications requested in Spire's October 6, 2017 supplement to the FERC, with the exception of the modification proposed at MP 2.2 in the October Supplement, which was not approved in the FERC's Order.



Acceptance of Certificated Route at 24-inch Pipeline MP 2.2R3 – 3.0R3

Spire had filed a modification in this area based on a landowner request (filed with FERC on October 6, 2017); however, the landowner would not allow Spire access to conduct necessary environmental surveys. Therefore, Spire accepts the FERC certificated route, which is consistent with the previously filed alignment and workspaces from its April 21, 2017 amendment filing. The certificated alignment and workspaces are within the previously studied area that has been cleared for wetlands, waterbodies, threatened and endangered species, and cultural resources (Phase I Archaeological Report, January 2017).

Modification at 24-inch Pipeline MP 44.6R3 – 45.1

Spire proposes a reroute to avoid impacts to a potentially sensitive environmental resource. This modification relocates the 24-inch pipeline to the west by approximately 105 feet. The entry/exit location for the Mississippi River horizontal directional drill (“HDD”) would be adjusted to the west by approximately 105 feet, and the HDD will rejoin the previously filed alignment under the Mississippi River at MP 45.6.

The re-route begins approximately 2,300 linear feet north of State Route 100 and continues south across the Principia tract, State Route 100 and the Mississippi River (via HDD). The proposed route modification shifts from the east to the west side of the existing ammonia line, immediately before the route descends down a steep slope on the north side of the Mississippi River. The route then shifts from the west to the east side of the existing ammonia line at the mid-point under the Mississippi River. Environmental surveys conducted along the originally proposed route determined that that route would cross an environmentally sensitive resource, multiple waterbodies and would affect forested wetlands. The proposed route modification would avoid impacts to the identified environmental resource and reduce impact to waterbodies and wetlands.

Clearing is proposed to create the area necessary to construct the HDD work pad needed to support the HDD operations. The proposed HDD work pad has a fill component to limit the amount of excavation in the surrounding area. Access roads were designed to accommodate movement of equipment without increasing the risks to the HDD (such as driving directly in front of the HDD installation). Access roads would be graded to allow for construction equipment to be able to drive to the site, deliver or pick up materials, and turn around without compromising the integrity of the HDD installation. Waterbodies with perceptible flow during construction will be crossed by equipment bridges constructed to allow unrestricted flow and will be maintained to prevent soil from entering the waterbody.

The modification will increase workspace required by approximately 0.6-acre, and result in an increase of approximately 0.7-acre of tree clearing. Landowner approval has been obtained for this modification. This route modification was surveyed for waterbodies and wetlands in June 2017 and January 2018. Spire requests exceptions from the FERC’s Procedures for this reroute as detailed in Table 5-1. Appropriate erosion and sediment controls measures will be installed as necessary to prevent sediment from entering the waterbodies and wetlands crossed during construction.



Table 5-1. Variances to the FERC Plan and Procedures for Modification MP44.6-45.1

Approximate MP ¹	ATWS ID	Feature ID (Type)	Description of Modification	Justification	Approximate Distance (feet) ²
44.8R3	ATWS-967	SIL-JJP-211 (Ephemeral)	ATWS within 50 feet of Stream	Constructability	0
44.9R3	ATWS-968	SIL-JJP-211 (Ephemeral)	ATWS within 50 feet of Stream	Constructability of HDD; Temporary culvert will be used to minimize impact.	0
44.9R3	ATWS-968	SIL-WJW-011 (Perennial)	ATWS within 50 feet of Stream	Constructability of HDD; Temporary culvert will be used to minimize impact.	0
44.9R3	ATWS-967	SIL-WJW-011 (Perennial)	ATWS within 50 feet of Stream	Constructability of HDD	34
44.9R3	ATWS-970	SIL-WJW-011 (Perennial)	ATWS within 50 feet of Stream	Constructability of HDD	0
44.9R3	ATWS-970	SIL-JJP-203 (Intermittent)	ATWS within 50 feet of Stream	Constructability of HDD	0
45.0R3	ATWS-970	SIL-WJW-011 (Perennial)	ATWS within 50 feet of Stream	Constructability of HDD	3
45.1R3	ATWS-970	SIL-WJW-011 (Perennial)	ATWS within 50 feet of Stream	Constructability of HDD	15
45.1R3	ATWS-970	SIL-JJP-200 (Perennial)	ATWS within 50 feet of Stream	Constructability of HDD	0
45.0R3	ATWS-970	WIL-JJP-148 (PFO)	ATWS within 50 feet of Wetland	Constructability of HDD	0
45.1R3	ATWS-970	WIL-JJP-148 (PFO)	ATWS within 50 feet of Wetland	Constructability of HDD	0

Notes:

- ¹ Milepost based on nearest point between ATWS and pipeline where encroachment within 50' buffer occurs.
- ² Approximate distance rounded to the nearest foot.

This route was reviewed for cultural resources in August 2013 and January 2018 (Illinois Phase I Addendum VI



Archaeological Report, February 2018). This modification is within the area previously consulted on regarding threatened and endangered species. The increase in tree clearing is less than 1-acre and therefore additional coordination with United States Fish and Wildlife Service (“USFWS”) was not required.

A map of this requested varinace is provided in Attachment B.

Modification at 24-inch Pipeline MP 49.3 – 50.1R2

As included in the Supplemental Information filed October 6, 2017, Spire is proposing to modify the route alignment to avoid a wetland. This modification will increase workspace required by approximately 0.3-acre. This modification is within the previously studied area that has been cleared for wetlands, waterbodies, threatened and endangered species, and cultural resources (Phase I Addendum IV Archaeological Report, December 2017 and Phase I Archaeological Report, January 2017). Landowner approval has been obtained for this modification.

A map of this requested varinace is provided in Attachment B.

Route Adjustment at North County Extension MP 3.2 - 3.7

Between MP 3.2 – 3.7 on the North County Extension, Spire is modifying the route alignment to the previously filed alignment and workspaces that were included in the EA. Spire had filed a modification in this area in its October 6, 2017 filing based on rectified parcel data; however, this change was determined to cross a forested wetland. Adjusting to the route from the EA will shift the pipeline approximately 35 feet northeast to avoid the forested wetland. The adjustment will reduce impacts to forested land use by approximately 0.5 acres. This modification is within the previously studied area that has been cleared for wetlands, waterbodies, threatened and endangered species, and cultural resources (Phase I Addendum III Archaeological Report, September 2017). Landowner approval has been obtained for this modification.

Modification at North County Extension MP 5.8R2 – 6.0

Between MP 5.8 – 6.0 on the North County Extension, Spire requests authority to modify the route alignment for constructability as included in the Supplemental Information filed October 6, 2017. This modification will decrease workspace required by approximately 0.5-acre. This modification is within the previously studied area that has been cleared for wetlands, waterbodies, threatened and endangered species, and cultural resources (Phase I Addendum I Archaeological Report, April 2017 and Phase I Archaeological Report, January 2017).

A map of this requested route modification is provided in Attachment B.

Modification at Mainline Valve (MLV-1)

Spire proposes to modify the location of this MLV from MP 15.7 to MP 19.5. No change to the design of the MLV site is proposed. Landowner approval has been obtained for this modification.

Modification at MLV-2 and Addition of Permanent Access Road

Spire proposes to modify the location of this MLV from MP 34.7 to MP 35.2R. No change to the design of the MLV site is proposed; however, Spire proposes to construct a permanent access road to provide access to the valve due to its location. The proposed PAR-031 would be approximately 0.12 miles in length, a portion of which would



overlap with an existing gravel road. This modification is within the previously studied area that has been cleared for threatened and endangered species. This modification was reviewed for wetlands and waterbodies in June 2018, and for cultural resources in March 2018 (Phase I Addendum VI, April 2018). Landowner approval has been obtained for this modification.

