

**BEFORE THE STATE CORPORATION COMMISSION  
OF THE STATE OF KANSAS**

**In the Matter of the Application of                    )**  
**Kansas Gas Service Company, a Division        )**  
**of ONE Gas, Inc., Regarding the filing of        )**     **Docket No. 18-KGSG-317-CPL**  
**its Plan for the Replacement of Obsolete        )**  
**Materials in Populated Areas.                    )**

**COMPLIANCE FILING OF KANSAS GAS SERVICE**

As previously recommended by Commission Staff (“Staff”), Kansas Gas Service, a Division of ONE Gas, Inc., (also referred to as “KGS” and/or “Company”) hereby files its annual report detailing the Company’s progress in meeting its goals established in its accelerated replacement plan. The Company provides and states as follows:

1. On April 24, 2018, KGS filed in this docket its *Compliance Filing of Kansas Gas Service Final Plan for Replacement of Obsolete Materials in Populated Areas* (“Plan”). Within the Plan, KGS indicated that it would begin working its plan in 2019.

2. On December 19, 2018, Staff filed a memorandum in Docket No. 15-GIMG-343-GIG making recommendations for the monitoring of various issues raised in the docket, including the monitoring of plans for the accelerated replacement of obsolete pipe. Among its recommendations, Staff suggested that the utilities file an annual compliance report by March 31 detailing progress made in the preceding year on the accelerated replacement plan, to include an explanation of any deviation from initial projections, any deviations from the previous year’s projections, and a revision of remaining plan projections.<sup>1</sup> Staff also recommended that utilities update Tables LMH-1 and LMH-2

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<sup>1</sup> See, Docket No. 15-GIMG-343-GIG, *Notice of Filing Staff Memorandum*, at Memorandum, p8 (December 19, 2018).

and provide a discussion on the progress toward adopting/implementing a Pipeline Safety Management System (“PSMS”).<sup>2</sup>

3. While the Commission has not yet issued an order concerning Staff’s recommendation for updating the plan, KGS is documenting its progress in accordance with the recommendations set out in Staff’s memorandum.

4. KGS implemented its plan in January 2019. The attachments to this filing provide an update on the Company’s progress made during 2020 and include information regarding any deviations from the Company’s initial Plan or deviations from revised projections. At this time, KGS has no revisions to its Plan. Additionally, KGS is providing updating the information contained in its Tables LMH-1 and LMH-2 (as modeled by Staff in its Memorandum), along with a discussion of its progress toward adopting a Pipeline Safety Management System (“PSMS”) as promoted by PHMSA.

5. KGS is also including a reporting of its mileage of mains, by type and by community along with the leak information, as directed by the Commission in Docket No. 15-GIMG-343-GIG.<sup>3</sup> In addition to the information contained in this filing, KGS is confirming that, on March 1, 2021, KGS filed in this docket its lost and unaccounted for gas by community report as also directed by the Commission in Docket No. 15-GIMG-343-GIG.<sup>4</sup>

6. Should Staff so desire, KGS will arrange to meet with Staff after making its 2021 Gas System Reliability Surcharge (“GSRS”) filing to further discuss the progress made toward the completion of the Plan.

7. WHEREFORE, Kansas Gas Service, a division of ONE Gas, prays the Commission enter an Order accepting this compliance filing and for such other relief as the Commission may deem just and proper.

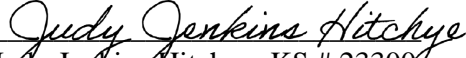
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<sup>2</sup> *Id.*

<sup>3</sup> See, Docket No. 15-GIMG-343-GIG, *Final Order*, p.51, ¶B. (Sept. 12, 2017).

<sup>4</sup> *Id.*

Respectfully submitted,

  
Judy Jenkins Hitchye, KS # 23300  
Managing Attorney

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VERIFICATION

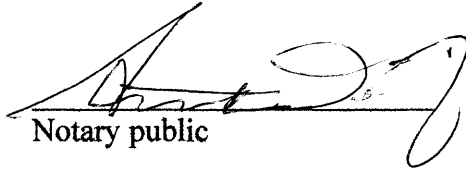
STATE OF KANSAS        )  
                                  )  
COUNTY OF JOHNSON    )

I, Judy Jenkins Hitchye, of lawful age, being first duly sworn upon oath, states as follows: I am a Managing Attorney for Kansas Gas Service, a Division of ONE Gas, Inc. I have read the above *Compliance Filing* and all the statements therein are true to the best of my knowledge, information and belief.

/s/ J.J. Hitchye  
Judy Jenkins Hitchye

*Affiant*

SUBSCRIBED AND SWORN to before me on 3/31/2021.

  
Notary public

My Appointment Expires:  
06/05/22



## **Plan Update**

Kansas Gas Service (“KGS” or “Company”) began its systematic accelerated replacement plan (“Plan”) in January 2019 and expects to replace all cast iron mains, bare steel service lines and bare steel mains located in populated areas within 35 years of the Plan commencement date. Specifically, KGS’s Plan indicated that all remaining cast iron mains would be replaced by 2019; all bare steel service lines in populated areas would be replaced by the end of 2024; the majority of unprotected bare steel mains in populated areas would be replaced by the end of 2028 and all replaced by 2053; and all protected bare steel mains in populated areas would be replaced by the end of 2053. In 2020, KGS planned to replace 7,500 service lines, 15 miles of unprotected bare steel mains and 7 miles of protected bare steel mains. Actual replacements in 2020 are discussed below.

