



**FISHER ARNOLD**  
ENGINEERING INTEGRATION

April 17, 2018

Mr. Dave Miller  
Enforcement Analyst  
Office of Water Quality  
Arkansas Department of Environmental Quality  
5301 Northshore Drive  
North Little Rock, Arkansas 72118-5317

**RE: CORRECTIVE ACTION PLAN  
WEST MEMPHIS UTILITIES  
NPDES PERMIT NUMBER AR0022039, AFIN 18-00879**

Dear Mr. Miller:

On behalf of West Memphis Utilities (WMU), please accept the following as the requested Corrective Action Plan (CAP) in response to your letter Request dated February 21, 2018. As highlighted in this letter, WMU reported three (3) bypasses at their wastewater treatment facility which resulted in over 70 million gallons of partially or untreated wastewater being discharged from an unpermitted outfall. Additionally, WMU has reported 107 SSOs totaling more than 84,000 gallons. Each of these reported bypasses and SSOs are a violation of WMU's NPDES permit.

WMU understands and appreciates the severity of these occurrences and will continue its effort to identify, quantify and remedy the root causes of those collection and treatment systems and processes that have contributed to these releases. While not meant to be an excuse for any of these occurrences, WMU does want to point out that the bypasses and a majority of the SSOs were directly attributed to unusually heavy and extended rainfall events that negatively impacted its collection and treatment facilities.

The impact heavy rainfall and extraneous water has on WMU's collection system and treatment facility has been noted for several years and the Utility has taken measurable steps to both identify and quantify sources of I/I as well as undertaking initial collection system rehabilitation. In 2014 and 2015, WMU retained Fisher & Arnold/RJN Group to perform SSESs on two large areas of the Utility's collection system. The first study area, completed in 2014 at a cost of over \$303,000, included Basins 3, 4 and 17. This initial study identified over \$3.47 million dollars of recommended repairs to sewer mains, manholes and service lines. The second study, completed in 2015 covered a very large that includes basin identified

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as Basin 8. Over \$375,000 was spent on this investigative work and identified over \$1.16 million dollars of recommended repairs. Collectively, the areas studied represents approximately one-third of the total collection system.

Since the completion of these two studies, WMU has begun to implement some of the findings and recommendations offered in these reports. To that end, over \$500,000 have been spent in these study areas to re-line the interior of manholes to reduce/eliminate I/I sources identified in these two studies as a sizable percentage of extraneous flow entering our collection system. In 2017, WMU also spent almost \$750,000 on Pump Station 8, the single largest pumping station within our collection system, on repairs and modifications intended to enhance its resiliency and reliability. However, even with these expenditures, WMU must continue the forward progress taken during the past three years and continue forward with other repairs and rehabilitation work identified in these previous studies.

WMU clearly understands that the work undertaken to date is only a start of the actions necessary to eliminate those noted bypasses and SSOs. To more fully identify, quantify and remedy those collection system deficiencies that result in the highlighted SSOs, WMU is committed to undertaking SSES studies on the remainder of the collection system the next three to four years. Additionally, WMU is committed to move forward with those recommended capital expenditures to rehabilitate the remainder of previously identified sewer mains, manholes and service lines. Rehabilitation of those collection system components identified in the as-yet completed future studies will be undertaken after their completion.

To identify, quantify and develop necessary treatment facility hydraulic inadequacies, WMU is moving forward with a detailed hydraulic analysis of the incoming flow patterns at the WWTF. To accomplish this analysis, four separate engineering studies will occur over the next 6 months. The first will be a hydraulic analysis of each component within the WWTF to determine the maximum hydraulic capacity of each unit process. This study will be undertaken by Fisher & Arnold. Concurrent with this analysis, RJN Group will perform system-wide flow monitoring utilizing 25 flow meters and 8 rain gauges over 60 days to collect rainfall and sewer flow data. During the collection of this data, RJN Group will also construct a Sewer System Hydraulic Model. This model will be calibrated after the system-wide flow monitoring is completed. After the model is calibrated the results will be utilized by Fisher & Arnold to determine unit process deficiencies at the WWTF and develop reasonable recommendations for facility upgrades and/or additions to eliminate future bypasses.