Addition of Temporary Access Road

Spire proposes to add a temporary access road at the western HDD site for the Spanish Lake Park HDD to provide access during construction. The proposed TAR-030 would be approximately 0.08 miles in length. This modification is within the previously studied area that has been cleared for wetlands, waterbodies, threatened and endangered species, and cultural resources (Phase I Addendum III, September 2017). Landowner approval has been obtained for this modification.

Parcel Rectification

Minor centerline and workspace adjustments are also proposed based on rectified property boundaries. This is a result of discrepancies with obtained county level data. A list of each adjustment and relevant studies, permits, and clearances is included in Attachment B.

Further Variance Requests

If further variance requests are required for the Project, Spire would file with the Secretary detailed alignment sheets and aerial photographs at a scale not smaller than 1:6,000 identifying all areas that would be used or otherwise disturbed and have not been previously identified in filings with the Secretary. For each area, the request will include a description of the existing land use/cover type, documentation of landowner approval, whether any cultural resources or federally listed threatened and endangered species will be affected, and whether any other environmentally sensitive areas are within or abutting the area. All areas will be clearly identified on the alignment sheets/drawings. Each area will be approved in writing by the Director of OEP before initiating construction in or near the area. Spire recognizes that this requirement does not apply to extra workspace allowed by FERC's Plan, minor field realignments per landowner needs and requirements that do not affect other landowners or sensitive environmental areas such as wetlands.

Spire recognizes that examples of alterations requiring approval include all route realignments and facility location changes resulting from implementation of cultural resources mitigation measures; implementation of endangered, threatened, or special concern species mitigation measures; recommendations by state regulatory authorities; and agreements with individual landowners that affect other landowners or could affect sensitive environmental areas.



FERC Environmental Condition No. 6

Within 60 days of the acceptance of the Order and before construction begins, Spire shall file an Implementation Plan with the Secretary for review and written approval by the Director of OEP. Spire must file revisions to the plan as schedules change. The plan shall identify:

- a. how Spire will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order;*
- b. how Spire will incorporate these requirements into the contract bid documents, construction contracts (especially penalty clauses and specifications), and construction drawings so that the mitigation required at each site is clear to onsite construction and inspection personnel;*
- c. the number of EIs assigned, and how the company will ensure that sufficient personnel are available to implement the environmental mitigation;*
- d. company personnel, including EIs and contractors, who will receive copies of the appropriate material;*
- e. the location and dates of the environmental compliance training and instructions Spire will give to all personnel involved with construction and restoration (initial and refresher training as the Project progresses and personnel change), with the opportunity for OEP staff to participate in the training sessions;*
- f. the company personnel and specific portion of Spire's organization having responsibility for compliance;*
- g. the procedures (including use of contract penalties) Spire will follow if noncompliance occurs; and*
- h. for each discrete facility, a Gantt or PERT chart (or similar project scheduling diagram), and dates for:*
 - (1) completion of all required surveys and reports;*
 - (2) the environmental compliance training of onsite personnel;*
 - (3) the start of construction; and*
 - (4) the start and completion of restoration.*

Spire Response

Spire has prepared and filed this Implementation Plan to satisfy Environmental Condition No. 6. The measures listed below identify information to meet provisions (a) through (h) of the condition.

- a. Spire will implement the construction procedures and mitigation measures described in its application and supplements (including responses to staff data requests), identified in the EA, and required by the Order. Spire has incorporated these into Project construction and compliance documents referred to as the Environmental Management Plan. Spire will provide training to construction personnel prior to the commencement of construction. The Chief Inspector and Lead EI will be responsible for ensuring that the Environmental Management Plan is implemented during construction.



The Project will adhere to the FERC’s Upland Erosion Control, Revegetation and Maintenance Plan (“Plan”) and FERC’s Wetland and Waterbody Construction and Mitigation Procedures (“Procedures”), aside from the exceptions specifically requested in the Environmental Report and acknowledged in the FERC’s EA. Spire will also require compliance with the detailed procedures included in the following Project-specific plans, including but not limited to:

- Erosion and Sediment Control Plans;
- Spill Prevention, Control and Countermeasure Plan;
- Flood Plan;
- HDD Contingency Plan;
- Winter Construction Plan;
- Noxious Weeds/Invasive Plant Species Control and Mitigation Plan;
- Unanticipated Discoveries Plans for Cultural Resources;
- Karst Mitigation Plan;
- Blasting Plan;
- Agricultural Impact Mitigation Agreement for Illinois;
- Federal Property Crossing Plan;
- Unanticipated Discovery of Contaminants Plan; and
- Fugitive Dust Plan.

Spire’s Environmental Management Plan will contain project-specific construction plans and federal, state, and local permits/approvals for the Project. The Environmental Management Plan will also highlight the special conditions of the permits/approvals for the Contractor.

- b. Contract documents will require the Contractor to adhere to all applicable environmental and construction related permits. Contract documents were provided that contained requirements and specifications set forth in Spire’s application filings with the FERC. This information included the requirements from the FERC’s Plan and Procedures, and project-specific construction plans.

The contract documents also contain construction drawings that incorporate the requirements and specifications of the FERC’s Plan and Procedures, and the Project-specific construction documents. Specific construction drawings have also been developed that incorporate environmental conditions, permits, locations of required erosion control devices and special protection measures by which the Contract must abide. Contractor shall be responsible for the performance of all aspects of the work within its contract with Spire in strict conformance with the environmental and construction related permits, compliance plans and all items listed in in the Contract documents.



Spire has appointed a Lead Environmental Inspector (“EI”) and will appoint additional EIs to monitor construction, including Contractor’s compliance with erosion and sediment control structures and other compliance measures, and specialty monitoring personnel for agricultural and specific species. Contractors and EIs will be provided with the Environmental Management Plan and will be required to attend environmental training prior to construction. If the Environmental Compliance and Safety training provided to the Contractor and EIs is not followed, Spire will take appropriate actions to correct any noncompliance with the environmental specifications.

Liquid damages within the agreement with the Contractor specify that Spire shall assess delay liquidated damages in the amount of \$50,000 per day for each day after the specified Guaranteed Substantial Completion date. The aggregate total of all delay liquidated damages chargeable against the Contractor in the current Agreement shall not exceed \$4,000,000.

- c. Spire will assume responsibility for construction oversight of the Project. Spire will designate one Lead EI to provide overall coordination for reporting and compliance monitoring. The Lead EI will be supported by two additional EIs (one per spread) for the Project, along with one Agricultural Inspector (“AI”) in Illinois. Spire’s Chief Inspector and EIs have the daily responsibility of assessing the environmental compliance of the Project. The Chief Inspector and EIs will coordinate with the Contractor to address any compliance concerns.
- d. Company personnel receiving copies of environmental compliance materials will include but may not be limited to the following:

Table 6-1. Company Personnel Receiving Environmental Management Plan

Title	Name
Director of Pipelines	Russell English
Environmental Compliance Manager	Lori Ferry
Chief Inspector	James Stepp
Lead Environmental Inspector	Ben Patton
Environmental Inspector (#1)	TBD
Environmental Inspector (#2)	TBD
Agricultural Inspector	Dylan Thomas (Duraroot)
Pipeline Contractor-Project Manager	Matt Westphal (Michels)
Horizontal Directional Drill Contractor-Project Manager	Mark Zimmerman (Michels)
Facilities Contractor, Project Manager	Bryan Harding (Sagebrush)



Copies of the Environmental Management Plan will be also be maintained and available on-site for reference.

- e. Prior to commencing any construction activities, Spire’s Environmental Management Plan will be distributed to the Project Manager, Construction Manager, Chief Inspector and EIs, and all other task inspectors for the Project, as well as the contractors’ on-site superintendent and environmental foreman.

Environmental compliance training will be provided prior to the construction kick-off and as needed throughout construction. Spire environmental compliance training will be held at Spire’s field office located in Godfrey, Illinois. At this time, Spire has not finalized the dates for the environmental compliance training. Spire will notify the FERC’s OEP staff and personnel from other agencies regarding the initial environmental compliance training and extend to them an invitation to participate. Additional training will take place on an as-needed basis for new personnel, if there are changes to the Project requirements or scope, and if the Lead EI and/or Chief Inspector identify the need for additional training to address concerns.

