

*Exhibit No.:*  
*Issue(s):* *General Information*  
*Witness:* *David C. Roos*  
*Sponsoring Party:* *MoPSC Staff*  
*Type of Exhibit:* *Surrebuttal Testimony*  
*Case No.:* *WA-2019-0185*  
*Date Testimony Prepared:* *September 4, 2019*

**MISSOURI PUBLIC SERVICE COMMISSION**

**COMMISSION STAFF DIVISION**

**WATER AND SEWER**

**SURREBUTTAL TESTIMONY**

**OF**

**DAVID C. ROOS**

**OSAGE UTILITY OPERATING CO., INC.**

**CASE NO. WA-2019-0185**

*Jefferson City, Missouri*  
*September 2019*

1 **SURREBUTTAL TESTIMONY**  
2 **OF**  
3 **DAVID C. ROOS**  
4 **OSAGE UTILITY OPERATING CO., INC.**  
5 **CASE NO. WA-2019-0185**

6 Q. Please state your name and business address.

7 A. My name is David C. Roos and my business address is Missouri Public Service  
8 Commission, P.O. Box 360, Jefferson City, MO 65102.

9 Q. What is your position at the Missouri Public Service Commission  
10 (“Commission”)?

11 A. I am a Utility Engineering Specialist III in the Commission Staff Division,  
12 Water and Sewer Department.

13 Q. Are you the same David C. Roos that contributed to *Staff’s Recommendation*  
14 filed as the attachment Confidential Schedule ND-d2 to Natelle Dietrich Direct Testimony  
15 in this case?

16 A. Yes. I provided the section of *Staff’s Investigation of Water and Sewer Systems*  
17 from page 6 to page 18 in *Staff’s Recommendation of Approval of Application* filed in this case.

18 Q. Have you previously filed testimony before the Commission before?

19 A. Yes. A copy of my case experience is attached as Schedule DCR-s1 to this  
20 testimony.

21 Q. What is the purpose of your Surrebuttal Testimony?

22 A. The purpose of my Surrebuttal Testimony is to discuss several points of  
23 disagreement between the parties regarding future system improvements proposed by

1 Osage Utility Operating Company (“OUOC”) witness Todd Thomas in Direct Testimony  
2 and opposed by Public Water Supply District No. 5 of Camden County, Missouri  
3 (“PWSD5”) witness David Krehbiel in Rebuttal Testimony, and to advise the Commission that  
4 a decision on future system improvements is not required in this case.

5 Q. Do the parties agree on the amount of storage capacity needed for the Cedar  
6 Glen potable water system?

7 A. No. Staff, OUOC and PWSD5 agree that the Cedar Glen community has 216  
8 water connections, or “customers.” However, OUOC witness Todd Thomas and PWSD5  
9 witness David Krehbiel disagree on the estimated number of people served, the individual  
10 demand for water, and the required storage capacity of the potable water system. Staff did  
11 not file testimony concerning the storage capacity requirements for Cedar Glen’s potable  
12 water system.

13 Q. Is the Commission required to determine the number of people served, an  
14 individual’s demand for water and the storage capacity required for Cedar Glen’s potable  
15 water system?

16 A. No. Both parties have stated that they would make changes to Cedar Glen’s  
17 potable water system to increase capacity and reliability. In order to make these changes, either  
18 party would be required to apply for and receive a Construction Permit from the Missouri  
19 Department of Natural Resources (“DNR”). In its review, DNR uses a prescribed method for  
20 determining the minimum capacity overall and that method dictates how the number of people  
21 and an individual’s demand for water is determined. Therefore, it is DNR requirements that  
22 will determine the capacity requirement for the system.

1 Q. OUOC witness Todd Thomas proposes adding a moving bed bioreactor  
2 (“MBBR”) to the Cedar Glen wastewater treatment system to consistently meet permit limits  
3 for ammonia. PWSD5 witness Mr. Krehbiel has expressed the opinion that an MBBR is not  
4 needed, and that the current system is capable of meeting permit limits. What is an MBBR?

