Exhibit No:	
Issue:	**Worn or Deteriorated Condition of Replaced Facilities**
Witness:	**Timothy H. Goodson**
Type of Exhibit:	**Direct Testimony**
Sponsoring Party:	**Spire Missouri Inc.**
Case Nos.:	**GO-2018-0309, GO-2018-0310**
Date Prepared:	**May 13, 2020**

SPIRE MISSOURI INC.

File Nos. GO-2018-0309; 2018-0310

DIRECT TESTIMONY

OF

TIMOTHY H. GOODSON

May 2020

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DIRECT TESTIMONY OF TIM GOODSON

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Timothy Goodson, and my business address is 700 Market Street, St. Louis, Missouri, 63101.

Q. WHAT IS YOUR PRESENT POSITION?

A. I am presently employed by Spire Missouri ("Spire Missouri" or "Company") as Vice President – Field Operations.

Q. PLEASE STATE HOW LONG YOU HAVE HELD YOUR POSITION AND BRIEFLY DESCRIBE YOUR RESPONSIBILITIES.

A. I was appointed to my current position in 2015. In this capacity, I oversee all field operations of the company, including physical pipeline installation and replacement.

Q. PLEASE DESCRIBE YOUR EXPERIENCE WITH SPIRE MISSOURI PRIOR TO ASSUMING YOUR CURRENT POSITION.

A. From 2013-2014, I was the Company's Managing Director of Environmental, Health, Safety and Emergency Management.

Q. WHAT OTHER EXPERIENCE DO YOU HAVE WITH REGARDS TO PIPELINE OPERATIONS AND SAFETY?

A. Prior to joining the Company, I held various positions at AGL Resources, Inc. (now part of Southern Company). Most recently, I served as the Vice President of Operations of Nicor Gas, a natural gas LDC serving approximately two million customers in the Chicago area, with over 32,000 miles of pipeline. I previously held the positions of Vice President of Midstream Operations and Projects, and Managing Director of Environmental, Health,

Safety and Emergency Management, both for AGL Resources, Inc. In total, I have 42 years of experience in the energy, chemicals, and environmental engineering industries.

Q. WHAT IS YOUR EDUCATIONAL BACKGROUND?

A. I received a Bachelor of Science degree from Clemson University in 1976, and a Masters of Science degree from University of South Carolina in 1981.

Q. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. No.

I. PURPOSE OF TESTIMONY

Q. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?

A. The purpose of my direct testimony is to provide general background on the condition of cast iron and bare steel pipes in the Spire distribution system, based upon my personal observation of these facilities in the field, my experience with Spire's engineering department findings, my observation of specimens removed for testing and inspection, and the experience of the field teams I oversee.

ISRS STATUTE

Q. WILL YOU PLEASE DESCRIBE, IN GENERAL TERMS, THE ISRS MECHANISM.

A. In 2003, the Missouri legislature enacted the ISRS statute to allow for certain infrastructure replacement costs to be recovered by utilities more quickly and outside of a general rate case. Among other things, the ISRS legislation addressed a safety issue previously identified by the Commission related to aged cast iron and bare steel pipes. It also reduces

the regulatory cost of frequent rate cases and ensures that utility companies are able to attract investor capital to fund these multimillion-dollar efforts.

Q. HOW HAS THE ISRS STATUTE IMPACTED SPIRE AND MISSOURI?

A. At Spire, safety is our top priority. The ISRS mechanism has played a valuable role in supporting our efforts to accelerate the replacement of aged cast iron and bare steel infrastructure. In the past 10 years, pipeline replacement in Missouri has accelerated considerably. During this period, Spire has replaced more than 2,400 miles of aging pipeline across the state through the ISRS, and has reduced the anticipated time to complete its cast iron replacement program from 80-plus years to approximately 25 years. Without mechanisms such as the ISRS, which ease the financial burden of deploying large amounts of capital between rate cases, this magnitude of investment would not be possible. At the same time, the systematic replacement approach has substantially reduced the long-term cost of eliminating these problematic facilities while lower commodity costs and lower interest rates have further helped to reduce the burden on our customers.