As a result of the Company’s Plan, KGS has accelerated the replacement footage of problematic pipe. In 2019, KGS completed the replacement of cast iron mains as planned. All known cast iron mains have been removed from the Company’s system. In 2020, 6,952 bare steel service lines were replaced, slightly less than 7,500 planned replacements. KGS remains on target to remove all bare steel service lines by 2024. Additionally, KGS replaced 19 miles of unprotected bare steel mains. This is greater than planned. Finally, KGS replaced 23 miles of protected bare steel mains in 2020, which is more than planned. KGS remains on target to complete the replacement of protected bare steel mains by 2053.

As of the date of this report, KGS does not have any revisions to the final Plan for Replacement of Obsolete Materials in Populated Areas.

**LMH-1 and LMH-2 Update**

See below for the update to exhibits LMH-1 and LMH-2 as requested in the memorandum filed by KCC Staff on December 19, 2018.

LMH-1

Number of Urban Areas	348
Miles bare steel main <sup>(1)</sup>	1,225
Planned (miles/yr.) Replacement Rate	15-26
Number bare steel service lines <sup>1</sup>	24,998
Planned svc (line/yr.) Replacement Rate	7,500
Miles of cast iron mains	0
Years to completion	33
CY2019 underground leaks per 100 miles obsolete piping	34.2
Total project cost, current \$	\$1,760 million

LMH-2

Main Replacement Estimate (\$/mile)	\$500,000
Service Line Replacement Estimate (\$/ea.)	\$2,611
2020 CAPEX for safety for distribution system	\$46,965,017
Miles undesirable pipe replaced	123 miles
Average costs of replacing undesirable pipe (\$/mile-equivalent) in GSRs filing Docket 20-KGSG-090-TAR	\$392,899

**Pipeline Safety Management System (PSMS) Implementation Update**

Kansas Gas Service (KGS) has been actively working to implement the American Petroleum Institute’s (API) Recommended Practice (RP) 1173: Pipeline Safety Management

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<sup>1</sup> As of 3/2/2021

System (PSMS) since 2016. Additionally, on May 20th, 2019, the American Gas Association (AGA) board asked member companies to commit to implementing PSMS within 3 years. KGS was an early and enthusiastic supporter of this industry-wide commitment.

KGS has made progress on all 10 elements to continue the PSMS journey. The elements along with notable activities are listed below.

1. Leadership and Management Commitment / Management Review and Continuous Improvement

- 2017 - The organization hired dedicated resources to focus on PSMS efforts and move initiatives forward
- 2017 – The organization implemented an Environmental, Health, Safety and Compliance (EHS&C) Steering Committee, made up of Executive Leadership and ex-officio members, that meets monthly to discuss key operations programs and areas
- 2018 - The organization performed a gap assessment to determine current state of PSMS
- 2019 - The organization signed a commitment letter towards implementing PSMS from the Senior Vice President of Operations and CEO
- 2020 - Aligned the annual ESH&C Steering Committee cadence to ensure annual coverage of all API-RP-1173 PSMS elements
- 2020 - The organization performed an in-depth gap assessment, aligned with industry tools, to determine current maturity of PSMS
- 2021 - The organization hired two additional specialists to focus on PSMS efforts and help move initiatives forward

## 2. Operational Controls

- 2019 - The organization completed a ONE Gas procedure manual re-write consolidating three historical state-based operating procedures into a consolidated version
- 2020 - The organization implemented an electronic approval system for Senior Leaders to more efficiently document procedural change reviews
- 2020 - The organization implemented enhanced Computer Based Training (CBT) and Technical Training updates to communicate / document procedure updates

## 3. Safety Assurance

- 2016 - The organization established an internal Pipeline Safety Compliance Group (PSCG) focused on reviewing and generating action plans for gaps identified regarding key compliance programs and tasks
- 2020 - The organization continues to address Corrective Action Plans (CAPs) identified by PSCG reviews and state regulatory/compliance audits
- 2020 - The organization established an Emergency Response Time (ERT) metric to monitor performance

## 4. Emergency Preparedness and Response

- 2019 - The organization updated the Pipeline Emergency Response Procedure (PERP) to include the use of an Incident Command Structure (ICS) as noted in PSMS
- 2019 - The organization conducted PERP and ICS training for key stakeholders
- 2019 - The organization conducted emergency response drills including local public officials and attended Local Emergency Planning Committee (LEPC) meetings with emergency responders.



- 2020 - The organization continues to collaborate with external parties (local public officials, emergency responders, and LEPC's) when performing annual internal mock drills

#### 5. Stakeholder Engagement

- 2020 - The organization started an internal communication campaign for employees introducing the 'Plan, Do, Check, Act' spirit of PSMS and is embedded in articles highlighting improvement initiatives across the organization
- 2020 – 2021 - The organization built a mobile / desktop application, called O-Net, allowing employees to submit issues, ideas and good catches. This new platform enhances collaboration and supports maturity of PSMS forward. The platform will be rolled out through a phased implementation throughout 2021

#### 6. Competence, Awareness and Training

- 2020 - The organization broke ground on a training center in Tulsa, OK that will enhance employee competence, awareness, and training