- f. Spire’s Project team, under the direction of Corporate Chief Compliance Officer, Mark Darrell and the Environmental Compliance Manager Lori Ferry, are responsible for compliance.
- g. In the event of a noncompliance issue or other concern, the Lead EI, EIs or AI will report to the Chief Inspector. The Lead EI, EIs, and AI have stop work authority to stop construction as a resolution to the noncompliance issue is pursued. The Chief Inspector will coordinate with the contractor to determine the appropriate measures to resolve the issue, as well as define a timeframe for its resolution. The Lead EI will be responsible for documenting noncompliance and the corrective actions taken, including the timeframe for resolution and the effectiveness of the measures taken to address the noncompliance. This information will be included in the weekly status report to FERC. The Lead EI and Chief Inspector will also determine if additional training for personnel is warranted.
- h. An estimated Project scheduling diagram for each discrete facility showing the completion of required surveys and reports, the scheduled environmental compliance training of onsite personnel, the start of construction, and the start and completion of restoration is included as Attachment J.



FERC Environmental Condition No. 7

Spire shall employ at least one EI per construction spread. The EIs shall be:

- a. responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;*
- b. responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see Condition 6 above) and any other authorizing document;*
- c. empowered to order the correction of acts that violate the environmental conditions of the Order, and any other authorizing document;*
- d. a full-time position, separate from all other activity inspectors;*
- e. responsible for documenting compliance with the environmental conditions of the Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and*
- f. responsible for maintaining status reports.*

Spire Response

Spire plans to employ one EI per construction spread at minimum, and will designate one Lead EI to interface with all EIs. The number and experience of EIs assigned to each construction spread will be appropriate for the length of the construction spread and the number/significance of resources affected. The EIs will be:

- responsible for monitoring and ensuring compliance with all mitigation measures required by the Order and other grants, permits, certificates, or other authorizing documents;
- responsible for evaluating the construction contractor's implementation of the environmental mitigation measures required in the contract (see Condition 6 above) and any other authorizing document;
- empowered to order the correction of acts that violate the environmental conditions of the Order, and any other authorizing document;
- a full-time position, separate from all other activity inspectors;
- responsible for documenting compliance with the environmental conditions of that Order, as well as any environmental conditions/permit requirements imposed by other federal, state, or local agencies; and
- responsible for maintaining status reports.



FERC Environmental Condition No. 8

Beginning with the filing of its Implementation Plan, Spire shall file updated status reports with the Secretary on a weekly basis until all construction and restoration activities are complete. On request, these status reports will also be provided to other federal and state agencies with permitting responsibilities. Status reports shall include:

- a. an update on Spire's efforts to obtain the necessary federal authorizations;*
- b. the construction status of each spread, work planned for the following reporting period, and any schedule changes for stream crossings and forested area clearing, or work in other environmentally sensitive areas;*
- c. a listing of all problems encountered and each instance of noncompliance observed by the EI during the reporting period (both for the conditions imposed by the Commission and any environmental conditions/permit requirements imposed by other federal, state, or local agencies);*
- d. a description of the corrective actions implemented in response to all instances of noncompliance;*
- e. the effectiveness of all corrective actions implemented;*
- f. a description of any landowner/resident complaints which may relate to compliance with the requirements of the Order, and the measures taken to satisfy their concerns; and*
- g. copies of any correspondence received by Spire from other federal, state, or local permitting agencies concerning instances of noncompliance, and Spire's response.*

Spire Response

Beginning with the filing of this Implementation Plan, Spire will file updated status reports with the Secretary on a weekly basis until all construction and restoration activities are complete. These reports will contain the information described in provisions (a) through (g) of Environmental Condition No. 8. On request, copies of these weekly status reports may be provided to other federal and state agencies with permitting responsibilities.



FERC Environmental Condition No. 9

Spire must receive written authorization from the Director of OEP before commencing construction of any Project facilities. To obtain such authorization, Spire must file with the Secretary documentation that it has received all applicable authorizations required under federal law (or evidence of waiver thereof).

Spire Response

The table in Attachment A lists all applicable authorizations required for the Project and the dates that these authorizations were issued or anticipated to be issued. Updates to this table will be provided as part of the weekly status reports. Copies of correspondence, including authorizations, not previously filed with the FERC are provided as Attachment H of this Implementation Plan. Spire will also include documentation of all applicable authorizations (or evidence of waiver therefor) in the Project's Environmental Management Plan.



FERC Environmental Condition No. 10

Spire must receive written authorization from the Director of OEP before placing the Project into service. Such authorization will only be granted following a determination that rehabilitation and restoration of the right-of-way and other areas affected by the Project are proceeding satisfactorily.

Spire Response

Spire will request written authorization from the Director of OEP before placing the Project facilities into service. Spire recognizes that such authorization will only be granted following a determination that the facilities have been constructed in accordance with FERC approval and applicable standards, and that rehabilitation and restoration of the areas of disturbance are proceeding satisfactorily. The Project facilities will not be placed into service until Spire has received written authorization from the Director of OEP.



FERC Environmental Condition No. 11

Within 30 days of placing the authorized facilities in service, Spire shall file an affirmative statement with the Secretary, certified by a senior company official:

- a. that the facilities have been constructed and installed in compliance with all applicable conditions, and that continuing activities would be consistent with all applicable conditions; or*
- b. identifying which of the conditions in the Order Spire has complied with or will comply with. This statement shall also identify any areas affected by the Project where compliance measures were not properly implemented, if not previously identified in filed status reports, and the reason for noncompliance.*

Spire Response

Within 30 days of placing the certificated facilities in service, Spire will file with the Secretary an affirmative statement that has been certified by a senior official of Spire stating that the facilities have been constructed and installed in compliance with all applicable conditions, and that continuing activities will be consistent with all applicable conditions. The statement shall also identify any areas affected by the Project where compliance measures were not properly identified in the filed status reports, and the reason for noncompliance.



FERC Environmental Condition No. 12

Prior to construction, Spire shall file with the Secretary, for review and written approval of the Director of OEP, its site-specific steep slope and landslide hazard assessment plan for the bluffs near the Mississippi River crossing.

Spire Response

Spire has developed its site-specific steep slope and landslide hazard assessment plan for the area near the Mississippi River. This plan was developed in conjunction with Spire's Contractor who has significant experience constructing in areas of steep slopes. A copy of this plan is included herein as Attachment K for FERC review and approval prior to the commencement of construction.



FERC Environmental Condition No. 13

Prior to construction, Spire shall file with the Secretary, for review and written approval of the Director of OEP, additional geotechnical investigations at the Coldwater Creek and Spanish Lake Park HDD crossings to determine the presence and extent of potential karst features and whether an HDD is expected to be successful.

Spire Response

The results of geotechnical investigations at the Coldwater Creek and Spanish Lake Park HDD crossings were filed with the FERC on October 6, 2017 as Appendix 6-B. In addition, Spire hired a third party to review the results of the geotechnical studies performed at these HDD locations, and to conduct a hydrofracture analysis in order to quantify the risk of inadvertent returns. Based on the results of these analyses, it was determined that the Coldwater Creek and Spanish Lake Park HDDs had a low potential for inadvertent drilling fluid returns due to the depth at which the HDD will be installed and further that the installation of the drill will be conducted through sedimentary bedrock. The results of these studies are included as Attachment L.