Q. EXPLAIN HOW THE COMPANY'S ISRS FILINGS AND THE REPLACEMENT OF CAST IRON AND BARE STEEL INFRASTRUCTURE ARE RELATED?

A. Spire's systematic cast iron and bare steel main replacement programs are major components of its ISRS filings. These programs are designed to comply with the Commission's rules mandating the replacement of aged cast iron and bare steel infrastructure, found at 20 CSR 4240-40.030(15). These safety rules were promulgated by the Commission in 1989 after several gas explosions involving bare steel service and yard lines; however, as acknowledged by the Commission in Case Nos. GO-2019-0115 and GO-2019-0116, Spire has been actively engaged in replacing cast iron and steel pipes since the

1950's. Spire employs a systematic, neighborhood approach to conducting these programs which has resulted in improved system integrity and reliability, efficient operations and customer savings related to not only the replacements themselves, but also by reducing the ongoing maintenance needs and operating costs of the Company's distribution system.

CAST IRON AND BARE STEEL

Q. PLEASE EXPLAIN THE PROBLEMATIC CHARACTERISTICS OF CAST IRON AND BARE STEEL PIPE.

A. There is no question that there are clear safety-related concerns regarding aging cast iron and bare steel infrastructure. The cast iron and bare steel pipes being retired or replaced as part of Spire's ISRS projects are 50-100+ years old. While there has certainly been an increased focus in more recent years on eliminating cast iron and bare steel pipe given some of the very serious incidents that have occurred involving such facilities, it is important to recognize that the problematic characteristics of these facilities has been known for some time. Cast iron facilities experience graphitic corrosion that weakens their integrity without impacting wall thickness, whereas uncoated "bare" steel facilities experience oxidative and reductive corrosion, even where cathodic protection has been later applied.

Q. ARE THE CONCERNS REGARDING CAST IRON AND BARE STEEL PIPE SHARED BY FEDERAL REGULATORY ORGANIZATIONS AND THE NATURAL GAS INDUSTRY?

A. Yes. It is widely accepted by leading industry experts and organizations, as well as the scientific community, that there are significant risks associated with cast iron and bare steel

infrastructure and that there is an acute need to implement aggressive programs to remove this pipe from service. Following tragic incidents in 2010 and 2011, the Secretary of the Department of Transportation, Ray LaHood, sent letters to Governors of each state inviting them and others to a DOT Pipeline Safety Forum at DOT's Washington headquarters to address these issues. Spire representatives attended and participated in this forum. Similarly, a letter was sent to utility commissioners urging them to review their State's replacement plans (for cast iron and bare steel specifically) and "consider what would be necessary to accelerate these plans." (March 31, 2011 letter from Cynthia Quarterman, DOT Administrator). The stated goal of the DOT's April 2011 Pipeline Safety Forum was "accelerating the rehabilitation, repair, and replacement of critical pipeline infrastructure with known integrity risks."

Q. PLEASE CONTINUE.

A. Also in 2011, the federal Pipeline and Hazardous Materials Safety Administration ("PHMSA")issued a White Paper reviewing the programs available in various states "to support efforts to accelerate the repair, rehabilitation and replacement of high-risk infrastructure in pipeline systems…" PHMSA looked favorably upon Missouri's ISRS Statute as one of the programs available to protect the public "by ensuring the prompt rehabilitation, repair, or replacement of high-risk gas distribution infrastructure." PHMSA further urged State commissions to "accelerate the repair, rehabilitation, and replacement of high-risk pipeline infrastructure." (PHMSA White Paper, p. 17). In March 2012, PHMSA issued an Advisory Bulletin to gas operators and state pipeline safety representatives on Cast Iron Pipe. The Bulletin urged pipeline operators, like Spire, to conduct a comprehensive review of their cast iron distribution pipelines and replacement

programs, and accelerate the pipeline repair, rehabilitation, and replacement of high-risk pipelines. The Bulletin also requested that agencies consider enhancements to cast iron replacement plans and programs.

