

*Exhibit No.:*  
*Issue(s):* *Quality of Service*  
*Witness:* *Andrew Harris*  
*Sponsoring Party:* *MoPSC Staff*  
*Type of Exhibit:* *Direct Testimony*  
*Case No.:* *WR-2024-0104*  
*Date Testimony Prepared:* *August 20, 2024*

**MISSOURI PUBLIC SERVICE COMMISSION**

**INDUSTRY ANALYSIS DIVISION**

**WATER, SEWER, AND STEAM DEPARTMENT**

**DIRECT TESTIMONY**

**OF**

**ANDREW HARRIS, P.E.**

**LIBERTY UTILITIES (Missouri Water) LLC,**

**d/b/a Liberty**

**CASE NO. WR-2024-0104**

*Jefferson City, Missouri*

*August 2024*

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ANDREW HARRIS, P.E.  
LIBERTY UTILITIES (Missouri Water) LLC,  
d/b/a Liberty  
CASE NO. WR-2024-0104**

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1 system, and discuss the need for Inflow and Infiltration (“I&I”)<sup>1</sup> reduction in the collection  
2 system in the near-term, concurrent with near-term upgrades at the sewer plant.

3 **CHALLENGES ASSOCIATED WITH THE BOLIVAR SEWER SYSTEM**

4 Q. What was the condition of the Bolivar sewer system at the time of  
5 Liberty Water’s acquisition?<sup>2</sup>

6 A. The Bolivar sewer system was experiencing sanitary sewer overflows (“SSOs”)  
7 with regularity, and the sewer treatment plant had been unable to meet the discharge limits of  
8 the Missouri Department of Natural Resources (“DNR”) permit number MO-0022373.  
9 SSOs are discharges of untreated sewage from the collection system, such as an  
10 overflowing manhole, or from the headworks of the treatment plant. Attachment 1 shows one  
11 of the manholes that typically overflows during rain events, with debris littering the ground that  
12 was left behind by the sewage. The United States Environmental Protection Agency (“EPA”)  
13 first issued an enforcement order against the City of Bolivar on September 18, 2007. In addition  
14 to any SSOs at or upstream of the treatment plant, any significant rain event caused the  
15 treatment plant equipment to be taken off line and bypassed until the events subsided and the  
16 flows returned to normal. SSOs and bypasses of partially treated sewage pose threats to human  
17 health and the environment, and are examples of a utility not providing safe and  
18 adequate service.

19 Q. Are there also significant challenges with the Bolivar drinking water system?

20 A. No. Unlike the sewer system, the drinking water system does not face  
21 significant challenges. Liberty Water did complete a safety improvement in transitioning away

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<sup>1</sup> I&I occurs when sewer systems lose integrity over time, allowing intrusion of groundwater or stormwater into the system that dilutes the wastewater, and sometimes leads to SSOs. Excessive I&I can also cause bypassing, which is a discharge of partially treated sewage due to treatment processes not properly functioning.

<sup>2</sup> Case No. WA-2020-0397

1 from the gaseous chlorine cylinders previously used by Bolivar. Chlorine gas drawn from  
2 chlorine cylinders has potential for release from the feed system and is a significant safety and  
3 health hazard. A liquid chlorine solution for disinfection, as Liberty Water replaced the gaseous  
4 chlorine feed system with, is a significant improvement for safety.

5 **LIBERTY WATER'S NEAR-TERM SEWER SYSTEM PLANS**

6 Q. What initial, near-term, upgrades did Liberty Water identify in 2020 for the  
7 Bolivar sewer system in order to begin approaching the process of bringing the system into  
8 permit compliance?

9 A. In Appendix D Confidential – Feasibility Study of the 2020 acquisition  
10 application, Case No. WA-2020-0397, Liberty Water discussed both its short and long-term  
11 planning that would begin with short-term projects in year one (1), after receipt of a Certificate  
12 of Convenience and Necessity (CCN). There is a note on the Feasibility Study page 3 of 4  
13 indicating that after completion of the acquisition a more detailed evaluation and cost estimate  
14 will need to be developed.

15 The initial plan for short-term upgrades included the following:

16 \*\* [REDACTED]  
17 [REDACTED]  
18 [REDACTED]  
19 [REDACTED]  
20 [REDACTED]  
21 [REDACTED]  
22 [REDACTED]  
23 [REDACTED]

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Andrew Harris

1 [REDACTED]

2 [REDACTED]

3 [REDACTED]

4 [REDACTED]

5 [REDACTED]

6 [REDACTED]

7 [REDACTED]

8 [REDACTED]

9 [REDACTED]

10 [REDACTED]

11 [REDACTED]

12 [REDACTED]

13 [REDACTED]

14 [REDACTED]

15 [REDACTED] \*\*

16 Q. Did Liberty Water enter into an Abatement Order on Consent (“Agreement” or  
17 “AOC”) with the DNR for the Bolivar system?

