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Missouri Public Service Commission

Direct Testimony

of

Todd Thomas

On Behalf of

Osage Utility Operating Company, Inc.

July 11, 2019

Company Exhibit No. 6
Date 9-17-19 Reporter BJT
File No. WA-2019-0185

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DIRECT TESTIMONY OF
TODD THOMAS
OSAGE UTILITY OPERATING COMPANY, INC.

WITNESS INTRODUCTION

Q. PLEASE STATE YOUR NAME AND BUSINESS ADDRESS.

A. My name is Todd Thomas. My business address is 500 Northwest Plaza Drive, Suite 500, St. Ann, Missouri, 63074.

Q. WHAT IS YOUR POSITION WITHIN THE CENTRAL STATES WATER RESOURCES FAMILY OF COMPANIES?

A. I hold the office of Senior Vice President of Central States Water Resources, Inc., ("Central States") the affiliated company that will have operational oversight of Osage Utility Operating Company, Inc. ("OUOC"). Central States is part of an affiliated group of companies, we internally refer to all corporate operations as ""CSWR."

Q. PLEASE DESCRIBE YOUR EDUCATIONAL AND PROFESSIONAL EXPERIENCE.

A. My education includes a Bachelor of Science in Civil Engineering from the Missouri University of Science and Technology, and a Master of Business Administration from Washington University in St. Louis.

Before joining CSWR, I was President of Brotcke Well and Pump (the 2nd largest well driller and service provider in the Midwest), Vice President of Operations and Business Development of the Midwest for American Water Contract Operations, and General Manager of Midwest Operations for

Environmental Management Corporation. I currently serve on the Technical Advisory Team for the Public Water Supply District 2 of St. Charles County, Missouri.

Brotcke Well and Pump serves municipal potable, regulated potable, and industrial ground water suppliers in the states of Missouri, Illinois, Kansas, Tennessee, Kentucky, and Arkansas. Its total number of clients exceeds 200 and they range in size from the City of Bloomington, Illinois, with 31,000 water customers, to 230 customers in the City of Eminence, Missouri. Brotcke Well and Pump drills wells, cleans and treats wells, installs pumps, services pumps, rebuilds pumps, tests wells for regulatory compliance, and installs and services well controls. As President of Brotcke Well and Pump, I was involved in the design, maintenance, and repair of all client well systems. I have firsthand experience with how much damage can be done by lack of maintenance on a well system and how much money and effort is required to restore a well system after neglect.

As Vice President of Operations and Business Development of the Midwest for American Water Contract Operations, I was responsible for the water and wastewater operations and maintenance contracts for municipal and industrial clients. These clients included wastewater systems owned and operated by the City of St. Charles, in Missouri, and the cities of Godfrey, Mount Vernon, Quincy, Litchfield, Lincoln, Pittsfield, and Elwood in Illinois. These clients also included water and wastewater systems owned and operated by the City of Foristell, Missouri, and the Illinois cities of Brighton, and Monmouth. At

one time I had responsibility for operating water and wastewater systems serving approximately 64,000 residential connections. My responsibilities included the direction and management of annual budgeting for each plant's operations and maintenance, design and planning of plant upgrades and maintenance projects, regulatory reporting, plant operations, and regulatory compliance of these systems.

My position as General Manager of Midwest Operations for Environmental Management Corporation (EMC) was similar to that of my position with American Water Contract Operations with regard to the size and scope of the systems the company managed.

Q. PLEASE DESCRIBE YOUR CURRENT POSITION.

A. As Senior Vice President of Central States, my main responsibilities include the acquisition, development, and rate stabilization of CSWR-affiliated utilities. These duties include maintenance, capital planning, and regulatory compliance for all CSWR-affiliated facilities. I am responsible for the management and maintenance service providers, customer service and billing service providers, and engineering firms.

PURPOSE

Q. WHAT IS THE PURPOSE OF YOUR DIRECT TESTIMONY?

A. I will provide the Missouri Public Service Commission ("Commission") with a description of the water and sewer systems that OUOC seeks to acquire, improve, and operate on an ongoing basis.

SYSTEMS TO BE ACQUIRED

Q. WHAT WATER AND WASTEWATER SYSTEMS DOES OUOC SEEK TO ACQUIRE IN THIS CASE?

A. OUOC proposes to acquire substantially all the water and wastewater system assets of Osage Water Company, including its Certificates of Convenience and Necessity ("CCN"). OUOC also proposes to acquire all the water and wastewater system assets that serve Reflections Subdivision Master Association, Inc., and Reflections Condominium Owners Association, Inc. (jointly referred to as "Reflections"). OUOC also requests the Commission grant it CCNs to operate the acquired systems and provide service to the public.