Q. HOW HAVE STATES AND THE NATURAL GAS INDUSTRY RESPONDED TO THESE CALLS TO ACTION?

A. According to the American Gas Association, over 40 state jurisdictions have mechanisms in place similar to Missouri's ISRS and the heightened awareness of this issue combined with effective cost recovery mechanisms has facilitated billions of dollars in utility investment in replacing aging, high risk cast iron and bare steel pipe. In fact, gas utilities throughout the country have been replacing their cast iron and bare steel facilities on the same accelerated pace as Spire – another factor that broadly confirms the deteriorated condition of such facilities.

FIELD CONDITIONS OF SPIRE'S CAST IRON AND BARE STEEL

Q. WHAT OPPORTUNITIES HAVE YOU HAD TO VIEW SPIRE'S CAST IRON AND BARE STEEL FACILITIES IN PERSON.

A. During my tenure as Vice President of Field Operations for Spire, I have visited hundreds of job sites at which crews under my direction are engaged in strategic replacement of Spire's cast iron and bare steel facilities. I have observed the condition of these facilities on site, as they are exposed for abandonment. I have also observed numerous specimens of these facilities that have been removed from service for testing and analysis.

Q. PLEASE DESCRIBE THE TYPICAL CONDITION OF CAST IRON MAINS IN SPIRE'S DISTRIBUTION SYSTEM.

A. Spire's distribution systems still utilizes cast iron mains, in both the Missouri East and Missouri West operating units. These facilities are typically between 60 and 110 years old, with most exceeding their estimated service life. The facilities tend to be located in older, and often more economically disadvantaged areas of our service territories. Because they utilize lower operating pressures, these pipes are larger in diameter than equivalent modern facilities. They have been subjected to many years of freeze-thaw cycles and associated frost heave. When originally installed, the joints were sealed using a rope-like material called oakum that has now worn out and in many cases is no longer functional. Essentially all of Spire's cast iron facilities exhibit evidence of graphitic corrosion, in which the structural iron leaches out of the pipe. This leaves the cast iron pipes very brittle and likely to crack easily. Their large diameter, rigidity, and exposure to Midwestern freeze-thaw cycles all exacerbate this problem, and lead to much higher leak rates than any other material in the Spire distribution system.

Q. DO YOU HAVE AN OPINION REGARDING WHETHER CAST IRON PIPES IN SPIRE'S SYSTEM ARE "WORN OUT OR IN A DETERIORATED CONDITION"?

A. Yes. Many of the cast iron mains in Spire's distribution systems are completely worn out and at the end of their useful life. All cast iron mains in Spire's distribution system are in a deteriorated condition.

Q. WHY DO YOU THINK ALL OF SPIRE'S CAST IRON FACILITIES ARE IN A DETERIORATED CONDITION?

A. It's a combination of age and the action of the elements on these materials over time. I haven't seen a single piece of cast iron pipe in Spire's system that did not exhibit signs of graphitic corrosion and oakum deterioration. These materials were simply never intended

to last, or remain in service, indefinitely. Our field crews have experienced numerous situations in which the dirt surrounding the cast iron main was the only thing holding the pipe together. As soon as the crew excavated dirt below the pipe, it just collapsed into pieces.

Q. PLEASE DESCRIBE THE TYPICAL CONDITION OF UNCOATED "BARE" STEEL FACILITIES IN SPIRE'S DISTRIBUTION SYSTEM?

A. The bare steel pipes in Spire's system were typically installed between 1920 and 1960. They were not installed with any protective coating, meaning that the steel pipes' walls are in direct and constant contact with the soil matrix. Steel corrodes when it comes in contact with water, through both oxidative and reductive processes. In the Midwest, soils are typically wet at least part of the year, and exhibit wet-dry cycling. This results in significant corrosion of the uncoated "bare" steel pipe in the Spire distribution system. These corrosive processes weaken the structure of the steel pipe, and compromise its integrity over time. In the worst cases, holes develop in the pipe wall itself where the material has completely corroded through. Over time, this makes uncoated "bare" steel pipe susceptible to leaks and other failures. We experience that frequently in the field. Uncoated "bare" steel pipes have a much higher leak rate than modern pipe materials, and exhibit the second highest leak rate (behind only cast iron) of all materials in the Spire distribution system.

