

August 19, 2019

VIA ELECTRONIC MAIL
opcservice@ded.mo.gov

Ms. Lera Shemwell and Mr. John Clizer
Office of the Public Counsel
200 Madison Street
Jefferson City, MO 65101

Re: GO-2019-0356 and GO-2019-0357; Objection to DRs 8503, 8504, 8507, 8508

Dear Lera and John:

Spire Missouri Inc. (“Spire”) received DRs 8501-8517 from the Office of Public Counsel (“OPC”) on August 9, 2019 for both Spire East and Spire West. Spire objects to the four DRs referenced above for the reasons set forth below.

DR8503

Please provide the pipe tolerances for inner diameter and outer diameter for each main type and size that Spire currently has in use in each service territory.

Objection: Spire objects to this data request as being overly broad and unduly burdensome and not reasonably calculated to lead to the discovery of admissible information relevant to the issues in this proceeding. Spire does not generally track and maintain the information sought in this data request because it does not have a business reason for doing so. Spire also does not believe that the resulting information would be relevant to the issues in this proceeding because it does not in any way bear on the eligibility of the facilities costs included in the ISRS filings. Notwithstanding such objection, as part of Spire’s current processes and procedures, Spire utilizes pipes with inner diameters and outer diameters that comply with any applicable industry or regulatory standards for their intended use. Please see Attachment OPC DR8503 for a summary of pipe sizes purchased since 2012.

DR 8504

Please provide the pipe tolerances for inner diameter and outer diameter for each service type and size that Spire currently has in use in each service territory.

Objection: Spire objects to this data request as being overly broad and unduly burdensome and not reasonably calculated to lead to the discovery of admissible information relevant to the issues in this proceeding. Spire does not generally track and maintain the information sought in this data request because it does not have a business

reason for doing so. Spire also does not believe that the resulting information would be relevant to the issues in this proceeding because it does not in any way bear on the eligibility of the facilities costs included in the ISRS filings. Notwithstanding such objection, as part of Spire's current processes and procedures, Spire utilizes pipes with inner diameters and outer diameters that comply with any applicable industry or regulatory standards for their intended use. Please see Attachment OPC DR8503 for a summary of pipe sizes purchased since 2012.

DR 8507

Please list by size and type of main in use in each service territory the average corrosion rate of mains that Spire experiences annually.

- a. Please provide all documentation related to the same.

Objection: This question is vague, in that it is unknown what is meant by "average corrosion rate" or what information the question is asking Spire to provide. Until and unless the intended meaning of this term is clarified, it is not possible for Spire to provide a response.

DR 8508

Please list by size and type of service in use in each service territory the average corrosion rate of services that Spire experiences annually.

- a. Please provide all documentation related to the same.

Objection: This question is vague, in that it is unknown what is meant by "average corrosion rate" or what information the question is asking Spire to provide. Until and unless the intended meaning of this term is clarified, it is not possible for Spire to provide a response.

Please do not hesitate to contact me if you would like to discuss any other these objections.

Sincerely,

/s/ Goldie T. Bockstruck

Goldie T. Bockstruck MoBar#58759

Director, Associate General Counsel

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cc: Wes Selinger
Scott Weitzel
David Abernathy

OPC Data Request 8501-8517, GO-2019 0356 & GO-2019-0357 Response

8501. Please provide by type and size the total number of miles of main currently in use in each service territory.

- a. If Spire is incapable of determining any of these numbers, please provide the best possible approximations in its answer.
- b. Please provide all documentation Spire relies on to support its answers.

Please see Attachment OPC DR8501a and OPC DR8501b.

8502. Please provide by type and size the total number of miles of services currently in use in each service territory.

- a. If Spire is incapable of determining any of these numbers, please provide the best possible approximations in its answer.
- b. Please provide all documentation Spire relies on to support its answer.

Please see Attachment OPC DR8501a and OPC DR8501b.

8503. Please provide the pipe tolerances for inner diameter and outer diameter for each main type and size that Spire currently has in use in each territory.

Please see objections dated August 19, 2019. Notwithstanding such objection, as part of Spire's current processes and procedures, Spire utilizes pipes with inner diameters and outer diameters that comply with any applicable industry or regulatory standards for their intended use. Please see Attachment OPC DR8503 for a summary of pipe sizes purchased since 2012.

8504. Please provide the pipe tolerances for inner and outer diameter for each service type and size that Spire currently has in use in each service territory.

Please see objections dated August 19, 2019. Notwithstanding such objection, as part of Spire's current processes and procedures, Spire utilizes pipes with inner diameters and outer diameters that comply with any applicable industry or regulatory standards for their intended use. Please see Attachment OPC DR8503 for a summary of pipe sizes purchased since 2012.

8505. For each main type and size that Spire currently has in use in each service territory, what is the average age of mains in the system?

- a. If Spire is incapable of determining the average of any of the main types, please provide Spire's best possible approximations of the average age.
- b. Please provide all documentation Spire relies on to support its answer.

The average service life of the mains in Spire's distribution system was thoroughly examined and determined by competent depreciation professionals in the depreciation studies submitted in Spire's last general rate cases, GO-2017-0215 and GO-2017-0216. No

party to those cases challenged these studies or raised issues questioning the validity of those studies. In addition, the footage and vintage of all mains and services retired with ISRS projects is provided to the Public Service Commission Staff and OPC in the supporting work papers in each of Spire's ISRS filings.