Osage Water Company

Q. IS OSAGE WATER COMPANY AN INDEPENDENTLY OPERATED UTILITY?

A. No. As explained in Mr. Cox's direct testimony, on October 27, 2017, the United States Bankruptcy Court approved the appointment of Jill D. Olsen as Trustee to manage the business affairs of Osage Water Company during the pendency of the company's bankruptcy case. Before that, the system was in interim receivership from December 10, 2002, until a permanent receivership was ordered by the Camden County Circuit Court on October 21, 2005. From 2005 until the filing of the bankruptcy, the system was operated under the permanent receivership.

Q. IS THERE AN AGREEMENT CONCERNING THE SALE AND PURCHASE OF OSAGE WATER COMPANY'S WATER AND SEWER SYSTEMS?

A. Yes. The *Agreement For Sale of Utility System between OUOC and the Trustee of Osage Water Company* ("Asset Purchase Agreement") is attached to the Direct Testimony of Mr. Cox. Pursuant to the Asset Purchase Agreement, OUOC proposes to acquire substantially all the water and wastewater assets of Osage Water Company from the bankruptcy estate. Those assets include Osage Water Company's CCN.

Q. PLEASE DESCRIBE THE WATER AND WASTEWATER SYSTEMS OUOC PROPOSES TO ACQUIRE FROM OSAGE WATER COMPANY?

A. Osage's Water Company's assets consist of four water and wastewater service areas: Chelsea Rose Water and Sewer Service Area, Cimarron Bay Water and Sewer Service Area, Cedar Glen Water and Sewer Service Area, and Eagle Woods Water and Sewer Service Area.

Osage Water Company—Chelsea Rose Water Service Area:

Q. PLEASE DESCRIBE CHELSEA ROSE WATER SYSTEM.

A. Chelsea Rose is a residential community with approximately 42 water connections, with townhomes developed in the greater Lake of the Ozarks area in and around Camden County, Missouri.

Q. WERE THERE ANY ISSUES WITH THE CHELSEA ROSE WATER SYSTEM WHILE IT WAS OPERATED BY OSAGE WATER COMPANY OR THE RECEIVERS?

A. There are leaks in the system putting unneeded demand on the well. Typically, this would not be a major concern, but the system's hydropneumatic storage tank

is drastically undersized. The hydropneumatic tank's lack of size has the imminent potential to fail providing pressure during peak water usage, leaving the system without sufficient pressure to: (1) provide any water service; or (2) provide water service with the MDNR minimum of 21 psi of energized water line pressure required to protect customers from pathogen infiltration. In addition, the lack of hydropneumatic storage causes the well pump to engage much more than typical design standards, which will cause the well pump and motor to fail prematurely. Because the system has only one well in operation, and almost no backup storage, the entire system is at risk of being out of water for an extended period.

Q. WHAT IS THE CURRENT CONDITION OF THE CHELSEA ROSE WATER ASSETS?

A. The system has two well house structures. One well house is completely inoperable. The active well house has deteriorated structurally and has unsafe wiring posing a significant danger to operations personnel and has the potential to prevent the system from being able to provide water service to customers at all. In addition, the active well house is extremely unsanitary with mold, rotting walls, and a visibly corroded well head casing. A well head casing serves to protect a drinking water source. This toxic combination of failing structure, unsanitary conditions, and corroding well head can lead to pathogen contamination putting customers at a potential health risk.

The tank in the active well house is a hydropneumatic tank, approximately 250 gallons in capacity, that does not meet the MDNR standard that requires

such tanks to provide 2,730 gallons of hydropneumatic storage. Having only one-tenth the minimum hydropneumatic storage means the system is at risk of not being able to provide water service at all to customers. The system also lacks any remote water supply monitoring and there are minimal flushing hydrants and isolation valves in the distribution system. The lack of monitoring, adequate flushing hydrants, and isolation valves creates a situation in the water distribution system where sediments can collect, potentially stopping water service for customers.

Q. DOES OUOC HAVE A PLAN TO REMEDY THESE RELIABILITY AND SAFETY ISSUES?

A. Yes. OUOC proposes to install a Mission remote monitoring system and magnetic flow meter, repair the failing building, clean and properly maintain the well house, fix the electrical problems to mitigate hazards, install a much larger hydropneumatic tank to meet DNR requirements, demolish the old inoperable well house, and install three flushing hydrants in the distribution system as well as additional system valving.

Q. WHAT IS THE PROJECTED COST OF THOSE IMPROVEMENTS?

A. The estimated cost of such additional improvements is approximately $143,100.

Osage Water Company—Chelsea Rose Sewer Service Area:

Q. PLEASE DESCRIBE THE CHELSEA ROSE SEWER SYSTEM.

A. Chelsea Rose is a residential community with approximately 38 wastewater residential connections serving townhomes developed in the greater Lake of the

Ozarks area in and around Camden County, Missouri. The community is serviced by an extended aeration mechanical plant.

