

**COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION**

In the matter of:)
2021 Safety Modification and Replacement Program) Case No. 2020-00327
Filing of Columbia Gas of Kentucky, Inc.)
)

**PREPARED DIRECT TESTIMONY OF
GARY E. SULLIVAN
ON BEHALF OF COLUMBIA GAS OF KENTUCKY, INC.**

Brooke E. Wancheck,
Assistant General Counsel
290 W. Nationwide Blvd.
Columbus, Ohio 43216-0117
Telephone: (614) 460-5558
E-mail bwancheck@nisource.com

Attorney for
COLUMBIA GAS OF KENTUCKY, INC.

October 15, 2020

PREPARED DIRECT TESTIMONY OF GARY E. SULLIVAN

1 I. INTRODUCTION

2 Q: Please state your name and business address.

3 A: My name is Gary Sullivan and my business address is 2001 Mercer Rd., Lexington,
4 KY.

5
6 Q: What is your current position and what are your responsibilities?

7 A: I am the Manager of Field Engineering for Columbia Gas of Kentucky, Inc.
8 ("Columbia"). Columbia is part of the NiSource Inc. ("NiSource") family of
9 companies. My responsibilities include ensuring the Columbia engineering team's
10 designs, job orders and job order drawings are technically accurate, safe and
11 comply with state and federal code, and with NiSource's gas standards. Myself
12 and others are also responsible for ensuring that the materials selected for these
13 designs are appropriate for each capital job order and are commensurate with the
14 maximum allowable operating pressure ("MAOP") of the system on which
15 Columbia is working. In addition, I review proposed tie-in plans and pressure
16 testing plans of many complex projects to ensure they are workable and
17 appropriate. I am also responsible for executing Columbia's capital plan as well as
18 monitoring, controlling and reporting variances to the budget classes of the capital
19 plan and at the project level as well. My responsibilities also include ensuring that

1 the engineering team receives the training and development needed to remain
2 current in the industry and to continue providing safe designs for our customers.
3 I provide oversight to the engineers, engineering technician, and interns on the
4 team who are also responsible for winter operations planning and providing
5 emergency support to field personnel. The engineering team and I collaborate with
6 other Columbia departments to ensure safe, efficient and cost effective capital
7 designs are developed, communicated and constructed.

8
9 **Q: What is your educational background?**

10 A: I attended the A. James Clark College of Engineering at the University of Maryland
11 in College Park, graduating with a Bachelor of Science degree in Mechanical
12 Engineering in 1996.

13
14 **Q: What professional licenses do you hold?**

15 A: I am a licensed professional engineer in the Commonwealth of Kentucky and have
16 been since 2003.

17
18 **Q: Please describe your professional employment history.**

19 A: In 1996, I joined Forensic and Research Engineers, Inc. located in College Park,
20 Maryland as a Project Manager/Principle Investigator performing a Small Business
21 Innovation Research project where the company designed, constructed and tested

1 a high-speed composite flywheel intended for use in low earth orbit satellites.
2 Other responsibilities included accident reconstruction, patent claim
3 interpretation, and investigation of product liability claims for clients. In 1998, I
4 joined Columbia as an Operations Engineer supporting the Ashland,
5 Prestonsburg, Maysville and Winchester Operating Areas. After a departmental
6 restructuring, I was assigned as the operations engineer for the entire state as part
7 of the Capital Design team where the team performed all the capital design tasks
8 from project inception to close-out. In 2007 I was awarded the Leader of Field
9 Engineering position where I was responsible for leading the engineering team in
10 the design of capital projects, technical and emergency support to field operations,
11 and winter operations planning in addition to monitoring and reporting the
12 capital costs. In 2016, I was awarded the Manager, Field Engineering position
13 where I continued leading the Kentucky engineering team, but took on additional
14 responsibilities for capital planning and management, project identification and
15 selection, and support for additional stakeholders.

16
17 **Q: Have you previously testified before any regulatory Commissions?**

18 A: Yes. I have provided written testimony to this Commission in an *Application of*
19 *Columbia Gas of Kentucky, Inc. for a Limited Deviation from the Requirements of 807*
20 *KAR 5:022, Section 14(22)(A) Case No. 2015-00084* and in *The Electronic Application*

1 of Columbia Gas of Kentucky, Inc. for: 1) A Declaration that Construction of a Low
2 Pressure System Safety Improvement in an Extension of its System in the Ordinary
3 Course of Business; 2) In the Alternative, for the Issuance of a Certificate of Public
4 Convenience and Necessity for such Construction; 3) Approval of an Amendment and
5 Expansion of its Accelerated Main Replacement Tariff to an Accelerated Safety and
6 Replacement Tariff; and 4) Approval to Modify the 2019 AMRP Construction Plan, Case
7 No. 2019-00257.