18 A. Yes. The Agreement was signed by Liberty Water and DNR on June 16, 2022.

19 Q. What is the purpose of the Agreement and what does it accomplish?

20 A. The Agreement establishes a timeline for the steps to be taken by Liberty Water  
21 in order for the system to approach and achieve compliance in a methodic and trackable fashion  
22 with milestone deadlines.

23 Q. What was the first requirement of the Agreement?

1           A.     The first requirement was for Liberty Water to provide a Facility Plan (“Plan”)  
2 for the system, developed by a professional engineer licensed in the State of Missouri, that  
3 recommends improvements necessary to enable the wastewater treatment facility to  
4 achieve compliance.

5           Q.     Was Liberty Water successful in meeting this deadline?

6           A.     Yes. As discussed in the Liberty Water responses to Staff’s Data Requests  
7 (“DRs”) Nos. 0098 and 0099, Liberty Water contracted with Burns & McDonnell to perform  
8 sewer system studies to inform Liberty Water of locations in the system that require repair; flow  
9 monitoring for hydraulic modeling to understand system capacity upgrade needs; and to prepare  
10 and submit the Plan. The Plan <sup>3</sup> was submitted in May 2024.

11          Q.     What comes next after DNR’s receipt of the Plan?

12          A.     Following an agreement with the Facility Plan, and a subsequent construction  
13 permit application, DNR will develop a compliance schedule for the activities outlined in  
14 the Plan.

15           **NEED FOR INFLOW AND INFILTRATION REDUCTION IN THE COLLECTION**  
16           **SYSTEM IN THE NEAR-TERM**

17          Q.     How does the Plan generally align with the Feasibility Study for the short-term  
18 projects planning?

19          A.     There is general alignment with the initial 2020 planning, with additional details  
20 and some additional recommendations for Liberty Water’s consideration regarding treatment  
21 plant upgrades to meet future permit limits. The Plan indicates an estimated cost for the short

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<sup>3</sup> [MO DNR Sunshine Request Tracking - Q023733-072424](#)

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1 and long-term upgrades (to possibly be constructed in 3 phases over approximately ten years)  
2 to be nearly \*\* [REDACTED] \*\*.

3 Q. In Liberty Water's responses to Staff DRs, is there a concern that could lead to  
4 problems with implementing the Plan?

5 A. Yes. The responses to Staff DR Nos. 0098 and 0099 indicate I&I improvement  
6 projects would begin at a future time while treatment plant upgrades would begin as the priority.

7 Q. What does the Plan indicate about I&I reduction and the associated upgrade  
8 design timing?

9 A. In Section 3.2 Design Basis, and specifically on page 3-6, the Plan discusses that  
10 the design is only feasible with active I&I reduction.

11 Q. Does this mean that the I&I improvements should begin now rather than in  
12 the future?

13 A. Yes, that is Staff's position.

14 Q. What would be the benefit of starting sooner?

15 A. Reductions in I&I correlate to reduction in risk of continuing to experience  
16 SSOs. Additionally, the Bolivar system upgrade design relies on reduced I&I.

17 Q. Is it feasible to begin sooner?

18 A. Yes. Liberty Water possesses a report from Burns & McDonnell titled  
19 *Flow Analysis & Inflow and Infiltration* dated May 12, 2023, to use as a resource for the work.

20 Q. What are the impacts to the environment from bypassing and SSOs?

21 A. SSOs can contaminate our waters, causing serious water quality problems, and  
22 back-up into homes, causing property damage and threatening public health.<sup>4</sup>

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<sup>4</sup> <https://www.epa.gov/npdes/sanitary-sewer-overflows-ssos>



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1 Q. Why are bypasses and SSOs a threat to public health?

2 A. Bacteria, viruses and parasites in untreated wastewater pose a threat of illness to  
3 those that may become exposed to it.

4 Q. Does Staff believe that Liberty Water is committed to the schedule in their  
5 Facility Plan?

6 A. No. During a meeting between Staff and Liberty Water on July 31, 2024,  
7 Liberty Water revealed that they were soliciting at least two further engineering opinions on  
8 the design of the wastewater treatment plant upgrades. This would add considerably to the  
9 timeline, as it took 24 months for Liberty Water to obtain the Facility Plan from Burns &  
10 McDonnell. It is unclear when construction would actually begin under Liberty Water's  
11 possible next plan, as once a new Facility Plan is developed it would have to be submitted to  
12 DNR for review and agreement, after which Liberty Water would submit a construction  
13 permit application.