8506. For each service type and size that Spire currently has in use in each service territory, please provide the average age of services in the system.

- a. If Spire is incapable of determining the average age of any of the services, provide Spire's best possible approximations of the average age.
- b. Please provide all documentation Spire relies on to support its answer.

The average service life of the services in Spire's distribution system was thoroughly examined and determined by competent depreciation professionals in the depreciation studies submitted in Spire's last general rate cases, GO-2017-0215 and GO-2017-0216. No party to those cases challenged these studies or raised issues questioning the validity of those studies. In addition, the footage and vintage of all mains and services retired with ISRS projects is provided to the Public Service Commission Staff and OPC in the supporting work papers in each of Spire's ISRS filings.

8507. Please list by size and type of main in use in each service territory the average corrosion rate of mains that Spire experiences annually.

Corrosion rate is the speed at which any metal in a specific environment deteriorates. It also can be defined as the amount of corrosion loss per year in thickness. The speed or rate of deterioration depends on the environmental conditions and the type and condition of the metal under reference.

Mils per year or MPY is used to give the corrosion rate in a pipe, a pipe system or other metallic surfaces. It is used to calculate the material loss or weight loss of a metal surfaces. Corrosion rates are usually expressed as a penetration rate in "inches per year" or "melts per year (MPY)" (where a melt = 10^{-3} inches).

Average is a number expressing the central or typical value in a set of data, in particular the mode, median, or (most commonly) the mean, which is calculated by dividing the sum of the values in the set by their number.

- a. Please provide all documentation related to the same.

Spire Missouri does not track the average corrosion rate of its mains and therefore such information is not available.

8508. Please list by size and type of service in use in each service territory the average corrosion rate of services that Spire experiences annually.

Corrosion rate is the speed at which any metal in a specific environment deteriorates. It also can be defined as the amount of corrosion loss per year in thickness. The speed or rate of

deterioration depends on the environmental conditions and the type and condition of the metal under reference.

Mils per year or MPY is used to give the corrosion rate in a pipe, a pipe system or other metallic surfaces. It is used to calculate the material loss or weight loss of a metal surfaces.

Corrosion rates are usually expressed as a penetration rate in “inches per year” or “mils per year (MPY)” (where a mil = 10^{-3} inches).

Average is a number expressing the central or typical value in a set of data, in particular the mode, median, or (most commonly) the mean, which is calculated by dividing the sum of the values in the set by their number.

a. Please provide all documentation related to the same.

Spire Missouri does not track the average corrosion rate of its services and therefore such information is not available.

8509. Please provide the plant-in-service values and accumulated depreciation reserve values for main accounts and service accounts as of 12/31/2018 and 6/30/2019.

Please see Attachment OPC DR8509.

8510. What is Spire’s evaluation of the current general condition of its distribution system both as a whole and by main type?

The current general condition of Spire’s distribution system is reflected in a variety of reports that Spire or the Gas Safety Staff of the Missouri Commission prepare on an annual basis. These include, among others, the annual Gas Distribution Report that the Company submits to PHMSA and the annual report that the Gas Safety Staff prepares based on its annual safety audit of the Company’s safety practices and distribution facilities. One metric of particular note is the reduction in the backlog of leaks waiting to be eliminated or repaired at year end on the gas distribution systems of operators in the state of Missouri. See <https://portal.phmsa.dot.gov/analyticsSOAP/saw.dll?Portalpages>

The Company believes that this reduction in leaks is largely attributable to the Company’s systematic replacement program as well as the safety related investments made by other Missouri utilities as result of the ISRS mechanism. Such results demonstrate that the ISRS mechanism is working as intended to make gas distribution systems in Missouri safer. While significant progress has been made, however, it is critical from a public safety standpoint that the ISRS mechanism continue to be allowed to operate in accordance with this underlying statutory purpose so that additional progress can be made in the future.

8511. Is it Spire’s position that PHMSA’s Distribution Integrity Management Program (DIMP) requires Spire to replace all its cast iron mains?

The DIMP prepared by Spire in compliance with the Commission’s gas safety rules is designed to identify and rank the various risks to public safety involving its distribution

system. The threats of Cast Iron Graphitization, Cast Iron Fractures, and Bell Joint Repairs are identified as high risk in the Company's DIMP Plan and the Company's systematic cast iron replacement program is the primary measure for mitigating and ultimately eliminating this risk. As discussed in the Company's response to OPC DR 8515, the requirement to replace such facilities also arises from multiple other sources and authorities, including the Company's obligation to maintain safe and adequate service, the Commission's rules requiring the replacement of such facilities, the recommendations of federal and state pipeline safety officials that such facilities should be replaced on an accelerated basis, the observations of Company personnel over many years regarding the condition of such facilities, and explicit findings of this Commission regarding the condition of such facilities in prior ISRS cases.

a. If so, please identify all portions of Spire's DIMP on which it relies to support its position.

Please see the Company's response to OPC DR 8511.

8512. Is it Spire's position that the DIMP proves that its cast iron mains are worn out or in a deteriorated condition as those terms are used in §393.1009(5)(a)?

It is Spire's position that the ISRS eligibility of its cast iron mains, including the fact that such facilities are in a worn out or deteriorated condition as those terms are used in §393.1009(5)(a), has been proven on multiple occasions based on evidence presented in multiple ISRS proceedings. As discussed in its response to OPC DR's 8511 and 8515, this conclusion, which has been explicitly endorsed by the Commission, arises from multiple sources and authorities. The Company's DIMP, and its ranking of the risks posed by such facilities, is fully consistent with and supportive of this conclusion.

a. If so, please identify all portions of Spire's DIMP on which it relies to support its position.