Q. WERE THERE ANY ISSUES WITH THE SYSTEM WHILE IT WAS OPERATED BY OSAGE WATER COMPANY OR THE RECEIVERS?

A. During a recent CSWR site visit and inspection, there was sludge that had overflowed the treatment plant's tankage and discharged on the ground beside the plant. Sludge overflow poses multiple potential human health risks such as direct contact with pathogens, and/or surface water contamination as untreated waste migrates to receiving waters. Additionally, the Environmental Protection Agency's ("EPA") Echo website lists violations of effluent limits at the facility for 6 of the last 7 quarters. This indicates the treatment plant has consistently discharged effluent, i.e. wastewater, back into the receiving waterbody that exceeded pollutant limits designed to protect public health and welfare and water quality. The last quarter was listed as "Undetermined," often used by EPA when a facility fails to submit Discharge Monitoring Reports (DMRs), a violation of MDNR and EPA requirements in and of itself.

Also, at the time visit, the facility had large amounts of sludge on the surface of the clarifier. The clarifier is the primary settlement tank of an extended aeration plant. Sludge floating in the clarifier in this type of plant is indicative of major plant failures. A sample of the effluent was tested by a third-party contractor around May 1, 2019. The result for *E. coli* indicated a level higher than 2419.6 colony forming units (cfu) per 100 mL of water. MDNR's regulations contain a range of limitations for *E. coli* depending on the designated uses of the

receiving stream, ranging from 126 cfu/100 mL for whole body contact recreation, to 1,134 cfu/100 mL for secondary contact recreation. The level of *E. coli* detected at Chelsea Rose suggests the plant was not disinfecting the wastewater at all before the final effluent was discharged from the plant into the receiving stream.

Q. WHAT IS THE CURRENT CONDITION OF THE CHELSEA ROSE WASTEWATER ASSETS OUOC PROPOSES TO ACQUIRE?

A. The wastewater treatment facility is a standard extended aeration activated sludge facility. In general, the plant had a large amount of visible electrical deterioration, mechanical degradation, and structural weathering with a seemingly correspondent lack of basic maintenance. The clarifier and contact chamber have excessive floating sludge and leaves present. The clarifier airlifts and aeration diffusers require replacement as they appeared inoperable. Lack of aeration and airlifts prevents an extended aeration plant from providing basic treatment to waste, which poses a significant environmental risk to receiving water ways.

Overgrown vegetation is hampering plant operations. Leaves and other vegetative debris were visible in the plant's tanks. This can prevent an extended aeration plant from meeting permit limits by adding biological material and/or clogging internal transfer processes. The road to the plant has washed out making access for basic routine operations and maintenance difficult to impossible during inclement weather. The plant's current design and operation cannot consistently meet permit limits in the winter due to a reduction of loading--

high summer flow rates of over 10,000 gpd fall to 1,000 gpd or lower. A new aeration and tankage configuration is needed to allow the plant to deal with significant variations in seasonal flow volume. Finally, replacement of the effluent pipe is necessary because the pipe is discharging into a small ditch instead of transferring the effluent to the permitted discharge site.

Q. DOES OUOC HAVE A PLAN TO REMEDY THESE SAFETY ISSUES?

A. Yes. OUOC proposes to install an overhead removable canopy roof over the treatment plant to keep leaves and debris from falling into the plant, replace aeration piping and diffusers, replace the clarifier returns, regrade and repair the roadway into treatment facility site, replace the existing controls with an electrical panel that meets code/safety requirements, and install a sludge pumping/waste line along the road to allow for sludge to be hauled.

Q. WHAT IS THE PROJECTED COST OF THOSE IMPROVEMENTS?

A. The estimated cost of such additional improvements is approximately $336,175.

Osage Water Company—Cimarron Bay Water Service Area:

Q. PLEASE DESCRIBE THE CIMARRON BAY WATER SYSTEM.

A. Cimarron Bay is a residential community with approximately 110 residential water connections developed in the greater Lake of the Ozarks area in and around Camden County, Missouri. Cimarron Bay, a residential town home subdivision, and Harbour Bay, a condominium community, collectively known at the Cimarron Bay service area, are all served by one water system.

Q. WERE THERE ANY ISSUES WITH THE SYSTEM WHILE IT WAS OPERATED BY OSAGE WATER COMPANY OR THE RECEIVERS?

A. In October 2017, the system had two consecutive sets of samples that had at least one test come back present for Total Coliform, indicating a sanitary defect that could allow fecal contamination to enter the drinking water distribution system.

Q. WHAT IS THE CURRENT CONDITION OF THE ASSETS?

A. The well house is dilapidated and requires significant rehabilitation inside and out. Structural failure could lead to the system being unable to provide even basic water service. The electrical system is substandard and poses a safety hazard in its current state. An electrical failure would prevent the system from being able to provide water service. The 35,000-gallon hydropneumatic tank is sufficient on capacity if it remains in use as a pressure tank, but requires cleaning and inspection. There are no flushing hydrants in place in the distribution system. The system also lacks any remote water supply monitoring. The lack of monitoring, flushing hydrants, and isolation valves creates a situation in the water distribution system where sediments can collect potentially stopping water service for customers.