FERC Environmental Condition No. 14

Prior to construction, Spire shall file with the Secretary, for review and written approval of the Director of OEP, a Water Resource Identification and Testing Plan for each HDD through karst terrain (for the North County Extension from MP 1.6 to MP 2.2 and MP 3.8 to 4.5). The Water Resource Identification and Testing Plan shall include:

- a. the results of a fracture trace/lineament analysis coupled with the results of existing dye trace studies, if any, showing potential groundwater flow direction from source (drill alignment) to receptors (wells, springs, and waterbodies); and*
- b. identification of all water supply wells, springs, and surface water intakes within 1,000 feet down-gradient of each HDD that crosses karst terrain (for the North County Extension from MP 1.6 to MP 2.2 and MP 3.8 to 4.5) and provide the following for each water source identified;*
 - (1) written verification of Spire’s offer to conduct, with the landowner’s permission, pre- and post-construction water quality and yield monitoring of all karst area water supply wells and springs. Water quality monitoring shall consist of the following parameters: oils and greases, volatile organic compounds, turbidity, total and fecal coliform bacteria, total suspended solids; and*
 - (2) confirmation that Spire will restore or replace all affected karst area water supplies to pre-construction conditions with respect to both quality and yield.*

Spire Response

- a. Spire is unaware of any existing dye trace studies along the proposed Project route. Spire contacted the Missouri Department of Natural Resources Geological Survey, which confirmed that there are no records of dye traces in the vicinity of Coldwater Creek or Spanish Lake. Spire also contacted a local dye trace testing company (Ozark Underground Laboratory); the company has not conducted any tests in this area.
- b. Spire reviewed publicly available data to determine the water supply wells, springs and surface water intakes within 1,000 feet down-gradient of each HDD that crosses karst terrain (Coldwater Creek and Spanish Lake Park). The following table indicates the location of these resources:

Table 14-1. Supply Wells, Springs and Intakes within 1,000 feet Down-gradient of HDDs

Proposed HDD	Karst Features	Water Supply Features	Comments	Confirmation of Pre/Post Construction Monitoring
Coldwater Creek	Karst features crossed by HDD	2 Abandoned Wells One Domestic Water Well	Karst features identified are more than 800 feet from the domestic water well.	Will test unless landowner (MMIDs 6053 and 5885) denies access - Documentation in Attachment M



Proposed HDD	Karst Features	Water Supply Features	Comments	Confirmation of Pre/Post Construction Monitoring
Spanish Lake Park	Karst features crossed by HDD	1 Domestic Water Well	Karst features identified are approximately 400 feet from the domestic water well.	Will test unless landowner (MMID 6351) denies access - Documentation in Attachment M

As documented in Attachment M, Spire has offered to conduct, with the landowner’s permission, pre- and post-construction water quality and yield monitoring of the identified karst area water supply wells and springs within 1,000 feet down-gradient of the Spanish Lake Park HDD. Water quality monitoring will consist of the following parameters: oils and greases, volatile organic compounds, turbidity, total and fecal coliform bacteria, total suspended solids. Spire will restore or replace affected identified water wells in this area to pre-construction conditions with respect to both quality and yield.



FERC Environmental Condition No. 15

Prior to construction, Spire shall file with the Secretary:

- a. the location of all wells and springs within 150 feet of proposed work areas;*
- b. an update on pre-construction testing for the wells at MP 9.0, or documentation that the landowner has opted not to have pre-construction testing;*
- c. a description of protective measures of how the wells within the work area would be protected during construction;*
- d. verification that both pre- and post-construction testing has been offered to all landowners with wells within 150 feet of work areas; and*
- e. updated alignment sheets depicting the 200- and 400-foot no refueling areas for applicable wells.*

Spire Response

- a. A table displaying the location of all wells and springs within 150 feet of the proposed construction work area is included as Table 15-1 below.



Table 15-1. Water Wells and Springs within 150 Feet of the Project Construction Areas

Facility/ Milepost	Distance from Construction Area (feet)	Tract Number	County, State	Type	Confirmation of Pre/Post Construction Testing
24-Inch Pipeline					
9.0-9.1	5	MMID 232	Greene County, Illinois	Domestic Water Well (Not in Use) ²	Documentation in Attachment M
9.0-9.1	3	MMID 232	Greene County, Illinois	Domestic Water Well (Not in Use) ²	Documentation in Attachment M
13.8-13.9	132	MMID 626 (formerly 296)	Greene County, Illinois	Domestic Water Well (Not in Use) ²	Documentation in Attachment M
14.1 – 15.1	Unknown ¹	MMID 244	Greene County, Illinois	Domestic Water Well ²	Will test unless landowner denies access - Documentation in Attachment M
16.5-17.1	Unknown	MMID 209	Greene County, Illinois	Water Well (Not in Use) ²	Will test unless landowner denies access - Documentation in Attachment M
28.7-28.8	122	MMID 184	Greene County, Illinois	Domestic Water Well	Confirmed no well located on property - Documentation in Attachment M
29.4	68	MMID 337	Greene County, Illinois	Domestic Water Well	Documentation in Attachment M
36.6	126	MMID 1758	Jersey County, Illinois	Domestic Water Well	Will test unless landowner denies access - Documentation in Attachment M



Facility/ Milepost	Distance from Construction Area (feet)	Tract Number	County, State	Type	Confirmation of Pre/Post Construction Testing
38.6	108	MMID 1490	Jersey County, Illinois	Domestic Water Well (Not in Use) ²	Will test if available (wells filled) - Documentation in Appendix M
45.0-45.1	65	MMID 1741	Jersey County, Illinois	Domestic Water Well	Will test unless landowner denies access - Documentation in Attachment M
North County Extension					
0.0R3	83	No MMID (Offline)	St. Louis County, Missouri	Domestic Water Well	Will test unless landowner denies access - Documentation in Attachment M
1.5	35	MMID 6043	St. Louis County, Missouri	Domestic Water Well Not in Use	Will test unless landowner denies access - Documentation in Attachment M
4.0	44	MMID 6351	St. Louis County, Missouri	Domestic Water Well	Will test unless landowner denies access - Documentation in Attachment M
5.2 – 5.3	Unknown ¹	MMID 6529	St. Louis County, Missouri	Domestic Water Well ²	Will test unless landowner denies access - Documentation in Attachment M
5.3 – 5.4	Unknown ¹	MMID 6531	St. Louis County, Missouri	Domestic Water Well ²	Documentation in Attachment M



Facility/ Milepost	Distance from Construction Area (feet)	Tract Number	County, State	Type	Confirmation of Pre/Post Construction Testing
5.6 – 6.0	Unknown ¹	No MMID (offline)	St. Louis County, Missouri	Domestic Water Well ²	Will test unless landowner denies access - Documentation in Attachment M
Access Roads					
24.8R	144	MMID 225	Greene County, Illinois	Domestic Water Well	Will test unless landowner denies access - Documentation in Attachment M
36.6R	51	MMID 1523	Jersey County, Illinois	Domestic Water Well	Will test unless landowner denies access - Documentation in Attachment M

Notes:

¹ Distances from construction area are unknown as these wells were identified during landowner discussions, but were not specific in terms of location to the proposed Project.

² Based on discussions with landowners.

- b. Documentation of communications with the landowner for the domestic water wells at MP 9.0 on the 24-inch pipeline is included in Attachment M.
- c. Wells within the Project workspace will be protected by high visibility fence. A 200-ft and 400-ft no fueling area will be established. Spire will offer to conduct, with the landowner’s permission, pre- and post-construction water quality and yield monitoring.
- d. As documented in Attachment M, Spire has offered to landowners to conduct pre- and post- construction evaluations on wells within 150 feet of the construction work area.
- e. The Construction Alignment Sheets included in Attachment C depict the 200- and 400-foot no refueling areas for applicable wells.