Please see the Company's response to OPC DR 8512.

8513. Is it Spire's position that the DIMP requires replacement of non-protected steel mains?

The DIMP prepared by Spire in compliance with the Commission's gas safety rules is designed to identify and rank the various risks to public safety involving its distribution system. The threat of bare steel service corrosion is identified as high risk and the Company's systematic replacement program for these facilities is the primary measure for mitigating and ultimately eliminating this risk. As discussed in the Company's response to OPC DR 8515, the requirement to replace such facilities also arises from multiple other sources and authorities, including the Company's obligation to maintain safe and adequate service, the Commission's rules requiring the replacement of such facilities, the recommendations of federal and state pipeline safety officials that such facilities should be replaced on an accelerated basis, the observations of Company personnel over many years regarding the condition of such facilities, and explicit findings of this Commission regarding the condition of such facilities in prior ISRS cases.

a. If so, please identify all portions of Spire's DIMP on which it relies to support its position.

Please see the Company's response to OPC DR 8513

8514. Is it Spire's position that the DIMP proves that its non-protected steel mains are worn out or in a deteriorated condition as those terms are used in §393.1009(5)(a)?

It is Spire's position that the ISRS eligibility of its bare steel service facilities, including the fact that such facilities are in a worn out or deteriorated condition as those terms are used in §393.1009(5)(a), has been proven on multiple occasions based on evidence presented in multiple ISRS proceedings. As discussed in its response to OPC DR8515, this conclusion, which has been explicitly endorsed by the Commission, arises from multiple sources and authorities. The Company's DIMP, and its ranking of the risks posed by such facilities, is fully consistent with and supportive of this conclusion.

a. If so, please identify all portions of Spire's DIMP on which it relies to support its position.

Please see the Company's response to OPC DRs 8513, 8512 and 8515.

8515. Does Spire rely on any other documentation beyond the DIMP to prove that its pipes are worn out or in a deteriorated condition as those terms are used in §393.1009(5)(a)?

Yes. Please see the Direct Testimony and Schedules filed by a Craig R. Hoeflerlin in this proceeding which summarizes the findings and recommendations of federal and state safety officials attesting to the worn out or deteriorated condition of these facilities as well as the statutory and rule provisions that require the elimination of such facilities. Also please see the Commission's Report and Orders in the Company's 2018 and 2019 ISRS cases that confirm the worn out or deteriorated condition of these facilities. Also see the material that OPC attached to its testimony in the Company's most recent ISRS proceedings which demonstrated that cast iron and unprotected steel facilities were already in a worn-out or deteriorated condition more than 7 decades ago when the Company first began to implement replacement programs to eliminate such facilities. In short, the fact that such facilities are in a worn out or deteriorated condition has been repeatedly confirmed.

a. If so, please provide a copy of all such documentation.

Please see the response to OPC DR 8515.

8516. Does Spire believe that all of the cast iron mains currently in use in each service territory are worn out or in a deteriorated condition as those terms are used in §393.1009(5)(a)?

Yes. They are without question in a worn out or deteriorated condition as those terms are used in §393.1009(5)(a).

a. If not, how does Spire distinguish which cast iron mains are worn out from those that are not?

N/A

8517. Does Spire believe that all of the non-protected steel mains currently in use in each service territory are worn out or in a deteriorated condition as those terms are used in §393.1009(5)(a)?

Yes to the extent this question is applicable to bare steel services.

a. If not, how does Spire distinguish which non-protected steel mains are worn out from those that are not?

N/A

Steel Iron Main - Plant and Reserve Balances

<u>Company</u>	<u>Plant Account</u>	<u>End Date</u>		<u>Plant Balance</u>	<u>Reserve Balance</u>
Missouri East	376100-Mains - Steel	12/31/2018	\$	237,514,163.87	\$ 140,154,562.04
Missouri East	376100-Mains - Steel	6/30/2019	\$	240,000,416.05	\$ 140,122,755.27
Missouri West	376100-Mains - Steel	12/31/2018	\$	235,446,129.69	\$ 104,420,483.46
Missouri West	376100-Mains - Steel	6/30/2019	\$	240,445,700.48	\$ 102,442,960.89

Plastic Main - Plant and Reserve Balances

<u>Company</u>	<u>Plant Account</u>	<u>End Date</u>		<u>Plant Balance</u>	<u>Reserve Balance</u>
Missouri East	376300-Mains - Plastic	12/31/2018	\$	564,354,114.30	\$ 86,389,474.42
Missouri East	376300-Mains - Plastic	6/30/2019	\$	596,106,968.31	\$ 88,509,763.78
Missouri West	376300-Mains - Plastic	12/31/2018	\$	456,716,558.39	\$ 83,194,534.16
Missouri West	376300-Mains - Plastic	6/30/2019	\$	497,768,148.50	\$ 85,097,303.87

Cast Iron Main - Plant and Reserve Balances

<u>Company</u>	<u>Plant Account</u>	<u>End Date</u>		<u>Plant Balance</u>	<u>Reserve Balance</u>
Missouri East	376200-Mains - Cast Iron	12/31/2018	\$	25,389,658.63	\$ (920,285.63)
Missouri East	376200-Mains - Cast Iron	6/30/2019	\$	29,146,658.20	\$ (1,744,094.95)
Missouri West	376.20 - Mains - Cast Iron	12/31/2018	\$	36,559,010.24	\$ 7,627,215.96
Missouri West	376.20 - Mains - Cast Iron	6/30/2019	\$	36,436,284.33	\$ 6,457,911.03