Q. DOES OUOC HAVE A PLAN TO REMEDY THESE SAFETY ISSUES?

A. Yes. OUOC proposes to install a Mission remote monitoring system that will allow OUOC to have real time information to ensure the water system is providing service, install a magnetic flow meter, rehab the well house building, and install a new electrical system to eliminate any electrical hazards. OUOC

also proposes to install two new booster pumps and building expansion for additional equipment, install three flushing hydrants, some system valving, and remote shutoff meters.

Q. WHAT IS THE PROJECTED COST OF THOSE IMPROVEMENTS?

A. The estimated cost of such additional improvements is approximately $336,175.

Osage Water Company—Cimarron Bay Sewer Service Area:

Q. PLEASE DESCRIBE THE CIMARRON BAY SEWER SYSTEM.

A. Cimarron Bay is a residential community with approximately 110 wastewater connections developed in the greater Lake of the Ozarks area in and around Camden County, Missouri. Cimarron Bay, a residential town home subdivision, and Harbour Bay, a condominium community, collectively known at the Cimarron Bay service area, are served by one wastewater treatment system. The wastewater treatment plant is a recirculating sand filtration system.

Q. WERE THERE ANY ISSUES WITH THE SYSTEM WHILE IT WAS OPERATED BY OSAGE WATER COMPANY OR THE RECEIVERS?

A. During a CSWR site visit and inspection in April 2019, a large amount of the existing plant's sand bed walls were failing. Structural failure of the plant's walls will eventually lead to complete plant failure as sand media will migrate out of the plant (an environmental violation) and prevent the waste from being properly filtered.

Additionally, EPA's Echo website lists violations of effluent limits at the facility for 6 of the last 7 quarters. This indicates the treatment plant has

consistently discharged effluent, i.e. wastewater, back into the receiving waterbody that exceeded pollutant limits designed to protect public health and welfare and water quality. The last quarter was listed as "Undetermined," often used by EPA when a facility fails to submit Discharge Monitoring Reports (DMRs), a violation of MDNR and EPA requirements in and of itself. A sample of the effluent was tested by a third-party around May 1, 2019. The sample exceeded permit limits for *E. coli*, Biochemical Oxygen Demand, Ammonia as N, and Total Suspended Solids. The only parameter this system met was the Total Residual Chlorine, at less than 0.02 mg/l.

When chlorine is used to disinfect pathogens in waste, the chlorine must be sufficiently removed from the effluent to prevent polluting the receiving water way. Given that the plant exceeded limits for *E. coli*, while meeting Total Residual Chlorine suggests the plant was not properly chlorinating to disinfect the plant effluent before its discharge from the plant. The lack of pathogen removal in effluent presents significant public health risks.

Q. WHAT IS THE CURRENT CONDITION OF THE ASSETS?

A. The wastewater treatment facility is a recirculating sand plant. Three beds exist for wastewater treatment, but only two of the beds are in use. In general, recirculating sand filters cannot treat waste sufficiently to meet MDNR minimum nutrient removal requirements. Another biological process is required. The plant's inability to remove nutrients corresponds with the testing CSWR has performed and the reported permit limit exceedances. The plywood walls containing the filter media sand have failed, and piping is exposed. It is difficult

to determine the quality of the media that is currently in place, but, based on visual inspection, it does not seem to be operable. With the sand bed walls failing and internal piping exposed, the plant may be discharging untreated raw waste directly onto the adjoining property. This poses significant environmental risks for receiving water bodies as well as potential human health risks for pathogen exposure. The seasonal fluctuations in waste volume that are part of recreational lake communities adds to the difficulty in meeting limits in winter months.

Q. DOES OUOC HAVE A PLAN TO REMEDY THESE SAFETY ISSUES?

A. Yes. OUOC proposes to abandon the sand bed in place and replace that portion of the facility treatment with a Moving Bed Bio-Reactor (MBBR) and aerate the influent tank. The MBBR will allow the plant to meet MDNR mandated nutrient removal requirements. Aerating the influent tank changes the entire plant process to an aerobic process which will work in tandem with the MBBR. OUOC also proposes to install a Mission remote monitoring unit at the two main lift stations to monitor plant operations and provide constant service. The disinfection system will also be repaired and brought back into compliance to disinfect waste.

Q. WHAT IS THE PROJECTED COST OF THOSE IMPROVEMENTS?

A. The estimated cost of such additional improvements is approximately $181,850.

Osage Water Company—Cedar Glen Water Service Area:

Q. PLEASE DESCRIBE THE CEDAR GLEN WATER SYSTEM.

A. Cedar Glen is a residential condominium community with approximately 216 water connections located in Camdenton, Camden County, Missouri. The community is serviced by a single well with a hydropneumatic tank.