FERC Environmental Condition No. 16

Prior to construction, Spire shall file with the Secretary a revised HDD Plan, for review and written approval by the Director of OEP, that includes:

- a. additional monitoring requirements, including but not limited to, a commitment to monitor the entire path of each HDD for evidence of an inadvertent return daily during active drilling activities; and*
- b. a list of environmentally-safe drilling fluid additives that Spire will use during HDD operations, developed in consultation with the appropriate state resource agencies.*

Spire Response

- a. Spire has revised the HDD Contingency Plan to include additional monitoring requirements, including a commitment to monitor the entire path of each HDD for evidence of an inadvertent return daily during active drilling activities. As described in Section 1.2.2.2, Monitoring and Reporting, site monitoring will include walking the alignment to visually check for inadvertent returns within 50 feet perpendicular to the HDD alignment and monitor the downhole annular fluid pressure. The revised HDD Contingency Plan is included as Attachment N. Spire understands and acknowledges that the Director of OEP must provide written approval of the revised plan.
- b. Spire provides the following list of potential additives that may be utilized during HDD operations. These additives were provided by Spire's construction contractor (Michel's) and have been accepted and widely utilized in their drilling operations in Illinois and Missouri. The proposed water-soluble additives may include; ClayBreaker, Fed Seal LCM, FlowPac, G-Seal, Magma Fiber, Max Gel, Mica, M-I-X II, Platinum PAC, Poly-Plus, Polyswell, Ringfree, Rod Ease, SafeCarb, SandMaster, Sawdust, Soda Ash, Super Gel-X, Tiger Bullets, Torqbreaker, Walnut Plug, Barite-M-I-Wate, Drill Plex HDD, Duovis, EZ Flow, Liqui-troll, NO-SAG, SDS Extra High Yield, Slikgel, Super Pac, Suspend It, Unidrill. Spire will confirm with each of the state agencies that these are acceptable additives.



FERC Environmental Condition No. 17

Spire shall adhere to the Incidental Take Statement, which includes implementing the reasonable and prudent measures and adopting the terms and conditions outlined in the USFWS's February 2, 2018 Biological Opinion for the Indiana bat into its implementation plan. Spire shall provide the FERC and the USFWS with the post-construction monitoring results as outlined in the Biological Opinion.

Spire Response

Spire will adhere to the Incidental Take Statement, including the reasonable and prudent measures and terms and conditions, as outlined in the USFWS's February 2, 2018 Biological Opinion.

Post-construction monitoring results will be provided to the FERC and USFWS upon completion.



FERC Environmental Condition No. 18

Prior to construction, Spire shall file with the Secretary its Conservation Plan to obtain an Incidental Take Authorization for timber rattlesnakes, as well as results of its consultation with the Illinois Department of Natural Resources ("IDNR") on its plan.

Spire Response

Spire submitted its Conservation Plan with the IDNR as part of its intention to obtain an Incidental Take Permit for timber rattlesnakes on November 15, 2017. Comments on the Conservation Plan were received on December 15, 2017 and a revised Conservation Plan was submitted to Illinois Department of Natural Resources on January 12, 2017. Following receipt of the Order, the Conservation Plan was submitted to IDNR on August 10, 2018 and is included as Attachment O as privileged information. IDNR is currently completing their review of the Conservation Plan and Spire will work with IDNR to determine when the plan is complete to initiate the public comment period. Once the Incidental Take Authorization is complete, a copy of it will be filed with FERC.



FERC Environmental Condition No. 19

Spire shall not begin construction of facilities and/or use of staging, storage, or temporary work areas and new or to-be-improved access roads until:

- a. Spire files with the Secretary, the Illinois and Missouri SHPO's comments on the Addendum V Phase I Archaeological Survey reports;*
- b. Spire files with the Secretary, the Missouri SHPO's comments on the November 10, 2017 Architectural and Historic Resources Reconnaissance report;*
- c. Spire files with the Secretary remaining cultural resources survey reports(s) and revised reports; any required site evaluation report(s) and avoidance/treatment plan(s); and the Missouri and Illinois SHPOs' comments on the reports and plans;"*
- d. the Advisory Council on Historic Preservation is afforded an opportunity to comment if historic properties would be adversely affected; and*
- e. the FERC staff reviews and the Director of OEP approves the cultural resources reports and plans, and notifies Spire in writing that treatment plans/mitigation measures (including archaeological data recovery) may be implemented and/or construction may proceed.*

All materials filed with the FERC containing location, character, and ownership information about cultural resources must have the cover and any relevant pages therein clearly labeled in bold lettering: "CUI//PRIV - DO NOT RELEASE".

Spire Response

The status of the review of each cultural resource survey report is included in the permit table in Attachment A. Below is an update to meet provisions (a) through (e) of the condition.

- a. A Phase I Addendum V Archaeological Survey for Illinois was submitted January 10, 2018 and filed with FERC on January 12, 2018. Concurrence from Illinois SHPO dated March 22, 2018 is included in Attachment H. A Phase I Addendum V Archaeological Survey for Missouri was submitted January 10, 2018 and filed with FERC on January 12, 2018. In a letter dated January 30, 2018, the Missouri SHPO provided comments on the Addendum V report, and Spire addressed these comments in a revised Addendum V report submitted to the Missouri SHPO on February 21, 2018, included in Attachment P. Concurrence from the Missouri SHPO was dated March 15, 2018 and is included in Attachment H.
- b. Spire submitted a response to the Missouri SHPO's comments on architectural and historic resources reconnaissance reports dated November 10, 2017. The Missouri SHPO's response, dated November 29, 2017, was received January 8, 2018 and is included in Attachment H. The Missouri SHPO concluded that the Project as proposed will have no adverse effect on historic properties.
- c. A Phase I Addendum VI Archaeological Survey for Illinois was submitted February 16, 2018 and is included in Attachment Q. Concurrence from Illinois SHPO dated March 22, 2018 is included in Attachment H. A



Phase I Addendum VII Archaeological Survey, Phase II Archaeological Survey for Site 11JY801, and Avoidance Plans for Sites 11JY789 and 11JY800 were submitted April 17, 2018 as a single document, and re-submitted as four separate documents on May 11, 2018. These reports are included in Attachment Q. Concurrence from Illinois SHPO dated June 15, 2018 is included in Attachment H.

Archaeological surveys and SHPO concurrence are complete on the entire certificated route and project modifications in which Spire is requesting approval as part of Environmental Condition 5.

- d. In the event that historic properties would be adversely affected, the Advisory Council on Historic Preservation will be afforded an opportunity to comment. Spire's current route does not propose adverse effects to historic properties.
- e. Spire acknowledges that construction may not begin until the FERC staff reviews and the Director of OEP approves the cultural resources reports and plans and notifies Spire in writing that treatment plans/mitigation measures (including archaeological data recovery) may be implemented and/or construction may proceed.



FERC Environmental Condition No. 20

Prior to construction of the Spanish Lake Park HDD, Spire shall file with the Secretary, for review and written approval by the Director of OEP, a site-specific noise mitigation plan that identifies measures to reduce the projected noise level attributable to the proposed drilling operations at nearby noise sensitive areas (“NSAs”). During drilling operations, Spire shall implement the approved plan, monitor noise levels, and make all reasonable efforts to restrict the noise attributable to the drilling operations to no more than a day-night sound level (“Ldn”) of 55 decibels (“dBA”) or 10 dBA above ambient levels at the NSAs.

Spire Response

Per the supplemental information contained in Spire’s response to FERC’s data request dated May 11, 2017 filed by Spire on June 1, 2017 regarding the HDD bores related to Spanish Lake Park East and Spanish Lake Park West, the modeled sound levels for the NSAs in the vicinity of each site were reported in Tables 9.2-8 and 9.2-9, respectively.

Both Spanish Lake Park East and Spanish Lake Park West were modeled as HDD bore inlet locations at the time of the supplemental information was provided. However, Spanish Lake Park West has now been designated as the HDD exit location.

Per 18 CFR 157.206 (b)(5)(iii) (CFR), “Any horizontal directional drilling or drilling of wells which will occur between 10 p.m. and 7 a.m. local time must be conducted with the goal of keeping the perceived noise from the drilling at any pre-existing noise-sensitive area (such as schools, hospitals, or residences) at or below a night level (Ln) of 55 dBA.” FERC’s Guidance Manual for Environmental Report Preparation (Guidance), issued February 2017 further states that: “Construction activity that would or may occur during nighttime hours should be performed with the goal that the activity contribute noise levels below 55 dBA Ldn and 48.6 Leq, or no more than 10 dBA over background if ambient noise levels are above 55 dBA Ldn.” (pg 4-131)

For Spanish Lake Park East, the nearest NSAs are located 875 feet away. All NSAs are below 55 dBA (Ldn) for ambient sound levels. With HDD operations considered, none of the modeled locations are expected to exceed the 55 dBA (Ldn) goal of the CFR. Furthermore, the requirements to maintain sound level increases to 10 dBA or less over ambient levels per the latest available FERC Guidance does not apply as no modeled location had an ambient sound level modeled at over 55 dBA.