Services - Plant and Reserve Balances

<u>Company</u>	<u>Plant Account</u>	<u>Retirement Unit</u>	<u>End Date</u>	<u>Plant Balance</u>	<u>Reserve Balance</u>
Missouri East	380100-Services - Steel	Services - Steel	12/31/2018	\$ 39,189,716.83	\$ 36,333,748.94
Missouri East	380200-Services - Plastic & Copper	Services - Plastic	12/31/2018	\$ 701,649,399.62	\$ 253,830,369.97
Missouri East	380200-Services - Plastic & Copper	Services - Copper	12/31/2018	\$ 8,415,951.05	\$ 9,729,795.71
				<u>\$ 749,255,067.50</u>	<u>\$ 299,893,914.62</u>
Missouri East	380100-Services - Steel	Services - Steel	6/30/2019	\$ 39,150,138.39	\$ 36,176,747.15
Missouri East	380200-Services - Plastic & Copper	Services - Plastic	6/30/2019	\$ 724,950,058.35	\$ 257,593,814.33
Missouri East	380200-Services - Plastic & Copper	Services - Copper	6/30/2019	\$ 8,121,890.19	\$ 9,394,683.68
				<u>\$ 772,222,086.93</u>	<u>\$ 303,165,245.16</u>
Missouri West	380100-Services - Steel	Services - Steel	12/31/2018	\$ 7,090,114.69	\$ 4,632,875.20
Missouri West	380200-Services - Plastic & Copper	Services - Plastic	12/31/2018	\$ 439,085,067.74	\$ 219,149,209.78
Missouri West	380200-Services - Plastic & Copper	Services - Copper	12/31/2018	\$ -	\$ -
				<u>\$ 446,175,182.43</u>	<u>\$ 223,782,084.98</u>
Missouri West	380100-Services - Steel	Services - Steel	6/30/2019	\$ 6,965,403.30	\$ 4,429,552.32
Missouri West	380200-Services - Plastic & Copper	Services - Plastic	6/30/2019	\$ 449,857,645.99	\$ 219,127,694.52
Missouri West	380200-Services - Plastic & Copper	Services - Copper	6/30/2019	\$ -	\$ -
				<u>\$ 456,823,049.29</u>	<u>\$ 223,557,246.84</u>

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of the Application of Spire Missouri,)
Inc. to Change its Infrastructure System) File No. GO-2019-0356
Replacement Surcharge in its Spire Missouri)
East Service Territory)

In the Matter of the Application of Spire Missouri,)
Inc. to Change its Infrastructure System) File No. GO-2019-0357
Replacement Surcharge in its Spire Missouri)
West Service Territory)

**PUBLIC COUNSEL DATA REQUESTS 8518-8519 TO
SPIRE MISSOURI, INC.**

The Office of Public Counsel (Public Counsel) hereby provides the following Data Requests to Spire Missouri, Inc. (Company) pursuant to the Commission’s Rule 4 CSR 240-2.090. Public Counsel is requesting Company to respond to these requests within twenty (20) days of receipt. Please provide electronic responses to the following: opcservice@ded.mo.gov.

DEFINITIONS

As used herein, the words “document” or “documents” include any original and all copies of any written, printed, typed, electronically stored, or graphic matter of any kind or nature, however produced or reproduced, now in your possession, custody or control, or in the possession, custody or control of your agents, representatives, employees of you or any and all persons acting in your behalf, including documents at any time in the possession, custody or control of such individuals or entities, or known by you to exist.

DATA REQUESTS

8518. For each photograph attached to the direct testimony of Craig R. Hoeflerlin:

- a. Please identify the person who took each photo
- b. Please provide the date the each photo was taken
- c. Please identify the type of pipe in each photo (size and material)
- d. Please indicate whether these photos of Spire MO pipes?

- e. Please indicate if the condition of the pipes found in each photo is similar to condition of all of Spire's pipes and, if not, how Spire identifies which pipes are in the same condition as those pictured?
- f. Please indicate if any of these pipes were replaced as a result of or in relation to leak detection testing and include all documentation regarding same?
- g. Please provide the project and phase from which each of these photos was taken

Response:

First Photo of Schedule CRH-5

- a. This photo was presumably taken by the Commission's Gas Safety Staff as it was extracted from a Staff investigation report; however, the name of the photographer is unknown.
- b. The exact date of this photo is unknown, but the incident occurred January 17, 1991 and the photo would have been within a few months of that date.
- c. 6" Cast Iron
- d. Yes.
- e. The condition of the Company's pipes varies; however, the condition of this pipe is well within the realm of what the Company sees when pipe is exposed or as a result of a leak investigation or leak survey.
- f. This pipe was replaced due to an incident at this location.
- g. This was replaced as part of a repair.

Second photo through the second to last photo of Schedule CRH-5

- a. This photo was taken by a Spire employee.
- b. The photo was taken December 10, 2018
- c. 12" Cast Iron
- d. Yes.
- e. While a hole of this size is not typical the condition of the surrounding pipe is fairly common and we certainly get many fractures even if these were particularly large.
- f. The pipe was replaced because of the fracture.
- g. This was replaced as part of a repair.