#### 7. Risk Management

- 2020 - The organization signed an agreement to implement a new probabilistic risk model focused on distribution assets to further support the Distribution Integrity Management Program (DIMP). The new risk model is scheduled to be implemented by Q4 2021

#### 8. Incident Investigation, Evaluation and Lessons Learned

- 2021 - The organization established a process for all Pipeline Emergency Response Plan (PERP) Category II events be reviewed by PSCG to identify root cause and lessons learned

## 9. Documentation and Recordkeeping

- 2020 - The organization continues to scan historical paper records into our electronic system of record (Perceptive) to support data driven decisions
- 2020 - The organization implemented a tracking and traceability software platform (LocusView) to improve documentation of transmission and high-pressure distribution construction projects which meet Traceable, Verifiable and Complete (TVC) requirements
- 2020 - The organization implemented a Geographical Information System (GIS) Data Governance Committee to focus on GIS data quality and governance in support of data driven decisions

KGS will continue the implementation towards all 10 elements and monitor the overall maturity of PSMS.

Below is Kansas Gas Service’s submission reporting miles of facilities by material type and location. The information is provided in the format prescribed by Staff and reflects data as of March 2, 2021. The Company also provides the leak information as of December 31, 2020.

<b>Miles of Main by Location</b>			
	Urban	Rural	Total
Protected Coated	2,410	1,406	3,816
Protected bare	1,039	685	1,724
Unprotected Coated	0	1	1
Unprotected Bare	173	39	212
Cast Iron	0	0	0
PVC	1	141	142
PE	2,903	1,241	4,144
Aldyl-A & Marlex	1,078	455	1,533
Other	0	0	0
<b>Total</b>	<b>7,604</b>	<b>3,968</b>	<b>11,572</b>

<b>Number of Services by Location</b>			
	Urban	Rural	Total
Protected Coated	5,157	2,063	7,220
Protected Bare	3,757	2,266	6,023
Unprotected Coated	3,062	1,230	4,292
Unprotected Bare	14,882	4,093	18,975
Cast Iron	0	0	0
PVC	0	56	56
PE	369,114	109,252	478,366
Aldyl-A & Marlex	105,384	12,815	118,199
Other	0	0	0
<b>Total</b>	<b>501,356</b>	<b>131,775</b>	<b>633,131</b>

<b>Leaks Found During Inspection Year by Leak Classification</b>				
	Class 1	Class 2	Class 3	Total
# of Leaks Found	1,237	185	675	2,097
# of Leaks Repaired	1,237	194	598	2,029
# of Current Leaks	0	12	664	676

Note:

The differentiation between the urban and rural areas for this report is determined using a population density of 360 people per square mile based on census data. This delineation was

derived after a review of Census Blocks at metropolitan interfaces between populated and rural areas and is subject to additional review and potential adjustment by subject matter experts. Because many of the small communities served by Kansas Gas Service have low population densities, they are likely within the rural location type.

Distribution mains and services will not reconcile to the PHMSA distribution reports due to changes made to the Company's database systems over the last several months.

Kansas Gas Service will continue to refine this report as system improvements are made.