For Spanish Lake Park West, two NSAs (NSA-MO022 and NSA-MO026) would exceed the 55 dBA (Ldn) goal of the CFR and the requirements of the FERC guidance with HDD operations at the site with no mitigation. Spire has designed the drill such that the Spanish Lake Park West operation would be utilized as an HDD exit location, and drilling activities would be limited to the Spanish Lake Park East location. Therefore, no NSA should be affected in a manner described by regulation or FERC guidance as the noted equipment would not be present.

As neither location would require mitigation and would not be in excess of the requirements under the CFR or the available FERC Guidance, it is requested that this condition be removed.



FERC Environmental Condition No. 21

Spire shall file noise surveys with the Secretary no later than 60 days after placing the Chain of Rocks Station in service. If a full load condition noise survey is not possible, Spire shall provide an interim survey at the maximum possible power load and provide the full power load survey within six months. If the noise attributable to the operation of all the equipment at the facility at interim or full power load conditions exceeds 55 dBA Ldn at any nearby NSAs, Spire shall file a report on what changes are needed and shall install additional noise controls to meet the recommended noise level within one year of the in-service date. Spire shall confirm compliance with the above requirement by filing a second noise survey with the Secretary no later than 60 days after it installs the additional noise controls.

Spire Response

Spire will file a noise survey with the Secretary no later than 60 days after placing the Chain of Rocks Station into service. If a full load condition noise survey is not possible, Spire will provide an interim survey at the maximum possible power load and provide the full power load survey within six months. If the noise attributable to the operation of all the equipment at the Chain of Rocks Station at interim or full power load exceeds 55dBA Ldn at any nearby NSAs, Spire will file a report on what changes are needed and will install the additional noise controls to meet the recommended noise level within one year of the in-service date. Spire will confirm compliance with the above requirement by filing a second full load noise survey with the Secretary no later than 60 days after it installs additional noise controls.



FERC Environmental Condition No. 22

Prior to construction, Spire shall file with the Secretary its final Flood Action Plan.

Spire Response

Spire's Flood Action Plan is included in Attachment R.



ATTACHMENT A

Table 1.6-1. Environmental Permits, Approvals and Consultations



Table 1.6-1. Environmental Permits, Approvals, and Consultations

Agency or Organization	Permit/Approval	Submittal Date¹ (Anticipated)	Receipt Date¹ (Anticipated)
Federal			
FERC	Certificate of Public Convenience and Necessity	January 2017 April 2017	August 2018
United States Fish and Wildlife Service (“USFWS”), Rock Island Field Office	Threatened and Endangered Species Consultation; Migratory Bird Treaty Act, Bald and Golden Eagle Act	June 2016	February 2018
USFWS, Columbia Field Office	Threatened and Endangered Species Consultation; Migratory Bird Treaty Act, Bald and Golden Eagle Act	Rock Island will be the lead USFWS office	N/A
United States Army Corps of Engineers (“USACE”), St. Louis District	Section 404, Section 10 [Nationwide Permit (“NWP”) 12]	January 2017 April 2017 July 2017 December 2017 January 2018	(August 2018)
	Section 408	January 2017	(August 2018)
	Real Estate Agreement	January 2017	(August 2018)
United States Department of Agriculture	Consultation on Lands Enrolled in Conservation Reserve Program	August 2016	February 2018
State-Illinois			
Illinois Department of Natural Resources (“IDNR”)	Statewide Permits #6, #8, and #13	No separate submittal required if general conditions are met.	
	State Species Consultation	June 2016	(August 2018)
	Incidental Take Authorization	November 2017	(September 2018)
Illinois Environmental Protection Agency	401 Water Quality Certification (separate submittal required for Section 404 and Section 10 permits; automatic authorization under NWP-12)	January 2017 April 2017 July 2017 December 2017	(August 2018)
	State Operating Permit for Wastewater Discharges	(3 rd Quarter 2018)	(4 th Quarter 2018)



Table 1.6-1. Environmental Permits, Approvals, and Consultations (Continued)

Agency or Organization	Permit/Approval	Submittal Date¹ (Anticipated)	Receipt Date¹ (Anticipated)
State-Illinois (continued)			
Illinois Historic Preservation Agency (“IHPA”)	Section 106, National Historic Preservation Act (“NHPA”) Clearance	June 2016	June 2018
	Phase I Archaeological with Architectural Resources Survey	January 2017	June 2017
	Phase I Addendum I Archaeological	April 2017	November 2017
	Phase I Addendum II Archaeological	July 2017 August 2017 (revised figures)	November 2017
	Phase II Archaeological Site 11JY751	July 2017	November 2017
	Phase II Archaeological Site 11JY765	July 2017	November 2017
	Phase I Addendum III Archaeological	September 2017	November 2017
	Phase I Addendum IV Archaeological	December 2017	December 2017
	Phase I Addendum V Archaeological	January 2018	March 2018
	Phase I Addendum VI Archaeological	February 2018	March 2018
	Phase I Addendum VII Archaeological	April 2018	June 2018
	Avoidance Plan Site 11JY789	April 2018	June 2018
	Avoidance Plan Site 11JY800	April 2018	June 2018
	Phase II Archaeological Site 11JY801	April 2018	June 2018
Illinois Department of Agriculture (“IDOA”)	AIMA	September 2016	April 2017
Illinois Department of Transportation (“IDOT”)	Utility Permit and Driveway Permit	February 2018	(August 2018)
Scott County Highway Department	Utility Permit and Driveway Permit	September 2017	(August 2018)
Greene County	Floodplain Permit	Activities are exempt from submitting since the Project meets requirements of Statewide Permit 6 and FEMA guidelines.	
Greene County Highway Department	Utility Permit and Driveway Permit	September 2017	August 2018
Jersey County	Floodplain Permit (Modification Package)	November 2017 June 2018	December 2017 (August 2018)
	Stormwater Development Permit	Project granted exemption from permit submittal. Copies of drawings will be provided to County.	



Table 1.6-1. Environmental Permits, Approvals, and Consultations (Continued)

Agency or Organization	Permit/Approval	Submittal Date¹ (Anticipated)	Receipt Date¹ (Anticipated)
Jersey County Highway Department	Utility Permit and Driveway Permit	September 2017	August 2018
Scott County Road District #2	Road Crossing and Road Use Agreement	September 2017	(August 2018)
Roodhouse Township	Road Crossing and Road Use Agreement	September 2017	(August 2018)
Whitehall Township	Road Crossing and Road Use Agreement	September 2017	(August 2018)
Carrollton Township	Road Crossing and Road Use Agreement	September 2017	(August 2018)
Kane Township	Road Crossing and Road Use Agreement	September 2017	(August 2018)
English Township	Road Crossing and Road Use Agreement	September 2017	(August 2018)
Otter Creek Township	Road Crossing and Road Use Agreement	September 2017	(August 2018)
Elsah Township	Road Crossing and Road Use Agreement	September 2017	(August 2018)
Kansas City Southern Railroad	Utility Permit and Right of Entry Permit	October 2017	(September 2018)
State-Missouri			
Missouri Department of Natural Resources (“MDNR”), St. Louis Regional Office	Individual 401 Water Quality Certification	April 2017 July 2017	N/A; Project is eligible for programmatic 401 Water Quality Certification.
	Hydrostatic Discharge Permit	(3 rd Quarter 2018)	(4 th Quarter 2018)
	Water Withdrawal Registration	(October 2018)	(October 2018)
	Land Disturbance Permit	Oil and gas activities are exempt from submitting for NPDES Construction Stormwater Permit provided that FERC Plan and Procedures and State Best Management Practices are incorporated into construction activities.	
Missouri Department of Conservation (“MDOC”)	State listed species consultation	June 2016	September 2017
	Special Use Permit (submit notice 30 days prior to activity)	January 2018	February 2018