Last photo of Schedule CRH-5

- a. This photo was presumably taken by the Commission's Gas Safety Staff as it was extracted from a Staff investigation report; however, the name of the photographer is unknown.
- b. The photo was taken December 30, 2008.
- c. 4" Cast Iron
- d. Yes.
- e. No. This pipe had a fracture area around the circumference of the 4-inch cast iron main. Spire identifies areas that a leak may be present and depending on leak class classification and addresses the leak.
- f. On January 7, 2009, Laclede/Spire abandoned in-place the repaired section of 4-inch low-pressure CI natural gas main along Steins street that had fractured. The CI main was cut and capped at a location that was 5 feet 5 inches north of the centerline of Steins street and 1-foot west of the centerline of Ivory Avenue. This involved the abandonment of approximately 382 feet of 4-inch natural gas CI main.
- g. This was abandoned as part of a repair.

8519. Did Mr. Hoeflerlin personally observe the condition of any of the pipes included in his

attached photos at or near the time that those photos were taken?

Response: Mr. Hoferlin did not personally observe the condition of the pipes included in his attached photos. However, as stated above, the photos attached to Mr. Hoferlin's testimony are examples of the condition of pipe the Company sees when pipe is exposed or as a result of a leak investigation or leak survey.

*Issued 8/23/19
Submitted on behalf of John Robinett*

**BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI**

In the Matter of the Application of Spire Missouri,)
Inc. to Change its Infrastructure System) File No. GO-2019-0356
Replacement Surcharge in its Spire Missouri)
East Service Territory)

In the Matter of the Application of Spire Missouri,)
Inc. to Change its Infrastructure System) File No. GO-2019-0357
Replacement Surcharge in its Spire Missouri)
West Service Territory)

**RESPONSES OF SPIRE MISSOURI INC TO PUBLIC
COUNSEL DATA REQUESTS 8520-8542**

Presented below are the responses of Spire Missouri Inc. (“Spire” or “Company”) to Public Counsel Data Request Nos. 8520-8542.

RESPONSES TO DATA REQUESTS

8520. Please provide a copy of the Annual Gas Distribution System Report prepared for the US Department of Transportation (consistent with the versions supplied in Spire’s response to OPC DR 8501 and 8502) for calendar Years 2017, 2016, and 2015 for each Spire service territory.

Response: Please see Attachment OPC DR 8520 on the flash drive delivered for information responsive to this request.

8521. OPC DR 8505 requested the average age of mains in Spire’s system for each main type and size that Spire currently has in use in each service territory. Spire responded by stating as follows:

The average service life of the mains in Spire’s distribution system was thoroughly examined and determined by competent depreciation professionals in the depreciation studies submitted in Spire’s last general rate cases, GO-2017-0215 and GO-2017-0216. No party to those cases challenged these studies or raised issues questioning the validity of those studies. In addition, the footage and vintage of all mains and services retired with ISRS projects is provided to the Public Service Commission Staff and OPC in the supporting work papers in each of Spire’s ISRS filings.

This is not responsive to the question that was asked. The OPC wishes to know the **age** of Spire’s pipes, not their average service life, and further wants to know those ages broken down by pipe size and material. This includes those pipes that Spire has **not yet** retired.

The OPC notes that the *Annual Report for Calendar Year 2018 Gas Distribution System* Spire provided in response to OPC's DR 8501 and 8502 included a section titled *Miles of Main and Number of Services by Decade of Installation*. Therefore, Spire would appear to have at least some records regarding the Installation dates (and hence ages) of its pipes. The OPC wants this information, again broken down by pipe size and material if possible. The OPC further notes that 4 CSR 240-40.040 (J) requires Spire to quote:

Maintain records which classify, for each plant account, the amounts of the annual additions and retirements so as to show the number and cost of the various record units or retirement units by vintage year, when implementing the provisions of Part 201 Gas Plant Instructions 11.C. and paragraph 20,051.11.C.

The OPC would expect that these records would include sub-accounts related to the various pipe material types.

Based on the forgoing, the OPC requests the following:

- a. The average **age** of mains in its system for each main type and size that Spire currently has in use in each service territory;

Response: Please see Spire's Objection Letter dated September 12, 2019.

- b. All documentation regarding or related to the *Miles of Main and Number of Services by Decade of Installation* section of the *Annual Report for Calendar Year 2018 Gas Distribution System* provided to/by the US Department of Transportation (including all documentation relied upon to develop the numbers found therein); and

Response: Please see Attachment OPC DR 8521(b) on the flash drive delivered for information responsive to this request.

- c. All documentation related to Spire's compliance with 4 CSR 240-40.040 (J) including the records mentioned therein broken down by sub-account when and where possible for each Spire service territory.

Response: Please see Spire's most recent FERC FORM 2 documents for Calendar year 2018 included as Attachment OPC DR 8521(c) on the flash drive delivered for information responsive to this request.

8522. OPC DR 8506 requested the average age of services in Spire's system for each service type

and size that Spire currently has in use in each service territory. Spire responded by stating as follows:

The average service life of the services in Spire's distribution system was thoroughly examined and determined by competent depreciation professionals in the depreciation studies submitted in Spire's last general rate cases, GO-2017-0215 and GO-2017-0216. No party to those cases challenged these studies or raised issues questioning the validity of those studies. In addition, the footage and vintage of all mains and services retired with ISRS projects is provided to the Public Service Commission Staff and OPC in the supporting work papers in each of Spire's ISRS filings.