Line No.	Reporting Date	MATERIALS SECTION					INSTALLATION AND OPERATIONS SECTION						FAILURE LOCATION (Pipe, Fitting or Joint)	FAILURE IN FITTING (Transition, Valve, Meter Riser, Mechanical Fitting, Heat Fusion Fitting, Electrofusion Fitting, Other - describe)
		TYPE OF MATERIAL	(DESCRIBE IF OTHER)	MANUFACTURER	SDR,DR, SCHEDULE or WALL THICKNESS	NOMINAL SIZE	METHOD OF INSTALLATION (Open Trench, Bored, Plowed In, Insertion, Joint Trench, Planted, Unknown, Other - describe, Direct Bury)	TYPE OF SOIL IN CONTACT WITH PIPE (Sand, Loam, Clay, Rocky, Slurry, Other - describe)	OPERATING PRESSURE AT TIME OF FAILURE (psig)	OPERATING PRESSURE NORMAL RANGE MINIMUM (if known) (psig)	OPERATING PRESSURE NORMAL RANGE MAXIMUM (if known) (psig)	DATE OF INSTALLATION		
1	Feb-20	MDPE2406		Driscopipe		3/4" CTS	Open Trench	Unknown	18			02/13/1980	Joint	
2	Feb-20	MDPE2406		Driscopipe		2" IPS	Open Trench	Clay	12			11/24/2009	Joint	
3	Feb-20	HDPE3406		Polypipe		2" IPS	Open Trench	Clay	40			06/03/2015	Joint	
4	Feb-20	MDPE2406		Polypipe		3/4" CTS	Open Trench	Loam	35			06/18/2007	Pipe	
5	Feb-20	HDPE3406		Polypipe		2" IPS	Open Trench	Clay	40			07/18/1980	Joint	
6	Feb-20	HDPE3406		Plexco		2" IPS	Open Trench	Loam	4			11/30/1981	Joint	
7	Feb-20	MDPE2406		Driscopipe		1/2" CTS	Open Trench	Clay	18			12/14/1979	Joint	
8	Feb-20	MDPE2406		Driscopipe		3/4" CTS	Open Trench	Clay	58			09/08/2008	Joint	
9	Mar-20	MDPE2406		Driscopipe		3/4"		Loam	25 psig			08/06/2007	Joint	Transition
10	Mar-20	MDPE2406		Driscopipe		1-1/4"		Clay	48 psig			12/10/1987	Joint	
11	Mar-20	MDPE2406		Driscopipe		3/4"		Clay	18 psig			04/30/1991	Pipe	
12	Mar-20	MDPE2406		Driscopipe		3/4"		Loam	30 psig			11/08/1991	Pipe	
13	Mar-20	MDPE2406		Driscopipe		2"		Clay	20 psig			01/14/1981	Joint	
14	Mar-20	MDPE2406		Driscopipe		3/4"		Loam	35 psig			10/21/1982	Joint	
15	Apr-20	MDPE2406		Driscopipe		3/4"		Clay	18 psig			05/26/2006	Fitting	
16	Apr-20	MDPE2406		Driscopipe		3/4"		Clay	48 psig			06/15/1983	Joint	
17	Apr-20	MDPE2406		Driscopipe		3/4"		Clay	15 psig			06/06/2002	Pipe	
18	Apr-20	MDPE2406		Driscopipe		3/4"		Clay	25 psig			10/21/1987	Joint	
19	Apr-20	M8000		Driscopipe		3/4"		Clay	45 psig			02/15/1995	Joint	
20	Apr-20	MDPE2406		Performance Pipe		3/4"		Clay	2.5 ounce			08/19/2014	Joint	
21	Apr-20	MDPE2406		Driscopipe		3/4"		Clay	25 psig			08/17/1992	Joint	
22	Apr-20	MDPE2406		Driscopipe		3/4"		Clay	45 psig			10/16/1975	Joint	
23	Apr-20	MDPE2406		Driscopipe		3/4"		Clay	15 psig			04/23/2015	Joint	
24	Apr-20	MDPE2406		Driscopipe		3/4"		Clay	34 psig			06/25/2003	Pipe	
25	May-20	MDPE2406		Driscopipe		3/4"		Clay	45 psig			03/07/2001	Joint	
26	May-20	MDPE2306		Driscopipe		3/4"		Loam	14 psig			01/01/2009	Pipe	
27	May-20	MDPE2406		Driscopipe		2.0"		Clay	52 psig			03/23/1981	Fitting	O-Ring
28	May-20	MDPE2406		Driscopipe		3/4"		Loam	22 psig			09/08/2009	Fitting	Service Tee Cap
29	May-20	MDPE2406		Performance Pipe		3/4"		Clay	12 psig			N/A	Pipe	
30	May-20	HDPE2306		Performance Pipe		3/4"		Clay	18 psig			06/28/1982	Joint	
31	May-20	HDPE2306		Performance Pipe		3/4"		Clay	58 psig			08/20/2008	Joint	
32	May-20	MDPE2406		Driscopipe		3/4"		Clay	58 psig			N/A	Pipe	
33	May-20	MDPE2406		Performance Pipe		3/4"		Clay	13 psig			08/18/1998	Pipe	
34	Jun-20	MDPE2306		Driscopipe		1.0"		Loam	14 psig			08/29/1986	Pipe	
35	Jun-20	Other		Other		2.0"		Clay	45 psig			08/25/1994	Joint	
36	Jun-20	MDPE2406		Driscopipe		2.0"		Clay	15 psig			03/12/2008	Fitting	Service Tee Cap
37	Jun-20	MDPE2406		Polypipe		0.75"		Clay	15 psig			07/18/2006	Pipe	
38	Jun-20	MDPE2406		Plexco		0.75"		Clay	18 psig			01/24/2007	Fitting	Service Tee Cap
39	Jun-20	HDPE3408		Driscopipe		0.875"		Clay	25 psig			10/01/1986	Pipe	
40	Jun-20	MDPE2406		Driscopipe		1.0"		Loam	18 psig			11/13/1978	Fitting	Nutfollower
41	Jun-20	MDPE2406		Other		2.0"		Caliche	17 psig			01/01/1965	Joint	