Q. DO YOU HAVE AN OPINION REGARDING WHETHER BARE STEEL PIPES IN SPIRE'S SYSTEM ARE "WORN OUT OR IN A DETERIORATED CONDITION"?

A. Yes. Some portion of the uncoated "bare" steel in Spire's system is worn out. Those would be sections with active leaks resulting from wall failure due to corrosion. But certainly all uncoated "bare" steel pipe in Spire's distribution system is in a deteriorated condition.

These pipes began to deteriorate almost immediately after they were installed, because they were not installed with any type of protective coating that would have slowed or prevented interaction with soil moisture. The oxidative and reductive processes would have begun to work on these facilities immediately, and progressed unabated for many years.

Q. BUT DOESN'T THE ADDITION OF CATHODIC PROTECTION SOLVE THE SAFETY PROBLEMS WITH THESE PIPES?

A. No. In general, cathodic protection can help protect steel pipe from the effects of corrosion. It does so by inducing an electrical current in the pipe itself, which directs the corrosion away from the pipe and towards some consumable non-pipe metal receptor. These can be anodes, rectifiers, ground beds, or other electrically driven systems. However, the effectiveness of such systems in preventing corrosion deterioration largely depends on whether they were installed in conjunction with a proper pipe coating. The coating is the first line of defense against corrosion. The cathodic protection works primarily by directing current to sites where there is a small gap in the coating. These small sites are known as coating "holidays" in the industry. By limiting the number of sites along the pipeline where the cathodic protection system must "defend" the pipe against corrosion, the coating allows the cathodic protection system to maintain an effective level of protection against corrosion deterioration.

Q. SO THE CATHODIC PROECTION APPLIED TO SPIRE'S UNCOATED "BARE" STEEL PIPES ISN'T EFFECTIVE TO PREVENT DETERIORATION?

A. Not long term. The uncoated "bare" steel pipes in Spire's distribution system were all installed originally without any cathodic protection. Those cathodic protection systems were added later, in many cases 30 years or more after the pipe was originally installed.

At that point, the uncoated pipe would have already been deteriorated due to corrosion, in some cases badly. However, the distribution systems at that time included large amounts of uncoated "bare" steel. It would have been impractical, if not impossible, to replace it all on a timely basis, especially since the Company was simultaneously replacing tens of thousands of bare steel service lines under Commission safety directives/programs. Instead, cathodic protection was added in an attempt to slow down the pace of the corrosion deterioration. It was like a band-aid on the problem. The addition of cathodic protection to these steel pipes would have slowed the corrosive processes some, allowing Spire's measured replacement efforts to reach more of this pipe before it had completely failed due to corrosion deterioration. But adding cathodic protection to uncoated "bare" steel pipes that had already been deteriorating in the ground for years or decades did nothing to reverse the damage done by those corrosive processes. At best, it helped to slow down additional corrosion until replacement could be accomplished.

CONDITION OF PHYSICAL EVIDENCE IN THIS CASE

Q. HAVE YOU REVIEWED THE PHYSICAL EVIDENCE SUBMITTED IN THESE CASES?

A. Yes. The physical evidence presented in these cases were pulled from the field under my direction by field crews in both Spire East and Spire West. After it was removed from the field, the physical samples were assembled at our Shrewsbury Service Center, where I inspected them the week of May 4, 2020.

Q. PLEASE DESCRIBE THE PHYSICAL EVIDENCE YOU REVIEWED.

A. The physical evidence consists of two pallets of samples of pipe from Spire East and one pallet of samples of pipe from Spire West. The pallets include numerous samples of both

cast iron and bare steel pipes. These samples are all connected to ISRS projects from the Company's 2018 ISRS filings.