This is not responsive to the question that was asked. The OPC wishes to know the **age** of Spire's pipes, not their average service life, and further wants to know those ages broken down by pipe size and material. This includes those pipes that Spire has **not yet** retired. The OPC notes that the *Annual Report for Calendar Year 2018 Gas Distribution System* Spire provided in response to OPC's DR 8501 and 8502 included a section titled *Miles of Main and Number of Services by Decade of Installation*. Therefore, Spire would appear to have at least some records regarding the Installation dates (and hence ages) of its pipes. The OPC wants this information broken down by pipe size and material if possible. The OPC further notes that 4 CSR 240-40.040 (J) requires Spire to quote:

Maintain records which classify, for each plant account, the amounts of the annual additions and retirements so as to show the number and cost of the various record units or retirement units by vintage year, when implementing the provisions of Part 201 Gas Plant Instructions 11.C. and paragraph 20,051.11.C.

The OPC would expect that these records would include sub-accounts related to the various pipe material types.

Based on the forgoing, the OPC requests the following:

- a. The average **age** of services in its system for each service type and size that Spire currently has in use in each service territory;

Response: Please see Spire's objection letter dated September 12, 2019.

- b. All documentation regarding or related to the *Miles of Main and Number of Services by Decade of Installation* section of the *Annual Report for Calendar Year 2018 Gas Distribution System* provided to/by the US Department of Transportation (including all documentation relied upon to develop the numbers found therein); and

Response: Please see response to OPC DR 8521(b).

- c. All documentation related to Spire’s compliance with 4 CSR 240-40.040 (J) including the records mentioned therein broken down by sub-account when and where possible for each Spire service territory.

Response: Please see response to OPC DR 8521(c).

8523. OPC DR 8507 requested the average corrosion rate of mains Spire experienced annually broken down by size and type of main. Spire responded that it does not track the average corrosion rate of its mains. The OPC notes that the Direct Testimony of Craig R. Hoeflerlin states as follows on page 3:

Regarding steel infrastructure, the Commission found that steel “that is not cathodically protected corrodes relatively quickly and needs to be replaced” as the “corrosion diminishes wall thickness which causes the possibility of leaks.”

The OPC asked its original DR hoping to understand what the phrase “corrodes relatively quickly” meant in the above referenced excerpt. Because Spire apparently does not monitor *actual* corrosion rates, the OPC will change its question accordingly.

To that end, the OPC requests that Spire:

- a. Explain what it understands the phrase “corrodes relatively quickly” as used in the direct testimony of Craig R. Hoeflerlin to mean.

Response: Spire has consistently stated its position on the effects of corrosion on its non-protected steel pipes. Spire will not attempt to speak for the Commission, but would note that the Commission’s language on corrosion is consistent with Spire’s stated position.

- b. Explain what it believes the average rate of corrosion or “Average Corrosion Rate” of its **non-cathodically protected** Steel Pipes is bearing in mind the following:

Corrosion rate is the speed at which any metal in a specific environment deteriorates. It also can be defined as the amount of corrosion loss per year in thickness. The speed or rate of deterioration depends on the environmental conditions and the type and condition of the metal under reference.

Mils per year or MPY is used to give the corrosion rate in a pipe, a pipe system or other metallic surfaces. It is used to calculate the material loss or weight loss of a metal surfaces.

Corrosion rates are usually expressed as a penetration rate in “inches per year” or “mils per year (MPY)” (where a mil = 10^{-3} inches).

Average is a number expressing the central or typical value in a set of data, in particular the mode, median, or (most commonly) the mean, which is calculated by dividing the sum of the values in the set by their number.

Response: Please see the response to OPC Data Request 8507.

- c. Provide all documentation on which Spire relies regarding its answer to (b).

Response: N/A

- d. Explain what it believes the average rate of corrosion or “Average Corrosion Rate” of its **cathodically-protected** Steel Pipes is bearing in mind the following:

Corrosion rate is the speed at which any metal in a specific environment deteriorates. It also can be defined as the amount of corrosion loss per year in thickness. The speed or rate of deterioration depends on the environmental conditions and the type and condition of the metal under reference.

Mils per year or MPY is used to give the corrosion rate in a pipe, a pipe system or other metallic surfaces. It is used to calculate the material loss or weight loss of a metal surfaces.

Corrosion rates are usually expressed as a penetration rate in “inches per year” or “mils per year (MPY)” (where a mil = 10^{-3} inches).

Average is a number expressing the central or typical value in a set of data, in particular the mode, median, or (most commonly) the mean, which is calculated by dividing the sum of the values in the set by their number.

Response: See the response to OPC Data Request 8507.

- e. Provide all documentation on which Spire relies regarding its answer to (d).

Response: N/A

8524. Please provide copies of all materials and documents referenced in Spire’s response to OPC DR 8510.

Response: Please see the response to OPC Data Request 8520.

8525. OPC DR 8512 asked if it is Spire's position that the DIMP proves that its cast iron mains are worn out or in a deteriorated condition as those terms are used in §393.1009(5)(a). Spire provided a lengthy response that indicated the DIMP's ranking system was "consistent" with its pipes being worn out or deteriorated but did not state that the DIMP actually said that its pipes were worn out or deteriorated. Therefore, please confirm that Spire's DIMP does not at any point state that the cast iron pipes Spire replaced and are seeking recovery for in this ISRS case are in a worn out or deteriorated condition. If Spire does not agree with this statement, please provide explicit excerpts from Spire's DIMP wherein the DIMP states the cast iron pipes Spire replaced in this case are in a worn out or deteriorated condition.