8 **Q: What is the purpose of your testimony in this proceeding?**

9 A: I will be describing the details of Columbia’s proposed Line DE In-Line Inspection
10 (ILI) Retro-fit project (ILI Project) and assessment to enhance the safety of
11 Columbia’s transmission facilities as part of its overall operating system.

12
13 **II. OVERVIEW OF COLUMBIA’S NATURAL GAS TRANSMISSION SYSTEM**

14 **Q: Provide a brief overview of Columbia’s transmission pipeline network.**

15 A: Columbia currently operates two 12-inch transmission lines totaling 55.7 miles
16 that are located in seven counties across the Commonwealth. In particular, Line T-
17 4 is located in Boyd County and Line DE starts in Nicholas County traverses
18 Bourbon, Harrison, Scott, Woodford counties, and terminates in Franklin County.
19 Each pipeline has an MAOP of 720 psig. However, Line DE currently operates
20 between 500 psig and 550 psig and Line T-4 operates between 250 psig and 400

1 psig. Line DE's MAOP produces a hoop stress of 38% of its specified minimum
2 yield strength (SMYS) and 29% SMYS at its current operating pressure. Columbia's
3 transmission pipeline role is to transport natural gas at an adequate supply and
4 pressure to the distribution centers for reliable delivery to customers.

6 **III. ILI RETROFIT PROJECT**

7 **Q: Provide a brief overview of Columbia's proposed ILI Project.**

8 A: Retrofits at six stations and other lateral feeds off Line DE will be required to
9 ensure effective travel of the cleaning and instrumented ILI tools through the
10 pipeline mitigating the potential for tools inadvertently wedging into various
11 forms of legacy pipeline configurations and construction features. Columbia plans
12 to launch an EnviroCal tool in late 2021 to make a preliminary assessment of other
13 fittings potentially required for replacement. An EnviroCal tool is a caliper tool
14 and will help validate some of the assumptions made about the effective
15 inspection capabilities of additional components for possible retrofit based on
16 geometric features along the pipeline.

17 In late 2022, after replacement of any additional fittings identified from the
18 EnviroCal tool, a series of additional internal inspection devices will be run
19 through the 12-inch pipeline beginning at the point of delivery station at Lake
20 Carnico in Nicholas County. First, one or more cleaning pigs will be inserted into

1 the pipeline to remove any accumulated liquids or debris. Those materials will be
2 captured at Columbia’s station R-1855 located on Highway 460 in Frankfort. After
3 confirmation of a satisfactory cleaning process, gage plate and geometry tools will
4 be inserted into the line to collect data to ensure the smart tool will not be damaged
5 and to possibly uncover dents or other anomalies in the pipeline. After satisfactory
6 results from those tool runs, the smart tool will be launched. These inspection runs
7 are intended to be made while maintaining service to the downstream customers.

8 The smart tool will travel with the gas flow, calculated to produce a velocity
9 somewhere between 3 and 7 miles per hour, all the while capturing magnetic flux
10 sensor readings from inside the pipeline. The tool is expected to traverse bends,
11 ells, valves, drips, control fittings, tees, and be received at station R-1855 in
12 Franklin County.

13

14 **Q: What makes a line “pigable”?**

15 **A:** Pigability refers to a condition inside a pipeline where the tools necessary to clean
16 and collect data successfully may navigate all the valves, fittings, service taps, and
17 horizontal and vertical changes in direction a pipeline encounters without the
18 tools becoming lodged while maintaining velocities within a range that captures
19 useful data. Those conditions are evidenced by full bore ball valves, ells having a
20 radius of 3D or larger, tees and control fittings having bars, bends being less than

1 7 degrees, service taps not encroaching into the interior of the pipeline, and ells
2 having a length of straight pipe equal to or greater than 3 times the diameter
3 between them.

4
5 **Q: What assumptions are being made in the design of this project?**

6 A: Because of the nature of the large customers we directly serve from this line and
7 those indirectly served, we strive to achieve first pass success with the smart tool.
8 We also assumed welded back to back ells of a certain radii were not pigable,
9 reducing tees without bars whose branch is greater than 50% of the mainline were
10 not considered pigable, fittings that were not traceable, verifiable, and complete
11 were not pigable, and that segmental bends greater than 7 degrees based on
12 surface locates were not pigable.

13
14 **Q: Will Columbia be verifying the authenticity of those assumptions?**

15 A: Yes, with regard to the bends based on surface locates and the apparently back to
16 back ells will be field verified with excavation and observation prior to arbitrarily
17 replacing such fittings.