5 A. The purpose of an MBBR is to remove pollutants, primarily ammonia, from  
6 wastewater. A typical MBBR system consists of an aeration tank filled with carriers that  
7 provide surface area where a biomass can grow. The MBBR aeration system provides both  
8 aeration and mixing of the influent wastewater with the biomass on the carriers. The biomass  
9 consists of bacteria which utilize the pollutants in wastewater as a food source, similar to other  
10 methods of wastewater treatment. A sieve on the outlet of the aeration tank separates the  
11 carriers from the effluent and prevents the carriers from escaping the aeration tank.

12 The MBBR has been used at some systems regulated by the PSC as a secondary  
13 treatment step to increase the capacity of an existing wastewater treatment system and/or to  
14 treat the wastewater to more stringent effluent standards. The degree of filling the aeration tank  
15 with carriers can be readjusted to adapt to changing site conditions. Thus, an existing MBBR  
16 system can remove more pollutants from a waste stream at a higher wastewater flow rate than  
17 originally intended by adding carriers to the aeration tank without increasing the footprint of  
18 the system.

19 Q. Does Staff have a position as to whether an MBBR should be added to the Cedar  
20 Glen wastewater treatment system?

21 A. No. Staff has no position on this matter at this time.

22 Q. Is the Commission required to make the determination of the need for an MBBR  
23 at the Cedar Glen wastewater treatment plant in this case?

Surrebuttal Testimony of  
David C. Roos

1           A.     No. The determination as to what are the appropriate improvements for a  
2 wastewater system are made by the owner(s) of the utility. Whether or not the utility may  
3 recover the costs of those improvements is a decision that would be made by the Commission  
4 in a subsequent rate case. As Staff noted on page 8 of Staff's *Recommendation of Approval of*  
5 *Application* "the MBBR that OUOC proposes for additional treatment would primarily be  
6 used for additional ammonia removal. This proposal is inconsistent with statements made  
7 by the current operators of the system, Lake of the Ozarks Water and Sewer, in a July 8, 2018  
8 letter that the system meets effluent limitations without further upgrades. Staff understands  
9 that OUOC's proposal is preliminary, but further details and justification will be necessary if  
10 OUOC seeks inclusion of an MBBR in rates during the next rate case."

11           Q.     Can a party to this case become a party in a subsequent rate case where the  
12 recovery of system improvement costs are an issue?

13           A.     Yes. Any party representing the public in this case can request to intervene in a  
14 subsequent rate case. If granted intervention, the party is free to challenge the prudence of any  
15 upgrades made to the system.

16           Q.     Does this conclude your Surrebuttal Testimony?

17           A.     Yes.

BEFORE THE PUBLIC SERVICE COMMISSION

OF THE STATE OF MISSOURI

In the Matter of the Application of Osage )  
Utility Operating Company, Inc. to Acquire ) Case No. WA-2019-0185  
Certain Water and Sewer Assets and for a )  
Certificate of Convenience and Necessity )

**AFFIDAVIT OF DAVID C. ROOS**

STATE OF MISSOURI )  
 ) ss.  
COUNTY OF COLE )

COMES NOW DAVID C. ROOS and on his oath declares that he is of sound mind and lawful age; that he contributed to the foregoing *Surrebuttal Testimony*; and that the same is true and correct according to his best knowledge and belief.

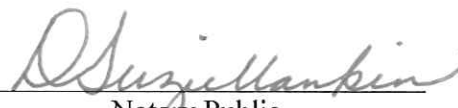
Further the Affiant sayeth not.

  
\_\_\_\_\_  
DAVID C. ROOS

**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 4th day of September 2019.

D. SUZIE MANKIN  
Notary Public - Notary Seal  
State of Missouri  
Commissioned for Cole County  
My Commission Expires: December 12, 2020  
Commission Number: 12412070

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

## **David C. Roos**

**Present Position:** I am a Utility Engineering Specialist III in the Water and Sewer Department, Commission Staff Division for the Missouri Public Service Commission, and formerly a Regulatory Economist III in the Energy Resources Department, Commission Staff Division for the Missouri Public Service Commission. I transferred to the position of Utility Engineering Specialist III in the Water and Sewer Department in August 2017.