Response: Spire has previously stated that its DIMP plan does not, alone, prove its cast iron mains are in a worn out or deteriorated state. However, as stated in prior Data Request responses Spire's DIMP consistently shows cast iron as one of the highest priority risks on its system.

8526. OPC DR 8514 asked if it is Spire's position that the DIMP proves that its unprotected steel mains are worn out or in a deteriorated condition as those terms are used in §393.1009(5)(a). Spire provided a lengthy response that indicated the DIMP's ranking system was "consistent" with its pipes being worn out or deteriorated but did not state that the DIMP actually said that its pipes were worn out or deteriorated. Therefore, please confirm that Spire's DIMP does not at any point state that the non-cathodically protected

steel pipes Spire replaced and are seeking recovery for in this ISRS case are in a worn out or deteriorated condition. If Spire does not agree with this statement, please provide explicit excerpts from Spire's DIMP wherein the DIMP states the non-cathodically protected steel pipes Spire replaced in this case are in a worn out or deteriorated condition.

Response: Spire does not have non-cathodically protected steel mains on record in its system.

8527. Please confirm that Spire's DIMP does not at any point state that the non-cathodically protected steel services that Spire replaced and are seeking recovery for in this ISRS case are in a worn out or deteriorated condition. If Spire does not agree with this statement, please provide explicit excerpts from Spire's DIMP wherein the DIMP states the non-cathodically protected steel services Spire replaced in this case are in a worn out or deteriorated condition.

Response: Spire has previously stated that it's DIMP plan does not, alone, prove its unprotected steel services are in a worn out or deteriorated state. However, as stated in prior Data Request responses, Spire's DIMP consistently shows unprotected steel among its highest priority risks on its system.

8528. Does Spire believe that it is subject to either a state or federal mandate to replace **cathodically protected** steel mains?

Response: Yes, especially in those circumstances, such as those applicable here, where the steel mains at issue were not coated or cathodically protected when first installed. Under such circumstances, it has been widely recognized in the industry that the application of post-installation cathodic protection is not a long-term solution for ensuring the safety and integrity of such facilities and that replacement is ultimately required. The need to pursue a more aggressive replacement of the rather large quantity of MGE's/Spire West's protected bare steel mains was also noted by the PSC safety staff at the time Laclede acquired those properties.

a. If so, please indicate the source of said mandate and provide all documentation related to the same.

Response: Please see Missouri Revised Statute Sections 386.310 and 393.190.1 and PSC Rule - 20 CSR 4240-40 (15)(E). Please also see Commission Case No. GO-2002-50 approving MGE's Safety Line Replacement Program, which requires replacement of MGE's cathodically protected bare steel mains.

8529. Does Spire believe that it is subject to either a state or federal mandate to replace **cathodically protected** steel services?

Response: Yes. Please see response to DR No. 8528.

- a. If so, please indicate the source of said mandate and provide all documentation related to the same.

Response: Please see response to DR No. 8528.

8530. Please identify whether the retired service amounts for steel services found in the Work Order Authorization Sheets (provided by Spire as work papers) are in number of services, footage of pipe retired, or some other quantity. [TO CLARIFY: the first Work Order Authorization Sheet found in the file labeled "ISRS Mo-East Additions WO Authorization Sheets Updated" is for work order 901048. On page 12 of 13, the Utility Account Total Retired Quantity for Steel Services was 676. Please indicate whether this 676 is the total number of steel services retired, the total footage of steel services retired, or some other measure of quantity.].

Response: The figures are for retired footage.

- a. if the answer to the above question is some other measure of quantity, please explain that measure and provide the best possible means of converting that measure into either number of services retired or footage of pipe retired

Response: N/A

8531. Please verify that the retired main amounts for cast iron mains found in the Work Order Authorization Sheets provided by Spire as work papers represents the footage of pipe retired or else explain what those quantities represent. [TO CLARIFY: the first Work Order Authorization Sheet found in the file labeled "ISRS Mo-East Additions WO Authorization Sheets Updated" is for work order 901048. On page 11 of 13, the Utility Account Total

Retired Quantity for Cast Iron Mains was 4,612. Please confirm that this 4,612 represents the footage of pipe retired or else explain what this quantity represents.].

Response: The figures are for retired footage.

8532. Please verify that the retired main amounts for steel mains found in the Work Order Authorization Sheets provided by Spire as work papers represents the footage of pipe retired or else explain what those quantities represent. [TO CLARIFY: the first Work Order Authorization Sheet found in the file labeled “ISRS Mo-East Additions WO Authorization Sheets Updated” is for work order 901048. On page 10 of 13, the Utility Account Total Retired Quantity for Steel Mains was 453. Please confirm that this 453 represents the footage of pipe retired or else explain what this quantity represents.].

Response: The figures are for retired footage.

8533. Please provide a narrative response describing the capping process that Spire employs when it abandons pipes in the ground.

Response: All mains that are to be abandoned will have gauges installed at the capping locations. The main will be stopped by bagging, stopper installation or squeezing depending on the pipe material and size at each location. After a period of time to allow the system to stabilize, the main will be cut and a cap installed. The crew will then move to the next location and perform the same series of steps until all locations have been completed. The abandoned gas mains will then be purged of gas and the abandoned gas main either capped at the final location or plugged in some other manner to prevent migration of any subsurface material within the pipe.