Q. WERE THERE ANY ISSUES WITH THE SYSTEM WHILE IT WAS OPERATED BY OSAGE WATER COMPANY OR THE RECEIVERS?

A. The system has lack of records and actual plans to address distribution system issues, does not have minimum MDNR emergency water storage, and does not have MDNR mandated emergency power operations.

Q. WHAT IS THE CURRENT CONDITION OF THE ASSETS?

A. The system consists of one well house. The well house has 3 unused 250-gallon pressure tanks and one 35,000-gallon hydropneumatic tank. This well house is in a significant state of disrepair and is in danger of structural failures. Such failures could lead to the temporary cessation of water service to customers. The electrical system is significantly substandard with exposed wiring hanging and stapled to the ceiling and walls. The electrical panels are all in need of significant repair or replacement. This existing electrical system poses a safety risk to operations personnel and puts the entire water system at risk for failure and cessation of service. The well pumps ground water directly in the 35,000-gallon pressure tank acting as a hydropneumatic tank, with no booster pumps at this facility. The water system has 216 water customers serving approximately 432 people. Under MDNR regulations, systems with over 50 customers cannot have system storage consisting of 100% hydropneumatic tanks and must have ground storage. Per conversations with MDNR, the ground storage tank capacity needs

to be at least 1.5 times the average daily use. Based on usage, 28,500 gallons of storage is required. This ground water storage is required by MDNR to allow emergency service. There is no source of backup power on the system, so in a power outage the customers will lose all water service. The hydropneumatic tank should be power washed and cleaned. Finally, there is no remote monitoring in place. Manual inspection is currently the only way to determine if the plant is consistently providing water service.

Q. DOES OUOC HAVE A PLAN TO REMEDY THESE SAFETY ISSUES?

A. Yes. OUOC proposes to install a Mission remote monitoring and magnetic flow meter, repair the well house building, repair or replace the electrical systems to eliminate electrical hazard, convert the hydropneumatic storage tank to ground storage to provide MDNR mandated emergency storage, install booster pumps with variable frequency drives to control pump speed to meet water demand needed at any time, install a quick connect for back up electrical service meeting minimum MDNR requirements for emergency service, power wash and clean the hydropneumatic tank to ensure it is sanitary, install at least two flushing hydrants and at least five system valves in the distribution system to remove any situations in the water distribution system where sediments can collect potentially stopping water service for customers, install meters in units that are not metered, and replace all existing meters with remote shutoff meters.

Q. WHAT IS THE PROJECTED COST OF THOSE IMPROVEMENTS?

A. The estimated cost of such additional improvements is approximately $377,750.

Osage Water Company—Cedar Glen Sewer Service Area:

Q. PLEASE DESCRIBE THE CEDAR GLEN SEWER SYSTEM.

A. Cedar Glen is a residential condominium community with approximately 216 wastewater connections, located in Camdenton, Camden County, Missouri. The community is serviced by a recirculating sand filter plant.

Q. WERE THERE ANY ISSUES WITH THE SYSTEM WHILE IT WAS OPERATED BY OSAGE WATER COMPANY OR THE RECEIVERS?

A. CSWR reviewed EPAs Echo website for violations on wastewater facilities. This facility had 2 of the last 11 quarters as violations identified on the effluent DMRs. This indicates the treatment plant has discharged effluent into the receiving waterbody that exceeded pollutant limits designed to protect public health and welfare and water quality. A sample of the effluent was tested by a third-party around May 1, 2019. The sample significantly exceeded permit limits for Ammonia as N and Total Suspended Solids.

Q. WHAT IS THE CURRENT CONDITION OF THE ASSETS?

A. The wastewater system consists of a gravity collection system, lift stations, and a recirculating sand filter treatment facility with a central septic tank. In general, recirculating sand filters cannot treat waste sufficiently to meet MDNR minimum nutrient removal requirements. Another biological process is required. The plant's inability to remove nutrients corresponds with the testing CSWR has performed and the reported permit limit exceedances.

The sand plant consists of four beds, with the northeast most bed appearing to have integrity issues and some failed piping. Two of the eight filter

pumps are not functioning. Failed dosing pumps can lead to overloading of some of the zones, which can cause either permit violations or sanitary spills. Such conditions typically also lead to premature failure of the filtration media. The plant's control panel has caught on fire a couple of times putting the entire system at risk for a cessation in basic sanitary sewer service to customers. The system has difficulty dealing with the irregular flows due to the seasonality of the residents associated with the recreational lake communities. Flows in the summer are sometimes more than what the lift stations' pumps can operationally handle. This increases the potential for overflow spills from the pump stations to the lake, posing environmental and health risks.