### **Educational Background and Work Experience:**

In May 1983, I graduated from the University of Notre Dame, Notre Dame, Indiana, with a Bachelor of Science Degree in Chemical Engineering. I also graduated from the University of Missouri in December 2005, with a Master of Arts in Economics. I have been employed at the Missouri Public Service Commission as a Regulatory Economist III from March 2006 through July 2017. Since August 2017, I have been employed at the Missouri Public Service Commission as a Utility Engineering Specialist III. I began my employment with the Commission in the Economics Analysis section where my responsibilities included class cost of service and rate design. In 2008, I moved to the Energy Resource Analysis section where my testimony and responsibility topics include energy efficiency, resource analysis, and fuel adjustment clauses. In 2017, I transferred to the Water and Sewer Department as a Utility Engineering Specialist III. My responsibilities include performing system inspections for rate and acquisition cases and performing special investigations related to the various regulatory requirements that affect Missouri's investor-owned water and sewer utilities and their customers.

Prior to joining the Public Service Commission, I taught introductory economics and conducted research as a graduate teaching assistant and graduate research assistant at the University of Missouri. Prior to the University of Missouri, I was employed by several private firms where I provided consulting, design, and construction oversight of environmental projects for private and public sector clients.

**Previous Cases**

| <u>Company</u>                            | <u>Case No.</u> |
|---|-----------------|
| Empire District Electric Company          | ER-2006-0315    |
| AmerenUE                                  | ER-2007-0002    |
| Aquila Inc.                               | ER-2007-0004    |
| Kansas City Power and Light Company       | ER-2007-0291    |
| AmerenUE                                  | EO-2007-0409    |
| Empire District Electric Company          | ER-2008-0093    |
| Kansas City Power and Light Company       | ER-2008-0034    |
| Greater Missouri Operations               | HR-2008-0340    |
| Greater Missouri Operations               | ER-2009-0091    |
| Greater Missouri Operations               | EO-2009-0115    |
| Greater Missouri Operations               | EE-2009-0237    |
| Greater Missouri Operations               | EO-2009-0431    |
| Empire District Electric Company          | ER-2010-0105    |
| Greater Missouri Operations               | EO-2010-0002    |
| AmerenUE                                  | ER-2010-0036    |
| AmerenUE                                  | ER-2010-0044    |
| Empire District Electric Company          | EO-2010-0084    |
| Empire District Electric Company          | ER-2010-0105    |
| AmerenUE                                  | ER-2010-0165    |
| Greater Missouri Operations               | EO-2010-0167    |
| AmerenUE                                  | EO-2010-0255    |
| Greater Missouri Operations (Aquila)      | EO-2008-0216    |
| Ameren Missouri                           | ER-2011-0028    |
| Empire District Electric Company          | EO-2011-0066    |
| Empire District Electric Company          | EO-2011-0285    |
| Ameren Missouri                           | EO-2012-0074    |
| Greater Missouri Operations               | EO-2012-0009    |
| Ameren Missouri                           | EO-2012-0142    |
| Ameren Missouri                           | ER-2012-0166    |
| Greater Missouri Operations               | EO-2013-0325    |
| Ameren Missouri                           | EO-2013-0407    |
| Empire District Electric Company          | EO-2014-0057    |
| Greater Missouri Operations               | EO-2014-0256    |
| Empire District Electric Company          | ER-2014-0351    |
| Greater Missouri Operations               | EO-2015-0252    |
| Kansas City Power and Light Company       | EO-2015-0254    |
| Empire District Electric Company          | ER-2015-0214    |
| Greater Missouri Operations               | EO-2016-0053    |
| Empire District Electric Company          | ER-2016-0023    |
| KCP&L Greater Missouri Operations Company | ER-2016-0156    |
| KCPL                                      | ER-2016-0285    |
| Empire District Electric Company          | EO-2017-0065    |
| Greater Missouri Operations               | EO-2017-0231    |



**cont'd David C. Roos**

Liberty Utilities LLC  
Confluence Rivers Utility Operating Co., Inc.

WR-2018-0170  
WM-2018-0116