FAILURE ANALYSIS SECTION							
Line No.	Description of Other Fitting Type	FAILURE IN JOINT (Mechanical, Electrofusion, Butt Fusion, Socket Fusion, Saddle Fusion, Solvent, Other describe)	Description of Other Joint Type	FAILURE CAUSE (Squeeze Off, Point Loading, Excessive Expansion/Contraction, Excessive External Earth Loading, Installation Error, Previous Impact, Unknown, Unknown - not excavated - abandoned, Unknown - not excavated - replaced, Material Defect - describe, Other - describe)	ADDITIONAL FAILURE CAUSE (Squeeze Off, Point Loading, Excessive Expansion/Contraction, Excessive External Earth Loading, Installation Error, Previous Impact, Unknown, Unknown - not excavated - abandoned, Unknown - not excavated - replaced, Material Defect - describe, Other - describe)	Description of Material Defect or Other Failure Cause	DATE OF FAILURE
1		Mechanical Fitting Seal		Excessive Expansion/Contraction		Tap Tee o-ring leaking	02/05/2020
2		Mechanical Fitting Seal		Excessive Expansion/Contraction		AmFit Saddle Seal	06/04/2019
3		Mechanical Fitting Seal		Excessive Expansion/Contraction		AmFit Saddle Seal	02/26/2019
4				POINT LOADING	Excessive External Earth Loading	Pipe Sheared	02/18/2020
5		Mechanical Fitting Seal		Excessive Expansion/Contraction		AmFit Saddle Seal	02/10/2020
6		Mechanical Fitting Seal		Excessive Expansion/Contraction		Bolt-on Saddle O-Ring Seal	02/24/2020
7		Mechanical Fitting Seal		Excessive Expansion/Contraction		Amfit Saddle Seal	02/26/2020
8		Mechanical Fitting Seal		Excessive Expansion/Contraction		Dresser Nut Seal At Tap	02/14/2020
9				Extensive expansion/contraction		O-ring leaking	03/03/2020
10		Mechanical		Extensive expansion/contraction		O-ring leaking	03/04/2020
11				POINT LOADING	Excessive External Earth Loading	Improper backfilling	01/06/2020
12				POINT LOADING	Excessive External Earth Loading	Loading cause pipe shear	03/25/2020
13		Mechanical		Extensive expansion/contraction		Tapping saddle o-ring leaking	03/20/2020
14		Mechanical		Extensive expansion/contraction		AMFit Saddle o-ring leaking	03/31/2020
15		Mechanical		Extensive expansion/contraction		O-ring leaking	04/19/2018
16		Mechanical		Extensive expansion/contraction		O-ring leaking	04/09/2020
17				POINT LOADING	Excessive External Earth Loading	Improper backfilling	04/09/2020
18		Mechanical		Extensive expansion/contraction		O-ring leaking	04/13/2020
19		Mechanical		Extensive expansion/contraction		Tapping saddle o-ring leaking	04/25/2019
20		Mechanical		Extensive expansion/contraction		AMFit Saddle o-ring leaking	02/11/2019
21		Mechanical		Extensive expansion/contraction		O-ring leaking	08/17/1992
22		Mechanical		Extensive expansion/contraction		O-ring leaking	04/21/2020
23		Mechanical		Installation Error		Joint not tightened properly	05/13/2019
24				Point Loading	Excessive external earth loading	Improper backfilling	12/31/2019
25		Mechanical		Equipment Failure		O-ring Leaking	05/01/2020
26				Third party Damage		Third party Damage	05/06/2020
27				Equipment Failure		Gasket/O-Ring Leaking	04/23/2020
28				Installation Error		Loose Service Tee Cap	05/07/2020
29				Point Loading		Pipe Sheer	10/12/2019
30		Tap Connection		Equipment Failure	Gasket/O-Ring	Amp Saddle	06/20/2018
31		Tap Connection		Equipment Failure	Gasket/O-Ring	Amp Saddle	06/20/2018
32				Other - Excavator Error	Other - Water Pipe Locate Wire Severed Serviceline		05/21/2020
33				Natural Causes/Ground Movement		Sheered Tee	05/16/2018
34				Natural Causes/Ground Movement	Meter Loop	Tree Roots	06/02/2020
35		Tap Connection		Equipment Failure	Gasket/O-Ring	O-Ring Pinched	04/23/2020
36				Natural Causes/Ground Movement		Loose Service T Cap	05/23/2020
37				Third Party Damage		Third Party Damage	06/09/2020
38				Incorrect Installation	Failure to follow Procedures	Loose Tee Cap	10/23/2018
39				Third Party Damage		Third Party Damage	06/18/2020
40				Material, Weld or Joint Failure		Compression Coupling	05/01/2020
41		Tap Connection		Equipment Failure	Gasket/O-Ring	Amp Saddle	06/10/2020