Q. HOW DID THE COMPANY DETERMINE WHAT SAMPLES TO SUBMIT AS EVIDENCE IN THESE CASES?

A. We tried to obtain samples from a variety of areas in our service territory as well as samples that represented some of the Company's larger replacement projects. Please see Schedules THG-D1 and THG-D2 for detailed information pertaining to the pipe samples, including work order numbers, footage of pipe replaced, and location where pipe was removed from.

Q. WHEN WERE THE 2018 PIPE SAMPLES OBTAINED BY SPIRE?

A. The pipe samples were retrieved in April and May 2020.

Q. ARE THE 2018 PIPE SAMPLES IN THE SAME OR SUBSTANTIALLY SIMILAR CONDITION TODAY AS THEY WERE IN 2018?

A. Yes. Given the advanced age of these pipes, the amount of wear and deterioration between 2018 and now would not have materially changed their condition.

Q. HAVE YOU REVIEWED THE PHOTOGRAPHS OF THESE SAMPLES, SUBMITTED WITH YOUR TESTIMONY AND LABELED AS FIGURE 1 THROUGH FIGURE 54?

A. Yes.

Q. DO THESE FIGURES CONTAIN A TRUE AND ACCURATE DEPICTION OF THE SAMPLES YOU'RE REFERRING TO?

A. Yes.

Q. DO YOU BELIEVE THIS EVIDENCE IS REPRESENTATIVE OF THE FIELD CONDITION OF CAST IRON AND BARE STEEL PIPE IN SPIRE'S DISTRIBUTION SYSTEM GENERALLY?

A. Yes, absolutely. There is nothing unique about the pipe samples taken for this case. They are very representative of the condition of the facilities replaced in the course of our systematics replacement programs. They aren't the "best of the best" or the "worst of the worst;" they are a representative sample of what we typically see in the field.

Q. DO YOU BELIEVE THIS EVIDENCE DEMONSTRATES THAT THE REPLACED FACILITIES AT ISSUE IN THIS CASE WERE WORN OUT OR IN A DETERIORATED CONDITION AT THE TIME THEY WERE REPLACED?

A. Yes. You don't have to be a scientist or an engineer to see that these pipes have deteriorated significantly from their original condition. Some of them have holes in them. Others show significant, irregular wall thickness degradation. Others have propagating cracks. They aren't all worn out, but they are certainly all significantly deteriorated from their original condition. Metallurgical analysis and our experience with cast iron pipe repairs clearly shows embrittlement of these pipes is also prevalent.

Q. DO YOU HAVE ANY CONCLUDING REMARKS?

A. Yes. At Spire, the safety of our customers is paramount and our primary value. The Company has followed the Missouri legislature and this Commission's lead on addressing the critical safety issue of cast iron and bare steel replacement. Since the inception of the ISRS, Spire has replaced more than 2,500 miles of aging pipeline across the state through the ISRS and has reduced the anticipated time to complete its cast iron replacement program from 80-plus years to approximately 25 years. The Company has continued to

employ best practices and pursue these replacements in a strategic, efficient manner that provides customers with not only safety benefits now, but savings and benefits that will continue long into the future. The Commission's continued support of cast iron and bare steel replacement cost recovery through the ISRS is crucial to ensuring that Spire can continue its programs at its current pace and deliver these benefits to its customers.