Q. DOES OUOC HAVE A PLAN TO REMEDY THESE SAFETY ISSUES?

A. OUOC proposes to repair the treatment piping as needed, replace two filter pumps, clear the trees from around the facility, investigate the issue for the electrical panel catching fire and address it, install a MBBR for nutrient pollutant removal capability, add additional storage volume at each pump station, and replace pumps with newer/higher capacity units at the lift stations where needed to prevent environmental spills out of the lift stations.

Q. WHAT IS THE PROJECTED COST OF THOSE IMPROVEMENTS?

A. The estimated cost of such additional improvements is approximately $281,950.

Osage Water Company—Eagle Woods Water Service Area:

Q. PLEASE DESCRIBE THE EAGLE WOODS WATER SYSTEM.

A. The Eagle Woods subdivision is a residential development located in Camden County, Missouri with approximately 34 drinking water connections serviced by a single well.

Q. WERE THERE ANY ISSUES WITH THE SYSTEM WHILE IT WAS OPERATED BY OSAGE WATER COMPANY OR THE RECEIVERS?

A. The system has lack of records and actual plans to address distribution system issues. The system was noted by MDNR in 2014 as operating without a permit to dispense. The system was also listed on the MDNR website as having an illegal well agreement. An additional MDNR Notice of Violation was listed later in 2014 but no additional information was provided. There also is a lawsuit pending against Eagle Woods for refusing to provide service to customers within the system's certificated service area.

Q. WHAT IS THE CURRENT CONDITION OF THE ASSETS?

A. The system has one small well house, approximately 6'x6' inside dimensions. This system does chlorinate the water, however, the chlorine is stored in the same room with the treatment equipment and is corroding the metal components. Water is pumped from the one ground well into two ground storage tanks having a total of 9,000 gallons of storage. The system utilizes a 357-gallon hydropneumatic tank for system pressure. Per MDNR minimum requirements, the system should have of at least 35 gallons per person served. Based on this guidance, the system should have 2,975 gallons of storage capacity. The 357-gallon hydropneumatic tank serving this purpose is over 8x short of minimum storage capacity. The system also lacks any remote water supply monitoring.

The lack of monitoring, flushing hydrants, and isolation valves creates a situation in the water distribution system where sediments can collect, potentially stopping water service for customers.

Q. DOES OUOC HAVE A PLAN TO REMEDY THESE SAFETY ISSUES?

A. Yes. OUOC proposes to install a Mission remote monitoring system to ensure the system is providing reliable water service, install a magnetic flow meter, repair the well house, repair the electrical systems to eliminate any hazards, remove the hydropneumatic tank from operation, the ground storage tanks will be power washed and cleaned and variable frequency drives will be installed to control pump speed to meet water demand needed at any time and meet DNR minimum requirements.

Q. WHAT IS THE PROJECTED COST OF THOSE IMPROVEMENTS?

A. The estimated cost of such additional improvements is approximately $123,300.

Osage Water Company—Eagle Woods Sewer Service Area:

Q. PLEASE DESCRIBE THE EAGLE WOODS SEWER SYSTEM.

A. The sewer service area consists of the Eagle Woods subdivision with 33 wastewater connections, and the Golden Glade subdivision, currently with 23 customers, both located in Camden County, Missouri. The treatment facility serving Golden Glade and Eagle Woods is known as the Highway KK facility. This community is serviced by a recirculating sand filtration plant.

Q. WERE THERE ANY ISSUES WITH THE SYSTEM WHILE IT WAS OPERATED BY OSAGE WATER COMPANY OR THE RECEIVERS?

A. The facility is not listed on EPA's Echo website under its current name, which initially led to issues for CSWR to review the plants historical performance. The plant was issued a general operating permit with corresponding limits, but according to EPA's Echo system the plant has not submitted any DMRs for two years and is administratively terminated at the federal level.

Q. WHAT IS THE CURRENT CONDITION OF THE ASSETS?

A. The wastewater treatment facility is made up of a recirculating sand facility with chlorine disinfection. In general, recirculating sand filters cannot treat waste sufficiently to meet MDNR minimum nutrient removal requirements. Another biological process is required in addition to, or in lieu of, the sand filtration process. The existing sand plant consists of two concrete beds with a total footprint of 33'x 88'. Both beds have cracks in the walls and are structurally failing putting the community at risk for a cessation in sewerage service. Both beds also have some issues with failing distribution piping, which could be leading to the discharge of untreated waste into a receiving streams that passes through a nearby conservation area with hiking trails, the Mansfield Forest State Wildlife Management Area. It is difficult to determine the quality of sand media in place. A make shift chlorine disinfection system is in place that consists of a plastic storage container that was converted to a contact chamber with blocks for travel path requirements of MDNR. A large quantity of algae/moss growth is present on the inside of the substandard chlorine contact chamber indicating the disinfection system is not currently removing pathogens, a public health risk.