Line No.	Reporting Date	MATERIALS SECTION					INSTALLATION AND OPERATIONS SECTION						FAILURE LOCATION (Pipe, Fitting or Joint)	FAILURE IN FITTING (Transition, Valve, Meter Riser, Mechanical Fitting, Heat Fusion Fitting, Electrofusion Fitting, Other - describe)
		TYPE OF MATERIAL	(DESCRIBE IF OTHER)	MANUFACTURER	SDR,DR, SCHEDULE or WALL THICKNESS	NOMINAL SIZE	METHOD OF INSTALLATION (Open Trench, Bored, Plowed In, Insertion, Joint Trench, Planted, Unknown, Other - describe, Direct Bury)	TYPE OF SOIL IN CONTACT WITH PIPE (Sand, Loam, Clay, Rocky, Slurry, Other - describe)	OPERATING PRESSURE AT TIME OF FAILURE (psig)	OPERATING PRESSURE NORMAL RANGE MINIMUM (if known) (psig)	OPERATING PRESSURE NORMAL RANGE MAXIMUM (if known) (psig)	DATE OF INSTALLATION		
42	Jun-20	MDPE2306		Driscopipe		0.75"		Loam	35 psig			06/02/2015	Fitting	Service Tee Cap
43	Jun-20	MDPE2406		Driscopipe		0.5"		Clay	15 psig			06/12/2012	Fitting	Coupling
44	Jun-20	HDPE3408		Driscopipe		0.875"		Clay	25 psig			11/01/1992	Fitting	O-Ring
45	Jun-20	MDPE2406		Nipak		2.0"		Clay	45 psig			09/08/1980	Fitting	Tap Connection
46	Jun-20	Other		Other		0.875"		Clay	40 psi			07/28/1987	Fitting	Service Tee Cap
47	Jun-20	HDPE3406		Driscopipe		1.25"		Loam	10 psi			12/14/2007	Joint	Coupling
48	Jun-20	HDPE3408		Plexco		2.0"		Clay	18 psi			08/31/1995	Fitting	Service Tee Cap
49	Jun-20	MDPE2406		Driscopipe		1.25"		Clay	45 psi			07/28/1975	Fitting	Meter Riser
50	Jul-20	HDPE3406		Driscopipe		0.875"		Loam	N/A			06/05/1989	Fitting	Tap Connection
51	Jul-20	Other		Driscopipe		0.5"		Clay	15 psig			10/21/2011	Pipe	
52	Jul-20	MDPE2406		Driscopipe		2.0"		Loam	45 psig			08/09/2011	Fitting	Tap Connection
53	Jul-20	HDPE3408		Driscopipe		0.875"		Clay	35 psig			01/01/1965	Pipe	
54	Jul-20	Other		Driscopipe		0.75"		Clay	15 psig			11/02/1977	Pipe	
55	Jul-20	MDPE2406		Other		1.0"		Clay	14 oz			12/05/2012	Pipe	
56	Jul-20	MDPE2406		Polypipe		0.75"		Rocky	1.88 psig			02/06/1991	Pipe	
57	Jul-20	HDPE3406		Driscopipe		0.625"		Clay	45 psig			09/23/1997	Pipe	
58	Jul-20	HDPE3408		Plexco		0.75"		Clay	18 psig			11/15/1991	Fitting	Service Tee Cap
59	Jul-20	MDPE2306		Driscopipe		2.0"		Clay	58 psig			N/A	Fitting	Tap Connection
60	Jul-20	Other		Other		0.75"		Clay	45 psig			09/02/1987	Fitting	Riser
61	Jul-20	Other		Other		2.0"		Rocky	32 psig			10/24/1981	Fitting	Tap Connection
62	Jul-20	Aldyla		Other		1.0"		Clay	20 psig			01/01/1965	Fitting	Service Tee Cap
63	Jul-20	Other		Driscopipe		2.0"		Clay	40 psig			N/A	Fitting	Service Tee Cap
64	Jul-20	HDPE3406		Driscopipe		2.0"		Clay	45 psig			N/A	Fitting	Service Tee Cap
65	Jul-20	Other		Other		2.0"		Loam	32 psig			N/A	Fitting	Tap Connection
66	Jul-20	MDPE2406		Driscopipe		0.75"		Clay	24 psig			N/A	Pipe	
67	Jul-20	Other		Other		0.875"		Clay	30 psig			03/15/1979	Fitting	Tap Connection
68	Jul-20	Other		Driscopipe		1.25"		Clay	48 psig			02/16/1994	Fitting	Tap Connection
69	Aug-20	MDPE2406		Driscopipe		0.75"		Clay	45 psig			06/11/1985	Fitting	Riser
70	Aug-20	MDPE2406		Plexco		0.75"		Loam	12 oz			03/22/2008	Fitting	Service Tee
71	Aug-20	Other		Other		0.75"		Loam	45 psig			01/19/1989	Joint	
72	Aug-20	MDPE2406		Driscopipe		0.75"		Clay	45 psig			12/05/1980	Fitting	Riser
73	Aug-20	HDPE3406		Driscopipe		0.75"		Clay	25 psig			03/20/1979	Fitting	Riser
74	Aug-20	MDPE2406		Driscopipe		0.75"		Clay	25 psig			06/03/1974	Fitting	Riser
75	Aug-20	MDPE2406		Driscopipe		0.75"		Loam	25 psig			02/26/1990	Fitting	Riser
76	Aug-20	MDPE2406		Driscopipe		0.875"		Loam	35 psig			12/13/1988	Pipe	
77	Aug-20	HDPE3406		Driscopipe		2.0"		Clay	1.25 psig			08/25/1981	Fitting	Tap Connection
78	Aug-20	OTHER HD		Driscopipe		0.875"		Clay	24 psig			10/25/1986	Fitting	Tap Connection
79	Aug-20	HDPE3406		Other		2.0"		Clay	45 psig			12/15/1982	Fitting	Tap Connection
80	Sep-20	HDPE2306		Driscopipe		0.75"		Clay	19 psig			02/14/1977	Fitting	Service Tee
81	Sep-20	MDPE2406		Driscopipe		0.75"		N/A	18 psig			N/A	Fitting	Tap Connection
82	Sep-20	HDPE2306		Driscopipe		0.75"		Clay	18 psig			07/16/1981	Fitting	Tap Connection
83	Sep-20	MDPE2406		Driscopipe		0.75"		Clay	45 psig			11/10/1987	Fitting	Riser