Q. **DOES THIS COMPLETE YOUR DIRECT TESTIMONY?**

A. Yes.

BEFORE THE PUBLIC SERVICE COMMISSION
OF THE STATE OF MISSOURI

In the Matter of the Application of Spire Missouri Inc. to Establish an Infrastructure System Replacement Surcharge in its Spire Missouri East Service Territory	))))	**File No. GO-2018-0309**
In the Matter of the Application of Spire Missouri Inc. to Establish an Infrastructure System Replacement Surcharge in its Spire Missouri West Service Territory	))))	**File No. GO-2018-0310**

A F F I D A V I T

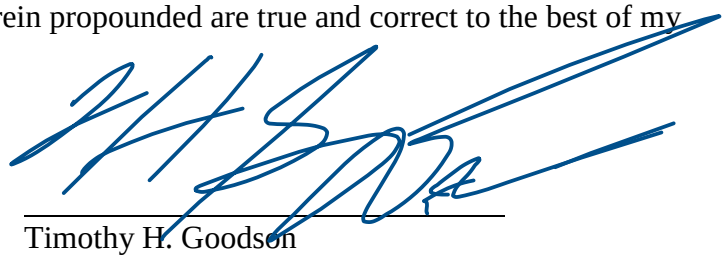
STATE OF MISSOURI)
) SS.
CITY OF ST. LOUIS)

Timothy H. Goodson, of lawful age, being first duly sworn, deposes and states:

1. My name is Timothy Goodson. I am the Vice President of Field Operations for Spire Missouri Inc. My business address is 700 Market St., St. Louis, Missouri, 63101.

2. Attached hereto and made a part hereof for all purposes is my direct testimony on behalf of Spire Missouri Inc.

3. Under penalty of perjury I hereby swear and affirm that my answers contained in the attached testimony to the questions therein propounded are true and correct to the best of my knowledge and belief.



Timothy H. Goodson

This 13th day of May 2020.

THG-D1 MO East Samples

Project	Work Order	Region	Work Type	Sub Work Type	Description	Sample Location	Vintage Year *	Main Footage Abandon Actuals
901467	15107462	South	MREPL	STRATEGIC	Dogtown Cast Iron Main Replacement Grid Phase 2B	6667 Berthold	1925	3785
901130	13653637	South	MREPL	STRATEGIC	Compton Heights Grid Phase H	2403 Indiana	1911	2750
901677	15513923	South	MREPL	STRATEGIC GRID	Southwest Area 2 (Reg #102) Grid Phase 1B	6974 Arthur	1905	2534
901548	15307244	South	MREPL	STRATEGIC GRID	Marconi & Shaw Grid Phase 1D	5630 Botanical	1924	1917
901596	15429600	South	MREPL	STRATEGIC GRID	Earthquake Zone Grid Phase 3A	7300 Minnesota	1942	2912
901094	13608294	South	MREPL	STRATEGIC	U-City Grid Phase 1H	7223 Cambridge	1926	8228
901050	13413362	South	MREPL	STRATEGIC	Soulard Grid Phase 2F	2000 South Broadway	1922	4564
900613	12817718	South	MREPL	STRATEGIC	Maplewood Grid Phase 2F	6814 Wyatt Pl.	1941	4961
901802	15797182	North	MREPL	PLANNED	Bellefontaine Bare Steel Replacement Phase 1	10464 Seton Dr.	1954	0
901979	16446744	North	MREPL	STRATEGIC GRID	Bircher & Newstead (Reg #568) Phase 1B	4840 Carter Ave.	1905	2799
901281	14465103	North	MREPL	STRATEGIC	Broadway - 9th & Palm Phase B	9th & Clinton	1914	8035
901798	15753224	North	MREPL	STRATEGIC GRID	Central West End Grid Phase 3E	Taylor Ave & W.Belle Pl.	1892	1171
901409	14771209	North	MREPL	STRATEGIC	Kingsbury Phase N	5258 Maple Ave	1893	3732
901237	13787240	North	MREPL	STRATEGIC	Pagedale Grid Phase 2A	6634 Etzel Ave	1912	4065
901275	14450752	North	MREPL	STRATEGIC	West End - W22 & 26 Grid Phase 1B	1338 Temple Pl.	1898	4583