Table 1.6-1. Environmental Permits, Approvals, and Consultations (Continued)

Agency or Organization	Permit/Approval	Submittal Date¹ (Anticipated)	Receipt Date¹ (Anticipated)
Missouri State Historic Preservation Office ("MO SHPO")	Section 106, NHPA clearance	June 2016	March 2018
	Phase I Archaeological	January 2017	July 2017
	Architectural Resources	January 2017	November 2017
	Phase I Addendum I Archaeological	April 2017 September 2017 (revised)	September 2017
	Phase I Addendum Architectural	April 2017	November 2017
	Phase II Archaeological Site 23SC2219	April 2017	August 2017
	Phase I Addendum II Archaeological	July 2017 August 2017 (revised figures)	July 2017
	Phase I Addendum III Archaeological	September 2017	October 2017
	Phase I Addendum IV Archaeological	December 2017	December 2017
	Phase I Addendum V Archaeological	January 2018	March 2018
Consolidated North County Levee District	Letter of Endorsement	January 2017	August 2018
Missouri Department of Transportation ("MoDOT")	Utility Permit	October 2017	Received; March, 2018
St. Louis County	Floodplain Permit and Land Disturbance Permit	December 2017	(August 2018)
	Building and Zoning Permits and Land Use Permit	February 2018	(September 2018)
St. Louis County Highway Department	Utility Permit and Driveway Permit	February 2018	(August 2018)
St. Charles County	Floodplain Permit and Land Disturbance Permit	November 2017	(August 2018)
	Building and Zoning Permits	February 2018	August 2018
City of West Alton	Floodplain Permit and Land Disturbance Permit	November 2017	January 2018
St. Charles County Highway Department	Utility Permit and Driveway Permit	September 2017	March 2018
Burlington Northern & Santa Fe Railroad	Utility Permit, Right of Entry Permit, Private Road Crossing Permit, and Structure Crossing Permit	October 2017	September 2018

Notes:

N/A - Not Applicable.

¹ Submittal dates and anticipated permit receipt dates are based on schedules discussed with the regulatory agencies.



ATTACHMENT B
Proposed Project Variances



Proposed Project Variances

Facility and Approximate MP	Description of Change ¹	Justification	Drawing Number ² (Hexagon Number)	Tract ID	Landowner Approval	Existing Land Use	Wetlands or Waterbodies Impacted	Permits Obtained ² (Authorization Date)	Cultural Resources Impacted (Applicable Report & Submittal Date) / SHPO Clearance (Date) ³	Federal and State T&E Clearance (Date)	Deviation to FERC Plan or Procedures
24-Inch Pipeline											
0.0R	Added new staging area	Constructability.	STLP-A-1 (1)	MMID 672	Yes	Agricultural	No – No additional survey was required.	Supplemental information provided to USACE 7/2/2018 (Pending)	No eligible resources (Archaeology 1/26/2017) / Yes (7/6/2017; 11/15/2017)	No species affected.	No
19.5	Relocated MLV Site 1 (from MP 15.7)	Landowner request.	STLP-A-022 STLP-A-023 (17)	MMID 313	Yes	Agricultural	No – No additional survey was required.	None required.	No eligible resources (Archaeology 1/26/2017) / Yes (7/6/2017; 11/15/2017)	No species affected.	No
35.2R	Access Road PAR-031 added to MLV Site 2	Landowner request.	STLP-A-040 STLP-A-041 (18)	MMID 1562	Yes	Open Land and Developed	No – Survey was completed June 2018. No features were identified.	Supplemental information provided to USACE 7/2/2018 (Pending)	No eligible resources (Archaeology 1/26/2017; Addendum VII 4/17/2018) / Yes (7/6/2017; 11/15/2017; 6/15/2018)	Biological Opinion (2/2/2018); Incidental Take Authorization (Pending)	No
35.2R	Relocated MLV Site 2 (from MP 34.7)	Landowner request.	STLP-A-040 STLP-A-041 (19)	MMID 1562	Yes	Open Land	No – No additional survey was required.	None required.	No eligible resources (Archaeology 1/26/2017) / Yes (7/6/2017; 11/15/2017)	Biological Opinion (2/2/2018); Incidental Take Authorization (Pending)	No
43.9 ⁴	Reduced west side of Staging Area-002.	Reduced area to coincide with survey corridor.	STLP-A-050 (3)	MMID 1715	Landowner permission not needed for reduction of workspace	Open Land	No – No additional survey was required.	Supplemental information provided to USACE 1/12/2018 (Pending)	Not Applicable	Not Applicable	No
44.6R3-45.1	Reroute.	Avoidance of sensitive	STLP-A-051 STLP-A-052	MMID 1741	Yes	Forest and Open Land	Yes – Survey was completed	Supplemental information	No eligible resources	Biological Opinion (2/2/2018);	Yes – See Table 5-1.



Facility and Approximate MP	Description of Change ¹	Justification	Drawing Number ² (Hexagon Number)	Tract ID	Landowner Approval	Existing Land Use	Wetlands or Waterbodies Impacted	Permits Obtained ² (Authorization Date)	Cultural Resources Impacted (Applicable Report & Submittal Date) / SHPO Clearance (Date) ³	Federal and State T&E Clearance (Date)	Deviation to FERC Plan or Procedures
		environmental area.	(16)				January 2018. Reroute reduces impacts to PFO wetland WIL-JJP-148 by 0.35 acres, avoids intermittent stream SIL-JJP-201, avoids ephemeral streams SIL-JJP-207 and SIL-JJP-206, and crosses perennial stream SIL-WJW-011 at a narrower location. Reroute results in temporary impact to ephemeral stream SIL-JJP-211 and PUB wetland WIL-WJW-003.	provided to USACE 7/2/2018 (Pending)	(Addendum III 9/29/2017; Addendum VI 2/16/2018; Site 11JY801 Phase II 4/17/2018; Avoidance Plan Site 11JY789 4/17/2018; Avoidance Plan Site 11JY800 4/17/2018) / Yes (11/15/2017; 3/22/2018; 6/15/2018)	Incidental Take Authorization (Pending)	
49.3-50.1R2	Reroute.	Minimize wetland impact.	STLP-A-056 STLP-A-057 STLP-A-058 (20)	MMID 937 MMID 1234 MMID 917	Yes	Agricultural, Open Land, Wetland, and Developed	Yes – No additional survey was required. Reduces impact to PEM wetland WMO-JJP-012.	Supplemental information provided to USACE 1/12/2018 (Pending)	No eligible resources (Archaeology Addendum)	No species affected	No.
49.8R2 ⁴	Split and removed a portion of ATWS-774 and reduced associated TWS. Split ATWS's are now 774 and 943. Added ATWS-942 and ATWS-944.	Updated based on November 2017 field surveys.	STLP-A-057 STLP-A-058 (4)	MMID 1234 MMID 917	Landowner permission not needed for reduction of workspace	Agricultural and Wetland	Yes – No additional survey was required. Maintains 50-foot offset from wetland and reduces construction right-of-way to 75 feet.	Supplemental information provided to USACE 1/12/2018 (Pending)	No eligible resources (Archaeology Addendum IV 12/1/2017) / Yes (12/20/2017)	No species affected	No
49.9R2 ⁴	Split and removed a portion of ATWS-943 and	Updated based on November 2017	STLP-A-057 STLP-A-058	MMID 917	Landowner permission	Agricultural and Open Land	Yes - No additional survey was	Supplemental information	No eligible resources	No species affected	No