FAILURE ANALYSIS SECTION							
Line No.	Description of Other Fitting Type	FAILURE IN JOINT (Mechanical, Electrofusion, Butt Fusion, Socket Fusion, Saddle Fusion, Solvent, Other describe)	Description of Other Joint Type	FAILURE CAUSE (Squeeze Off, Point Loading, Excessive Expansion/Contraction, Excessive External Earth Loading, Installation Error, Previous Impact, Unknown, Unknown - not excavated - abandoned, Unknown - not excavated - replaced, Material Defect - describe, Other - describe)	ADDITIONAL FAILURE CAUSE (Squeeze Off, Point Loading, Excessive Expansion/Contraction, Excessive External Earth Loading, Installation Error, Previous Impact, Unknown, Unknown - not excavated - abandoned, Unknown - not excavated - replaced, Material Defect - describe, Other - describe)	Description of Material Defect or Other Failure Cause	DATE OF FAILURE
42				Other (no description)	Other (no description)	Loose Tee Cap	06/15/2020
43				Equipment Failure	Downward Pressure	Lycor Reducer Coupling	06/23/2020
44				Equipment Failure		O-Ring Damaged	04/29/2020
45				Equipment Failure	Gasket/O-Ring	Leaking Saddle Tee	03/13/2020
46				Equipment Failure	Gasket/O-Ring	Missing O-Ring	05/08/2020
47		Compression		Equipment Failure	Gasket/O-Ring	Loose Coupling	05/14/2020
48		Tap Connection		Natural Forces/Ground Movement		Loose Tee Cap	02/11/2020
49				Equipment Failure	Gasket/O-Ring	Buried Stop	03/13/2020
50				Incorrect Operations	Improper Backfilling		05/18/2020
51				Incorrect Operations	Improper Backfilling		06/19/2020
52				Incorrect Operations			07/02/2020
53				Incorrect Operations	Third Party Damage		07/06/2020
54				Natural Forces/Ground Movement			07/01/2020
55				Natural Forces	Lightning		07/11/2020
56				Natural Forces	Tree uprooted		07/11/2020
57				Natural Forces/Ground Movement	Rubbing on Concrete		07/10/2020
58				Natural Forces/Ground Movement	Ground Movement		02/27/2018
59				Equipment Failure	Gasket/O-Ring		07/14/2020
60				Incorrect Operations	Stripped Threads		07/25/2020
61				Equipment Failure	Gasket/O-Ring		06/16/2020
62				Equipment Failure	Gasket/O-Ring		02/15/2018
63				Natural Forces/Ground Movement	Cap Cracked		11/06/2018
64				Equipment Failure	Gasket/O-Ring		10/29/2018
65				Equipment Failure	Gasket/O-Ring		07/24/2020
66				Natural Forces/Ground Movement	Dirt Caving		07/30/2020
67				Natural Forces/Ground Movement	Ground Movement		07/30/2020
68				Equipment Failure	Gasket/O-Ring		01/10/2019
69				Equipment Failure	Gasket/O-Ring		04/23/2020
70				Natural Forces	Ground Movement		08/04/2020
71		Butt Fusion		Material, Weld or Joint Failure (including compression c	Cold Fuse		08/04/2020
72				Equipment Failure	Gasket/O-Ring		03/06/2020
73				Equipment Failure	Gasket/O-Ring		03/06/2020
74				Equipment Failure	Gasket/O-Ring		03/12/2020
75				Equipment Failure	Gasket/O-Ring		03/23/2020
76				Incorrect Operations	Other/Bang Bar Damage		08/08/2020
77				Equipment Failure	Leaking Amp Fit Saddle		04/20/2018
78				Equipment Failure	Gasket/O-Ring		09/10/2018
79				Equipment Failure	Gasket/O-Ring		05/07/2019
80	Saddle			Natural Forces	Ground Movement		11/09/2018
81				Natural Forces	Ground Movement		12/20/2018
82	Amp Saddle			Equipment Failure	Gasket/O-Ring		11/07/2018
83	Stop			Equipment Failure	Gasket/O-Ring		06/08/2020



Line No.	Reporting Date	MATERIALS SECTION					INSTALLATION AND OPERATIONS SECTION						FAILURE LOCATION (Pipe, Fitting or Joint)	FAILURE IN FITTING (Transition, Valve, Meter Riser, Mechanical Fitting, Heat Fusion Fitting, Electrofusion Fitting, Other - describe)
		TYPE OF MATERIAL	(DESCRIBE IF OTHER)	MANUFACTURER	SDR,DR, SCHEDULE or WALL THICKNESS	NOMINAL SIZE	METHOD OF INSTALLATION (Open Trench, Bored, Plowed In, Insertion, Joint Trench, Planted, Unknown, Other - describe, Direct Bury)	TYPE OF SOIL IN CONTACT WITH PIPE (Sand, Loam, Clay, Rocky, Slurry, Other - describe)	OPERATING PRESSURE AT TIME OF FAILURE (psig)	OPERATING PRESSURE NORMAL RANGE MINIMUM (if known) (psig)	OPERATING PRESSURE NORMAL RANGE MAXIMUM (if known) (psig)	DATE OF INSTALLATION		
84	Sep-20	MDPE2406		Driscopipe		0.75"		Clay	45 psig			03/28/1979	Fitting	Riser
85	Sep-20	MDPE2406		Driscopipe		0.75"		Clay	45 psig			10/25/1979	Fitting	Riser
86	Sep-20	MDPE2406		Driscopipe		0.75"		Clay	25 psig			12/21/1978	Fitting	Riser
87	Sep-20	MD OTHER		Driscopipe		0.75"		Clay	12 psig			N/A	Pipe	
88	Sep-20	MD OTHER		Driscopipe		0.75"		Clay	12 psig			N/A	Pipe	
89	Sep-20	HDPE2306		Performance Pipe		1.25"		Clay	18 psig			12/05/2017	Fitting	Tap Connection
90	Sep-20	MDPE2406		Driscopipe		0.75"		Clay	45 psig			11/12/1976	Fitting	Riser
91	Sep-20	HD OTHER		Driscopipe		2.0"		Clay	45 psig			06/20/1988	Fitting	Tap Connection
92	Sep-20	HDPE2306		Driscopipe		2.0"		Caliche	35 psig			N/A	Pipe	
93	Sep-20	MD OTHER		Driscopipe		0.75"		Clay	58 psig			11/18/1972	Pipe	
94	Sep-20	MDPE2406		Performance Pipe		1.0"		Clay	14 psig			12/14/2017	Fitting	Tap Connection
95	Sep-20	HDPE3406		Plexco		2.0"		Loam	45 psig			N/A	Fitting	Cap
96	Oct-20	MDPE2406		Driscopipe		6.0"		Clay	45 psig			N/A	Fitting	Valve Stem
97	Oct-20	MD OTHER		Other		0.75"		Loam	58 psig			N/A	Fitting	Riser
98	Oct-20	MD OTHER		Driscopipe		2.0"		Clay	13 psig			N/A	Pipe	
99	Oct-20	HDPE3406		Driscopipe		2.0"		Clay	15 psig			09/04/1981	Fitting	Saddle
100	Oct-20	MDPE2406		Driscopipe		0.75"		Loam	2.25 psig			10/03/2013	Fitting	Tap Connection
101	Oct-20	HDPE2306		Other		1.0"		Loam	32 psig			08/03/1979	Fitting	Tap Connection
102	Oct-20	HDPE3406		Other		4.0"		Loam	45 psig			N/A	Fitting	Poly Valve
103	Oct-20	HDPE2306		Driscopipe		0.75"		Loam	40 psig			N/A	Fitting	Tap Connection
104	Oct-20	Aldyla		Other		2.0"		Clay	4 psig			10/28/2014	Pipe	
105	Oct-20	MDPE2406		Other		1.0"		Clay	25 psig			01/01/1965	Fitting	Tap Connection
106	Oct-20	MDPE2406		Driscopipe		2.0"		Clay	50 psig			N/A	Fitting	Tap Connection
107	Oct-20	MDPE2406		Performance Pipe		0.75"		Clay	14 oz			11/27/2012	Pipe	
108	Oct-20	MDPE2406		Polypipe		0.75"		Clay	17.5 psig			05/21/2013	Fitting	Tap Connection
109	Oct-20	MDPE2406		Driscopipe		0.75"		Clay	30 psig			10/02/2000	Pipe	
110	Oct-20	MDPE2406		Other		0.75"		Clay	45 psig			10/15/2009	Fitting	Compression Coupling