8534. Is it Spire’s position that the worn out or deteriorated nature of its non-cathodically protected steel mains pose a safety risk?

Response: As stated in response to DR 8526 above, Spire does not non-cathodically protected steel mains on record in its system.

8535. Is it Spire’s position that the worn out or deteriorated nature of its cast iron mains pose a safety risk?

Response: As stated above in response to DR 8525, cast iron mains are consistently ranked among the highest items in Spire’s risk analysis. Spire works closely with and is heavily regulated by the Commission’s Gas Safety Staff ensuring these risks are effectively managed and addressed.

8536. Is it Spire’s position that the worn out or deteriorated nature of its non-cathodically protected steel service pose a safety risk?

Response: As stated above in response to DR 8527, unprotected steel services are consistently ranked among the highest items in Spire’s risk analysis. Spire works closely with and is heavily regulated by the Commission’s Gas Safety Staff ensuring these risks are effectively managed and addressed

8537. OPC DR 8517 asked if Spire believes that all of the non-protected steel mains currently in use in each service territory are worn out or in a deteriorated condition as those terms are used in §393.1009(5)(a)? Spire responded “Yes to the extent this question is applicable to bare steel services.” Please indicate whether it is Spire’s position that all of the non-cathodically protected steel **mains** it currently has in use in each service territory are worn out or in a deteriorated condition as those terms are used in §393.1009(5)(a)?

Response: Spire does not have unprotected steel mains on record in its system.

a. If not, how does Spire distinguish which non-cathodically protected steel mains are worn out from those that are not?

Response: N/A

8538. OPC DR 8517 asked if Spire believes that all of the non-protected steel mains currently in use in each service territory are worn out or in a deteriorated condition as those terms are used in §393.1009(5)(a)? Spire responded “Yes to the extent this question is applicable to bare steel services.” Please confirm that it is Spire’s position that all of the non-cathodically protected steel **services** it currently has in use in each service territory are worn out or in a deteriorated condition as those terms are used in §393.1009(5)(a)?

Response: Yes, that is Spire’s position.

a. If not, how does Spire distinguish which non-cathodically protected steel services are worn out from those that are not?

Response: N/A

8539. Please provide a copy of the five most recent financial statements or other reports that Spire has filed with the United States Securities and Exchange Commission wherein Spire has disclosed that all of its cast iron mains are in a worn out or deteriorated condition.

Response: Spire has not included specific statements in its filings that its cast iron mains are in a worn out or deteriorated condition since there is a widespread understanding that virtually all facilities become worn out or deteriorate over time, including cast iron mains used by a utility to distribute natural gas. Investors are generally familiar with the basic concept of depreciation and therefore comprehend

this reality without the need for specific disclosures. That these facilities are either worn out or in a deteriorated condition is also evident in the pertinent financial information associated with its ISRS mechanism and ISRS regulatory proceedings which is included in these SEC filings.

Spire has not disclosed that its cast iron mains are in a worn out or deteriorated condition; however, Spire has included pertinent financial information associated with its ISRS mechanism and ISRS regulatory proceedings.

- a. If no such financial statement or other report exists, please confirm that Spire has never disclosed to the United States Securities and Exchange Commission that all of its cast iron mains are in a worn out or deteriorated condition

Response: Spire has not disclosed that its cast iron mains are in a worn out or deteriorated condition.

8540. Please provide a copy of the five most recent financial statements or other reports that Spire has filed with the United States Securities and Exchange Commission wherein Spire has disclosed that all of its non-cathodically protected steel mains are in a worn out or deteriorated condition.

Response: Spire has not disclosed that its non-cathodically protected steel mains are in a worn out or deteriorated condition as Spire does not have non-cathodically protected steel mains on record in its system.

- a. If no such financial statement or other report exists, please confirm that Spire has never disclosed to the United States Securities and Exchange Commission that all of its non-cathodically protected steel mains are in a worn out or deteriorated condition.

Response: Please see Spire's response above.

8541. Please provide a copy of the five most recent financial statements or other reports that Spire has filed with the United States Securities and Exchange Commission wherein Spire has disclosed that all of its non-cathodically protected steel services are in a worn out or deteriorated condition.

Response: Spire has not included specific statements in its filings that its non-cathodically protected steel services are in a worn out or deteriorated condition since there is a widespread understanding that virtually all facilities become worn out or deteriorate over time, including steel mains used by a utility to distribute natural gas. Investors are generally familiar with the basic concept of depreciation and therefore comprehend this reality without the need for specific disclosures. That these facilities

are either worn out or in a deteriorated condition is also evident in the pertinent financial information associated with its ISRS mechanism and ISRS regulatory proceedings which is included in these SEC filings.

- a. If no such financial statement or other report exists, please confirm that Spire has never disclosed to the United States Securities and Exchange Commission that all of its non-cathodically protected steel services are in a worn out or deteriorated condition

Response: Please see the response to DR No. 8541.

8542. Please identify the last year in which Spire installed new **non-cathodically protected** steel services.

Response: Spire is unable to identify the specific year in which Spire installed new non-cathodically protected steel services.

- a. If Spire is incapable of identifying a specific year, please indicate the best estimation for when Spire ceased installation of new **non-cathodically protected** steel services

Response: Spire has not installed new non-cathodically protected steel services since the 1950's at Spire East and since the 1970's for Spire West.