18
19 **Q: What steps are necessary to ensure this tool run captures adequate and reliable**
20 **data on the first pass?**

1 A: Columbia has retained CAMPOS EPC to help us evaluate and understand the
2 requirements to launch, receive, and pass the internal inspection tools. As a result,
3 they have identified the replacements necessary to ensure the inspection tool will
4 be able to pass and capture the necessary data to effectively evaluate the
5 anomalous conditions present in the pipeline. Additionally, CAMPOS has made
6 other recommendations to ensure reliable operations at the stations controlling
7 pressure downstream of Line DE.

8
9 **IV. FACILITY INSTALLATIONS AND REPLACEMENTS NECESSARY TO**
10 **ENSURE PIGABILITY AND RELIABILITY OF OPERATIONS**

11 **Q: Provide a listing of the facilities to be replaced or installed and the reasons such**
12 **replacements are deemed necessary.**

13 A: See Attachment 1.

14
15 **Q: Why does Columbia need to replace the pig launcher at Lake Carnico?**

16 A: The existing launcher facility was designed and fabricated to accommodate the
17 smart tool technology at the time of installation and does not meet the needs of
18 modern tools. Modern day ILI technology is typically delivered in what is termed
19 a train configuration that has the Magnetic Flux Leakage (MFL) tool as one car, the
20 battery and data capture unit as a second car and an Inertial Navigation Unit (INU)

1 as the third car on the train or some variation of this configuration. This has
2 extended the length of the tools delivered into the pipeline and hence increased
3 the requirements of the launchers and the receivers.

4

5 **Q: Why are filter separators being installed at each of the take-off stations as part**
6 **of this project?**

7 A: It has been Columbia's experience and that of CAMPOS that when upstream
8 suppliers perform tool runs that debris and liquids are often pushed into the
9 branch connections and cause problems with the pressure control equipment.
10 Consequently, it is necessary to mitigate those adverse effects in some manner.
11 Filter/separators are an excellent method to eliminate that hazard. This also
12 considers the criticality of the continued serviceability to our downstream
13 customers for their operations and comfort.

14

15 **Q: Why is Columbia replacing the 12" tee at Turner Station?**

16 A: The branch of this tee does not have bars to prevent a tool from wanting to take
17 that path and potentially become lodged.

18

19 **Q: Why is Columbia proposing to replace some of the sectionalizing valves?**

1 A: The design of a sectionalizing valve set includes a mainline block valve and two
2 additional valves, one on either side of the main line block valve, with stacks to
3 blow the line down as rapidly as practicable. The design that Columbia utilized
4 included a 12-inch full-port main line ball valve with two 12x6 reducing tees
5 (without bars), a 6X4 reducer, a length of 4-inch pipe to get 4-inch valves above
6 ground, and a 4-inch blow-off stack terminating at least 7 feet above ground level.

7 Two of the valve sets are being removed at locations where the pig launcher
8 and receiver are being installed. To optimize space, those valves sets are being
9 incorporated into the new launcher and receiver facilities.

10 The valve set at one of our major industrial customers is being replaced
11 because we have the available space to install an automatic or remotely operated
12 valve set in the future. Columbia proposes to also install a bi-directional supply
13 line as a contingency measure to ensure continued operations in the event a tool
14 becomes lodged upstream of this location.

15 A fourth valve set will be replaced at Ironworks Pike where the 12" valve
16 developed a leak shortly after installation. Columbia required the vendor to
17 replace the valve including the work to stop the gas flow and bypass the faulty
18 valve. Unfortunately, the materials used in that replacement are not traceable,
19 verifiable, or complete.

20

1 **Q: Are Automatic or Remotely Operated Shut-Off Valves going to be utilized**
2 **when replacing a sectionalizing valve set?**

3 A: Columbia does not propose to use such valves with this project; however, for the
4 valve sets that we do replace, they will be outfitted with the necessary components
5 that will make such a conversion in the future simpler. PHMSA's guidance
6 regarding new installations has not been published yet so we are forgoing such an
7 installation at this time in an effort to minimize the capital costs of this project.
8 Remote or automatic shut off valves require additional land rights that we
9 currently do not possess.

10

11 **Q: Why is Columbia installing a pig receiver at Regulator Station 1854?**

12 A: A receiver was not installed with the original installation. As a result, we require
13 facilities to remove the ILI tools.

14

15 **Q: What happens after an ILI run?**

16 A: Professionals at the ILI tool vendor with specialized skills will align the magnetic
17 flux signature data with the geometry tool data acquired from the sensors and
18 determine if there are any previously unknown risks. Also, monitored indications
19 from previous direct assessments will be logistically aligned to determine if these
20 identified threats are potentially advancing in severity. Columbia will consider

1 and respond to these anomaly indicators as prescribed by the Transmission
2 Integrity processes.