* Year Installed per information found in GIS records based on sample location

THG-D2 MO West Samples

MO West Pipe Sections for FY 2018 ISRS Filing

Project	Work Order			City	Vintage Year	Pipe Section Location	Date Removed	Material
801220	15804900	Sheley & E 33rd Terr -MGE	Main Footage Abandon actuals - 13,644'	Independence	1957	10721 E. 33rd Ter S.	4"	Steel
801874	17612824	Replacement due to Leak at 111 N Turk	Main Footage Abandon actuals - 478'	Joplin	1945	111 N Turk	2"	Steel
800286	14592466	Carrollton Grid Main Replacement Phase I - Miller	Main Footage Abandon actuals - 15,012'	Carrollton	1960	501 N LOCUST ST	2"	Steel
800940	15503496	Claremont and 25th -Main Replacement	Main Footage Abandon actuals - 2,241'	Independence	1951	11222 E 25TH ST	2"	Steel
801295	15952060	Willis and Hayward - IUI	Main Footage Abandon actuals - 286'	Independence	1930	709 S WILLIS AVE	4"	Steel
801323	16106897	Walnut- Noland to Crane- IUI	Main Footage Abandon actuals - 3,129'	Independence	1955	S Leslie St & E Walnut St	4"	Steel
800435	14916409	TC Lea & Kiger- IUI	Mian Footage Abandon actuals - 12,465'	Independence	1968	Frandsen Rd & Trailer Park St A	2"	Steel
801815	17219240	Cherry and Noland Rd - IUI	Main Footage Abandon actuals - 2,654'	Independence	1975	1844 N NOLAND	2"	Steel
801873	17611805	Replacement due to CP at Canterbury in Joplin - SPIRE - Smith	Main Footage Abandon actuals - 2,293'	Joplin	1955	87 CANTERBURY LN	2"	Steel
801875	17610593	Harris Ave and Truman Rd Repl - Spire	Main Footage Abandon actuals - 2,430'	Independence	1948	1208 S HARRIS AVE	4"	Steel
802002	18548035	Maywood Ave replacement-IUI	Main Footage Abandon actuals - 1,230'	Independence	1927	1943 S MAYWOOD AVE	4"	Steel
801835	17280758	Budd Park Header- 6" Plastic- Benton Blvd to St IUI POWELL	The installation of this header main allows us to abandon cast iron mains in subsequent grid phases.	KANSAS CITY	NA	3404 St John	4"	Cast Iron
801909	17964766	Pittman &38th St - Replace 4in Bare Steel - SPIRE, LOVE-GPS	Main Footage Abandon actuals - 3,901'	KANSAS CITY	1960	4000 Pittman rd.	4"	Bare Steel
802032	18588610	33rd and Highland - 4in CI Replacement - SPIRE-- Stenvall	Main Footage Abandon actuals - 354'	KANSAS CITY	1904	1615 E 33rd st	4"	Cast Iron
801834	17279501	AOR - 29th and Cleveland - 6in CI - Miller	Main Footage Abandon actuals - 852'	KANSAS CITY	1922	2907 Cleveland	6"	Cast Iron
801844	17353150	63rd and Baltimore - 4in CI - Water in Main - murphy	Main Footage Abandon actuals - 547'	KANSAS CITY	1923	101 W 63rd	4"	Cast Iron
801868	17607273	CI Breaks - 28th Ter and Oakley - IUI	Main Footage Abandon actuals - 971'	KANSAS CITY	1958	5432 E 28th ter	4"	Cast Iron
800342	14665837	St. Joe's South Grid Phase 2F - MGE	Main Footage Abandon actuals - 6411'	St. Joseph	1962	6622 Wilton Dr	2"	Steel
800344	14665811	St. Joe's South Grid Phase 2D - MGE	Main Footage Abandon actuals - 8002'	St. Joseph	1949	6199 EUREKA ST	6"	Steel
800137	14475077	St. Joe's South Phase 1C - MGE	Main Footage Abandon actuals - 7159'	St. Joseph	1945	6306 MORRIS ST	2"	Steel
800138	14475084	St. Joe's South Phase 1D - MGE	Main Footage Abandon actuals - 3625'	St. Joseph	1926	5702 S 3RD ST	2"	Steel