14 Q. What does Staff recommend for I&I improvements?

15 A. Staff recommends the Commission order that I&I improvements begin in 2025  
16 in order to prevent any delays in implementing the Plan. Staff also recommends that Liberty  
17 Water be ordered to file a status report on the I&I improvements every six months, by  
18 February 1<sup>st</sup> and October 1<sup>st</sup>. This status report should summarize work completed in the  
19 previous six months, and planned and budgeted for the following six months.

20 Q. Does this conclude your direct testimony?

21 A. Yes it does.

**BEFORE THE PUBLIC SERVICE COMMISSION**

**OF THE STATE OF MISSOURI**

In the Matter of the Request of Liberty Utilities )  
(Missouri Water) LLC d/b/a Liberty for ) Case No. WR-2024-0104  
Authority to Implement a General Rate )  
Increase for Water and Wastewater Service )  
Provided in its Missouri Service Areas )

**AFFIDAVIT OF ANDREW HARRIS, PE**

STATE OF MISSOURI )  
) ss.  
COUNTY OF COLE )

**COMES NOW ANDREW HARRIS, PE** and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Direct Testimony of Andrew Harris, PE*; and that the same is true and correct according to his best knowledge and belief.

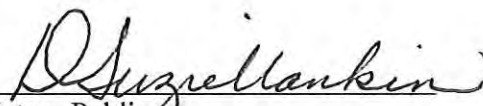
Further the Affiant sayeth not.

  
\_\_\_\_\_  
**ANDREW HARRIS**

**JURAT**

Subscribed and sworn before me, a duly constituted and authorized Notary Public, in and for the County of Cole, State of Missouri, at my office in Jefferson City, on this 12<sup>th</sup> day of August 2024.



  
\_\_\_\_\_  
Notary Public

**ANDREW HARRIS**

**CREDENTIALS AND CASE PARTICIPATION**

I am employed by the Missouri Public Service Commission as a Senior Professional Engineer, in the Water, Sewer & Steam Department. My duties include the review, inspection, and investigation of water and sewer systems and the development and preparation of recommendations and testimony regarding those systems. Specifically included are technical issues associated with water and sewer utility rate and acquisition cases including quality of service matters, utility plant utilization, costs incurred for providing utility service, and tariff rules. In addition to formal case work, I handle informal customer complaints that are of a technical nature, and informally assist water and sewer utility companies with respect to day-to-day operations, planning, and customer service issues.

**Educational Background and Work Experience**

I graduated from University of Missouri – Rolla in 1997 with a Bachelor of Science degree in Chemical Engineering. I am a Registered Professional Engineer in the State of Missouri and have been continuously licensed in Missouri since 2003. Previous employment includes experience in water and sewer operations and engineering with municipal, industrial, and consulting organizations. I hold certificates of competency at the highest level available from Missouri Department of Natural Resources for water and wastewater treatment as well as distribution system operations.

**Case Participation**

<b><u>Company</u></b>	<b><u>Case No.</u></b>
Missouri American Water Company (MAWC)	SA-2019-0334
Timber Creek	SA-2020-0013
Liberty Utilities	SA-2020-0067
MAWC	SA-2020-0132
Elm Hills	SA-2020-0152
Liberty Utilities	SA-2020-0216
Liberty Utilities	SA-2020-0398
MAWC	SA-2021-0017
MAWC	SA-2021-0074
Mid-MO Sanitation	SA-2022-0029
MAWC	SA-2022-0294

Confluence	SA-2023-0187
Elm Hills	SM-2020-0146
TUK, LLC	SM-2022-0131
MAWC	SR-2020-0345
Mid-MO Sanitation	SR-2021-0372
MAWC	WA-2019-0259
MAWC	WA-2021-0376
Liberty Utilities	WA-2020-0397
MAWC	WA-2022-0293
MAWC	WA-2022-0361
I-70 Mobile City	WC-2022-0295
Liberty Utilities	WM-2020-0156
Middlefork	WM-2021-0003
Liberty Utilities	WO-2022-0253
MAWC	WO-2024-0195
Raytown Water Company	WR-2020-0264
Elm Hills	WR-2020-0275
MAWC	WR-2020-0344
MAWC	WR-2022-0303
Confluence	WR-2023-0006
MAWC	WT-2020-0353





**Case No. WR-2024-0104**  
**Schedule AH-d2**