3

4 **Q: Is the cost of the assessment included in this proposal?**

5 A: Yes, the cost of the first assessment is included in the estimate for this project as
6 part of the commissioning costs for the capital project retrofits to validate that
7 these new configurations improve the functionality from the prescribed retrofits
8 enabling the capability to use ILI tools. This will be the quality measure used to
9 deem the pipeline used and useful for assessment with ILI functionality.

10

11 **Q: Why is this proposal a priority for Columbia?**

12 A: After an incident in San Bruno, California, Columbia lowered the operating
13 pressure of Line DE to a level below the design pressure of certain unknown
14 fittings while investigations into the materials on the pipeline were fully
15 completed. However, growth over the last 8 years has been at a rate that suggests
16 the operating pressure must be increased to continue to supply the downstream
17 demand and in particular the demand of one of Columbia's largest customers.

18 Additionally, four transmission line incidents in Kentucky with other
19 operators have brought increased focus and attention on the safety and
20 operational viability of transmission lines that is more effectively assessed via ILI

1 technologies. As a prudent operator, it is incumbent upon Columbia to learn from
2 these incidents, evaluate its own system and take the necessary steps to engage in
3 improving the safety and reliability of its system to decrease the risk of similar
4 incidents.

5
6 **Q: What is the total estimated cost of Columbia's proposal?**

7 A: The total estimated cost is \$16.9M over two years. Columbia anticipates spending
8 approximately \$10M starting in 2021 and another \$6.9M in 2022.

9
10 **Q: Does the Commission need to issue Certificates of Public Convenience and
11 Necessity ("CPCN") for the facility installations and replacements that are part
12 of this proposal?**

13 A: No, but as stated in Case No. 2019-00257, any future safety modification
14 investments are to be reviewed and approved by the Commission before such
15 investments can be recovered via Tariff SMRP and an analysis conducted to
16 determine whether a capital project requires a CPCN. In its Annual Report on file
17 with the Commission, Columbia's net utility plant as of December 31, 2019 was
18 \$383,453,923. The estimated cost of the ILI project is \$16.9M over two years. This
19 is 4.4% of Columbia's 2019 net utility plant. The facility installations and

1 replacements that are part of Columbia's proposal are in the normal course of
2 business as is the ILI project overall.

3

4 **Q: Will the ILI project create a wasteful duplication of plant, equipment, property,**
5 **or facilities?**

6 A: No. There will be no duplication of facilities though there will be replacement of
7 existing facilities.

8

9 **Q: Will the ILI project conflict with existing certificates or service of other utilities**
10 **under the jurisdiction of the Commission that are in the general or contiguous**
11 **area in which Columbia provides service?**

12 A: No. The replacements of the fittings, ells, tees, and sectionalizing block valves are
13 only occurring on Columbia's existing pipeline. The new facilities will only render
14 the described advantages to Columbia customers and will not affect the service of
15 other natural gas utilities.

16

17 **V. CONCLUSION**

18 **Q: Does this conclude your Prepared Direct Testimony?**

19 A: Yes, it does; however, I reserve the right to file rebuttal testimony if necessary.

20

Installations and Replacements	
Location Name	Description
Lake Carnico POD	Replace launcher and sectionalizing valve set
Paris/Cynthiana Take Off	Install temporary filtration
Toyota Plant Take Off	Install permanent filtration & redesign for bi-directional supply
Cherry Blossom Spur	Replace 12 tee supplying Turner Station
Turner Station Take Off	Install temporary filtration and bypass
Cherry Blossom Spur	Retire sectionalizing valve set
Sewell Station Take Off	Replace sectionalizing valve set and install temporary filter & bypass
Ironworks Pike	Replace sectionalizing valve set and two adjacent stopple fittings
Station R-1854	Install receiver, permanent filtration, and expand site

COMMONWEALTH OF KENTUCKY
BEFORE THE PUBLIC SERVICE COMMISSION

ELECTRONIC 2021 SAFETY MODIFICATION)
AND REPLACEMENT PROGRAM FILING OF)
COLUMBIA GAS OF KENTUCKY, INC.) Case No. 2020- 00327
)
)
)

CERTIFICATE AND AFFIDAVIT

The Affiant, Gary Sullivan, being duly sworn, deposes and states that the prepared testimony attached hereto and made a part hereof, constitutes the prepared direct testimony of this affiant in the above-captioned matter, and that if asked the questions propounded therein, this affiant would make the answers set forth in the attached prepared direct pre-filed testimony.



Gary Sullivan

COMMONWEALTH OF KENTUCKY
COUNTY OF FRANKLIN

SUBSCRIBED AND SWORN to before me by Gary Sullivan on this 13th day of October, 2020.



Notary Public #598041

My Commission expires: 03/26/2022