The site in general is in complete disarray. Waste materials from old repairs, trash, pumps, and broken pipes are laying all over the site and present a safety hazard. The site is not fully fenced presenting a public safety risk. The road has washed out and the plant is not accessible at this time with having a 2' deep rut through the road likely preventing operations and maintenance in inclement weather. The sand bed sits in a valley and run off water is directed to the plant walls washing media out. The walls are cracking and nearing failure. The influent pipe is exposed along the edge of the plant due to the erosion issues and it actually is not fully connected and under high flows discharges on the ground which is a MDNR violation and presents environmental and health risks to potential receiving water bodies.

The collection system is all gravity sewer, with no manholes, that flows to four lift stations that feed the plant. Not having a manhole at all breaks in grade and bends does not meet MDNR current design standards. There is a section of gravity line that was constructed with a sag to go under the drainage creek of the dam. Solids will settle in the bottom of this pipe and potentially clog over time. A booster pump station serving some homes needs additional storage capacity in order to keep up without overflowing which also poses environmental and safety risks.

Q. DOES OUOC HAVE A PLAN TO REMEDY THESE ISSUES?

A. OUOC proposes to re-pour concrete in sections that are failing. The entire facility site needs regrading to improve drainage. OUOC also proposes to install a culvert and reconstruct the roadway as needed to enter the plant for operations

and maintenance. The current disinfection tankage will be replaced with a more conventional installation to avoid recontamination of effluent. OUOC proposes to repair the sand bed distribution piping as needed, replace piping as needed and bury to protect from freezing, install new fencing around the perimeter, install (MBBR for additional treatment, and provide additional storage at pump stations serving multiple homes. OUOC proposes to complete smoke testing as soon as possible to determine the extent of Inflow and Infiltration, as well as assist in plant capacity analysis.

Q. WHAT IS THE PROJECTED COST OF THOSE IMPROVEMENTS?

A. The estimated cost of such additional improvements is approximately $303,175.

Reflections Water and Wastewater Systems

Q. PLEASE DESCRIBE THE REFLECTIONS WATER AND SEWER SYSTEM.

A. The Reflections systems serve a condominium development located on the Lake of the Ozarks in Camden County, Missouri.

Q. ARE THE SYSTEMS AN INDEPENDENTLY OPERATIONAL UTILITY?

A. No. On or about November 12, 2012, Abba Development defaulted on the development loan it had with Great Southern Bank. Great Southern Bank took title to the real estate in Reflections Subdivision, including the parcels that the utility systems are located on.

Q. IS THERE AN AGREEMENT CONCERNING THE SALE AND PURCHASE OF THE SYSTEMS?

A. On December 4, 2018, Great Southern Bank, Reflections Subdivision Master Association, Inc., Reflections Condominium Owners Association, Inc., and CSWR entered into an *Amended and Restated Agreement For Sale of Utility System,* for CSWR to purchase the water and wastewater systems in the Reflections subdivision, which is attached to Mr. Cox's Direct Testimony.

Q. WERE THERE ANY ISSUES WITH THE WATER SYSTEM UNDER THE CURRENT AND PAST OPERATORS?

A. The system has been listed on DNR's website for a number of Notices of Violations. The violations included failure to pay laboratory service fees and also operation without a permit to dispense. A September 2016 engineering report developed for the water system submitted to MDNR required adding pressure storage.

Q. WHAT IS THE CURRENT CONDITION OF THE WATER ASSETS?

A. The water system consists of one well house. The well house has seven 119-gallon pressure tanks. The system is lacking pressure storage, which could lead to a lack of water service during peak usage or a drop in waterline pressure that could expose the water system to pathogen infiltration. Additional tanks will be needed. The system does not disinfect the drinking water prior to distribution. There are electrical issues inside the well house presenting safety issues to operations personnel when present, which could lead to an interruption in service. The exterior of the well house has not been maintained and will lead to premature failure of the well house structure. The main water line feeding the condominium units is exposed but has some form of insulation. This will be an

ongoing concern of pipes freezing in the winter when usage is low and the temperature drops. Such event could cut off water service to the customers.

Q. DOES OUOC HAVE A PLAN TO REMEDY THESE SAFETY ISSUES?

A. Yes. OUOC proposes to install a Mission remote monitoring system, magnetic flow meter, install fencing around the well house, perform maintenance around the exterior of building, replace interior piping per MDNR permits, and fix the electrical systems to eliminate hazards, power wash and clean the exterior of the building, insulate the exposed water line, and install remote shut-off meters.