Facility and Approximate MP	Description of Change ¹	Justification	Drawing Number ² (Hexagon Number)	Tract ID	Landowner Approval	Existing Land Use	Wetlands or Waterbodies Impacted	Permits Obtained ² (Authorization Date)	Cultural Resources Impacted (Applicable Report & Submittal Date) / SHPO Clearance (Date) ³	Federal and State T&E Clearance (Date)	Deviation to FERC Plan or Procedures
	reduced associated TWS. Split ATWS's are now 943 and 947. Added ATWS-945 and ATWS-946.	environmental field surveys.	(5)		not needed for reduction of workspace		required. Maintains 50-foot offset from stream and reduces construction right-of-way to 75 feet.	provided to USACE 1/12/2018 (Pending)	(Archaeology Addendum IV 12/1/2017) / Yes (12/20/2017)		
58.8R2 / Laclede/Lange Delivery Station	Shifted ATWS-938 north.	Increase to 50-foot offset from stream.	STLP-A-068 (6)	MMID 6433	No	Forest, Open Land, and Developed	No - No additional survey was required.	Supplemental information provided to USACE 1/12/2018 (Pending)	No eligible resources (Archaeology 1/26/2017) / Yes (7/6/2017; 11/15/2017)	No additional survey was required; No species affected (10/26/2017)	No
North County Extension											
0.0R3-0.6R3*	Minor alignment/workspace modification 10' ±.	Parcel Rectification.	STLP-A-1001 (7)	MMID 6464 MMID 6126 MMID 6468 MMID 6372 MMID 6121 MMID 6374 MMID 6370 MMID 6107 MMID 6101	Yes	Agricultural, Developed, Forest, and Open Land	Yes - No additional survey was required. Equivalent impacts to streams and wetlands.	Supplemental information provided to USACE 1/12/2018 (Pending)	No eligible resources (Archaeology 1/26/2017; Addendum I 4/21/2017)/ Yes (7/28/2017; 9/18/2017)	No additional survey was required; No species affected (10/26/2017)	No
0.9 ⁴	Reduced TWS.	Reduce construction right-of-way at stream.	STLP-A-1002 (8)	MMID 6076	Landowner permission not needed for reduction of workspace	Forest	Yes - No additional survey was required. Reduces impacts to stream.	Supplemental information provided to USACE 1/12/2018 (Pending)	Not Applicable	Not Applicable	No
0.9-1.6 ⁵	Minor alignment/workspace modification 12' ±.	Parcel Rectification.	STLP-A-1002 (9)	MMID 6076 MMID 6073 MMID 6085 MMID 6071 MMID 6067 MMID 6058 MMID 6065 MMID 6064 MMID 6052	Yes	Forest, Open Land, and Developed	Yes - No additional survey was required. Equivalent impacts to streams and wetlands.	Supplemental information provided to USACE 1/12/2018 (Pending)	No eligible resources (Archaeology Addendum I 4/21/2017) / Yes (9/18/2017)	No additional survey was required; No species affected (10/26/2017)	No



Facility and Approximate MP	Description of Change ¹	Justification	Drawing Number ² (Hexagon Number)	Tract ID	Landowner Approval	Existing Land Use	Wetlands or Waterbodies Impacted	Permits Obtained ² (Authorization Date)	Cultural Resources Impacted (Applicable Report & Submittal Date) / SHPO Clearance (Date) ³	Federal and State T&E Clearance (Date)	Deviation to FERC Plan or Procedures
				MMID 6066							
2.6-2.7	Minor alignment/workspace modification 10' ±.	Constructability.	STLP-A-1003 (11)	MMID 6265 MMID 6296	Yes	Forest, Open Land, and Developed	No - No additional survey was required.	Supplemental information provided to USACE 1/12/2018 (Pending)	No eligible resources (Archaeology Addendum II 7/14/2017; Addendum III 9/29/2017) / Yes (7/28/2017; 10/10/2017)	No species affected	No
2.7-3.2 ⁵	Minor alignment/workspace modification 2' ±.	Parcel Rectification.	STLP-A-1003 STLP-A-1004 (12)	MMID 6296	Yes	Agricultural, Forest, and Developed	Yes - No additional survey was required. Equivalent impacts to streams and wetlands.	Supplemental information provided to USACE 1/12/2018 (Pending)	No eligible resources (Archaeology Addendum III 9/29/2017) / Yes (10/10/2017)	No additional survey was required; No species affected (10/26/2017)	No
3.2-3.7	Minor alignment/workspace modification 30' ±.	Reverted to July Filing Route to avoid potential environmental impact.	STLP-A-1004 STLP-A-1005 (13)	MMID 6296	Yes	Agricultural and Forest	No - No additional survey was required. Avoids potential forested wetland.	Supplemental information provided to USACE 1/12/2018 (Pending)	No eligible resources (Archaeology Addendum III 9/29/2017) / Yes (10/10/2017)	No additional survey was required; No species affected (10/26/2017)	No
3.9	Addition of access road TAR-030 (approximately 427 feet).	Constructability	STLP-A-1002 (10)	MMID 6296	Yes	Agricultural	No – No additional survey was required.	Supplemental information provided to USACE 1/12/2018 (Pending)	No eligible resources (Archaeology Addendum III 9/29/2017) / Yes (10/10/2017)	No additional survey was required; No species affected (10/26/2017)	No
4.5-5.5 ⁵	Minor alignment/workspace modification 5' ±. Extend TAR-026 workspace and reduce TAR-027 workspace	Parcel Rectification. Revised to meet public road.	STLP-A-1005 STLP-A-1006 (14)	MMID 6535 MMID 6536 MMID 6541 MMID 6528 MMID 6529 MMID 6531 MMID 6530 MMID 3755	Yes	Agricultural, Open Land, and Developed	Yes - No additional survey was required. Equivalent impacts to streams and wetlands.	Supplemental information provided to USACE 1/12/2018 (Pending)	No eligible resources (Archaeology Addendum I 4/21/2017; Addendum II 7/14/2017) / Yes (9/18/2017; 7/28/2017)	No additional survey was required; No species affected (10/26/2017)	No



Facility and Approximate MP	Description of Change ¹	Justification	Drawing Number ² (Hexagon Number)	Tract ID	Landowner Approval	Existing Land Use	Wetlands or Waterbodies Impacted	Permits Obtained ² (Authorization Date)	Cultural Resources Impacted (Applicable Report & Submittal Date) / SHPO Clearance (Date) ³	Federal and State T&E Clearance (Date)	Deviation to FERC Plan or Procedures
5.8R2-6.0R	Route modification/ Workspace modification up to 115' ±	Constructability	STLP-A-1007 (21)	MMID 6509	No	Agricultural, Wetland, Open Land, Forest, and Developed	Yes – No additional survey was required. Two streams avoided.	Supplemental information provided to USACE 12/15/2018 (Pending)	No eligible resources (Archaeology 1/26/2017; Addendum I 4/21/2017) / Yes (7/28/2017; 9/18/2017)	No additional survey was required; No species affected (10/26/2017)	No
6.0R ⁵	Minor alignment/workspace modification 3' ±.	Parcel Rectification	STLP-A-1007 (15)	MMID 6509 MMID 6510 MMID 6508	Yes	Agricultural, Open Land, Forest, and Developed	Yes - No additional survey was required. Equivalent impacts to streams and wetlands.	Supplemental information provided to USACE 1/12/2018 (Pending)	No eligible resources (Archaeology 1/26/2017) / Yes (7/28/2017)	No additional survey was required; No species affected (10/26/2017)	No

Note:

- ¹ This table summarizes changes that have occurred since the supplemental information filed on October 6, 2017, and recognizes that three changes requested on October 6, 2017 were not included in the FERC Order. Changes smaller than ½ of the diameter of the pipeline (i.e., 12 inches) was not considered to be a change.
- ² Submittal listed is the most recent addendum provided to USACE that contains the impacts for the proposed Project change. See Table 1.6-1 in Attachment A for a complete list of submittals to USACE.
- ³ No impacts to architectural resources are proposed. For Illinois, architectural resource studies were provided to the IHPA on 1/26/2017, with concurrence provided 6/22/2017 and 11/15/2017. For Missouri, architectural resource studies were provided to the MO SHPO on 1/26/2017, 4/21/2017, and 11/14/2017, with concurrence dated 11/29/2017.
- ⁴ Spire is notifying FERC of these workspace changes; however, these are not considered variance requests as these are changes reducing workspace. These changes are reflected in the construction alignment sheets included in Appendix C.
- ⁵ Areas of parcel rectification.