<b>FAILURE ANALYSIS SECTION</b>							
Line No.	Description of Other Fitting Type	FAILURE IN JOINT (Mechanical, Electrofusion, Butt Fusion, Socket Fusion, Saddle Fusion, Solvent, Other describe)	Description of Other Joint Type	FAILURE CAUSE (Squeeze Off, Point Loading, Excessive Expansion/Contraction, Excessive External Earth Loading, Installation Error, Previous Impact, Unknown, Unknown - not excavated - abandoned, Unknown - not excavated - replaced, Material Defect - describe, Other - describe)	ADDITIONAL FAILURE CAUSE (Squeeze Off, Point Loading, Excessive Expansion/Contraction, Excessive External Earth Loading, Installation Error, Previous Impact, Unknown, Unknown - not excavated - abandoned, Unknown - not excavated - replaced, Material Defect - describe, Other - describe)	Description of Material Defect or Other Failure Cause	DATE OF FAILURE
84	Stop			Equipment Failure	Gasket/O-Ring		05/07/2020
85	Stop			Equipment Failure	Gasket/O-Ring		12/16/2019
86	Stop			Equipment Failure	Gasket/O-Ring		05/05/2020
87				Natural Forces	Ground Movement		08/21/2020
88				Natural Forces	Ground Movement		09/14/2020
89	Cap			Incorrect Operations	Loose Cap		12/12/2018
90	Stop			Equipment Failure	Gasket/O-Ring		09/30/2019
91	Cap			Equipment Failure	Gasket/O-Ring		09/01/2020
92				Equipment Failure	Leaking Saddle		09/14/2020
93				Natural Forces	Ground Movement		06/16/2019
94	Compression Coupling			Equipment Failure	Jam Nut		09/18/2020
95				Equipment Failure	Gasket/O-Ring		07/08/2020
96				Equipment Failure	Gasket/O-Ring		04/10/2020
97				Equipment Failure	Gasket/O-Ring		10/02/2020
98				Natural Forces	Ground Movement		12/20/2019
99				Equipment Failure	Gasket/O-Ring		05/09/2018
100	Plug Cap			Loose Cap	Not Specified		08/24/2020
101	Bolt			Equipment Failure	Gasket/O-Ring		07/16/2019
102				Equipment Failure	Equipment Malfunction		09/22/2020
103				Equipment Failure	Equipment Malfunction		09/21/2020
104				Material, Weld or Joint Failure	Wrinkle Bend		10/12/2020
105				Material, Weld or Joint Failure	Fusion Defect (Plastic)		10/12/2020
106				Equipment Failure	Gasket/O-Ring		10/10/2020
107				Natural Forces	Ground Movement		10/14/2020
108				Incorrect Operations	Improper Backfilling		10/10/2020
109				Material, Weld or Joint Failure	Wrinkle Bend		10/20/2020
110				Equipment Failure	Pipe Pulled Out of Metfit		10/20/2020

**CERTIFICATE OF SERVICE**

I, Judy Jenkins Hitchye, hereby certify that a copy of the above and foregoing *Compliance Filing* was forwarded this 31<sup>st</sup> day of March, 2021, addressed to:

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