Q. WHAT IS THE PROJECTED COST OF THOSE IMPROVEMENTS?

A. The estimated cost of such additional water system improvements is approximately $165,213.

Q. WERE THERE ANY ISSUES WITH THE SEWER SYSTEM UNDER THE CURRENT OR PREVIOUS OPERATORS?

A. The current owner is currently operating without a permit. The permit has been expired since 2009 per DNR's latest permit available. A June 29, 2016 inspection report found the system to be out of compliance for failing to renew the discharge permit, failure to submit an Annual Sludge Report, failure to submit all required Discharge Monitoring Reports, failure to provide waste stream flow measurements, failure to maintain valid continuing authority for a wastewater treatment plant discharger, and in general MDNR found that the plant has caused pollution to the Lake of the Ozarks. Additionally, EPA's Echo website lists violations of effluent limits at the facility for 6 of the last 7 quarters. This indicates the treatment plant has consistently discharged effluent, i.e.

wastewater, back into the receiving waterbody that exceeded pollutant limits designed to protect public health and welfare and water quality. The last quarter was listed as "Undetermined," often used by EPA when a facility fails to submit Discharge Monitoring Reports (DMRs), a violation of MDNR and EPA requirements in and of itself.

Q. WHAT IS THE CURRENT CONDITION OF THE SEWER ASSETS?

A. The wastewater system is a series of interconnected, above-ground, poured-in-place concrete basins, consisting of flow equalization, extended aeration, clarification, chlorination, and sludge holding. The gravity collection system collects wastewater from the three condo buildings, and two pump stations assist in conveying the wastewater to the treatment plant. Sludge is hauled off and disposed of by a contract hauler. The treatment facility has serious structural and operational concerns. The concrete structure is in poor shape and seems to be constructed without the necessary internal structure support required of an above ground facility of this type.. The walls are nearing failure due to the steel corroding. Various corners are crumbling, and chunks of concrete have already separated and fallen from the walls. The entire system is a risk for complete structural failure, which would result in pollution to the Lake of the Ozarks and a cessation of sewerage service for the community. The walls are also leaking, allowing wastewater to bypass basic treatment, and will continue to expedite the concrete deterioration until the leakage is addressed. The outside plant decking is starting to warp and is becoming unsafe for operators. Additionally, the facility at the time of the visit had large amounts of sludge on the surface of the clarifier,

the primary settlement tank of an extended aeration plant. Sludge floating in a clarifier with this type of plant configuration is typically indicative of major plant failures This will lead to washout and potential for contamination of the lake.

Q. DOES OUOC HAVE A PLAN TO REMEDY THESE SAFETY ISSUES?

A. OUOC proposes to repair the concrete walls, install structural supports, replace decking material, and install structural/process control steel walls in the aeration, install a Mission remote monitoring system at the wastewater facility, and install Mission remote monitoring systems at each pump station.

Q. WHAT IS THE PROJECTED COST OF THOSE IMPROVEMENTS?

A. The estimated cost of such additional sewer system improvements is approximately $310,800.

CERTIFICATES OF CONVENIENCE AND NECESSITY

Q. WHAT DOES OUOC NEED FROM THE COMMISSION TO PROVIDE SERVICE TO WATER AND SEWER SYSTEMS OF OSAGE WATER COMPANY?

A. As requested in the Amended Application, OUOC asks the Commission to allow it to acquire the CCNs of Osage Water Company, or grant OUOC new CCNs to provide water and sewer service in the area now served by Osage Water Company, and cancel the certificates of Osage Water Company. OUOC also requests the Commission authorize Osage Water Company and OUOC to execute and perform in accordance with the terms described in the *Agreement For Sale of Utility System between OUOC and the Trustee of Osage Water Company* attached to the Direct Testimony of Mr. Cox and to take any and all

other actions which may be reasonably necessary and incidental to the performance of the acquisitions.

Q. WHAT DOES OUOC NEED FROM THE COMMISSION TO PROVIDE SERVICE TO THE WATER AND SEWER SYSTEMS OF REFLECTIONS?

A. As requested in the Amended Application, OUOC asks the Commission to grant it Certificates of Convenience and Necessity authorizing it to install, acquire, build, construct, own, operate, control, manage and maintain a water and sewer system for the public within the area currently served by Reflections, as set forth on the legal description attached to Mr. Cox's Direct Testimony. OUOC also requests the Commission authorize Great Southern Bank, Reflections Subdivision Master Association, Inc., and Reflections Condominium Owners Association, Inc. and OUOC to execute and perform in accordance with the terms described in the *Amended and Restated Agreement For Sale of Utility System* attached to the Direct Testimony of Mr. Cox and to take any and all other actions which may be reasonably necessary and incidental to the performance of the acquisitions.

Q. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A. Yes, it does.

AFFIDAVIT

STATE OF MISSOURI)
) ss
COUNTY OF ST. LOUIS)

I, Todd Thomas, state that I am the Senior Vice President of Central States Water Resources, Inc.; that the Direct Testimony and schedules attached hereto have been prepared by me or under my direction and supervision; and, that the answers to the questions posed therein are true to the best of my knowledge, information and belief.

Todd Thomas

Subscribed and sworn to before me this 10th day of July, 2019.

Brenda Eaves
Notary Public

My Commission Expires:

01/31/2021
(SEAL)

BRENDA EAVES
Notary Public, Notary Seal
State of Missouri
St Charles County
Commission # 13443468
My Commission Expires 01-31-2021