Due to the amount of the collection system that still has not been studied and the fact that a working hydraulic model is not yet available, WMU does not yet have a firm grasp of how much will need to be invested in the rehabilitation and repair of its collection system and WWTF. However, it is committed to investing between \$1.25 and \$2 million dollars annually over the next four to five years to fully study and rehabilitate those areas identified and significant sources of I/I. Provided below is an approximate timeline and expected expenditure for those action items outlined above. Obviously, as system studies are completed, and rehabilitation work is competitively bid and undertaken, some modification is expected in both the timing and cost invested for each task. As such, WMU will also commit to ADEQ to provide semi-annual updates on progress in remedying those identified bypasses and SSO occurrences.

<b>Task</b>	<b>Time Frame</b>	<b>Anticipated Cost</b>
<i>System Wide Flow Monitoring</i>	<i>May-June 2018<sup>1</sup></i>	<i>\$ 205,000</i>
<i>Sewer System Model</i>	<i>May-August 2018</i>	<i>\$ 185,000</i>
<i>WWTF Hydraulic Capacity Assessment</i>	<i>May-June 2018</i>	<i>\$ 20,000</i>
<i>WWTF Recommended Hydraulic Improvement Report</i>	<i>September-October 2018</i>	<i>\$ 15,000</i>
<i>2018 Manhole/Sewer Line Rehabilitation</i>	<i>June-December 2018</i>	<i>\$ 700,000</i>
<i>SSES Phase 3</i>	<i>October 2018-March 2019</i>	<i>\$ 325,000</i>
<i>2019 Manhole/Sewer Line Rehabilitation</i>	<i>June-December 2019</i>	<i>\$ 700,000</i>
<i>WWTF Hydraulic Improvements</i>	<i>January-December 2019</i>	<i>\$1,250,000</i>
<i>SSES Phase 4</i>	<i>October 2019-March 2020</i>	<i>\$ 325,000</i>
<i>2020 Manhole/Sewer Rehabilitation</i>	<i>June-December 2020</i>	<i>\$ 750,000</i>
<i>2021 Manhole/Sewer Rehabilitation</i>	<i>June-December 2021</i>	<i>\$1,250,000</i>
<i>2022 Manhole/Sewer Rehabilitation</i>	<i>June-December 2022</i>	<i><u>\$1,250,000</u></i>
	<b><i>Estimated Total</i></b>	<b><i>\$6,975,000</i></b>

<sup>1</sup>Actual end date of this activity will be based on a review of the data collected to insure both wet and dry weather flow patterns are captured. Some adjustment may be required depending on number and severity of storm events that occur during flow measurement activities.

In summary, WMU is fully prepared to continue the investments begun several years ago to eliminate bypasses at their WWTF and SSOs within their collection system. WMU also wants to stress that the

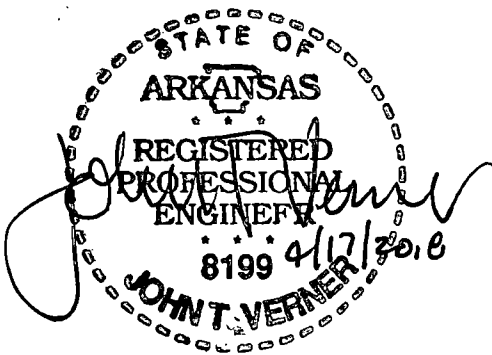
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above referenced expenditures are in addition to those on-going investments made to continue their normal O&M to their collection and treatment systems.

On behalf of WMU, we look forward to your review and comment on this proposed CAP. If I can be of any assistance during your review, please do not hesitate to contact me at this office.

Sincerely,

**FISHER & ARNOLD, INC.**



Tim Verner, P.E.  
Senior Vice President

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Cc: Todd Pedersen, General Manager, WMU

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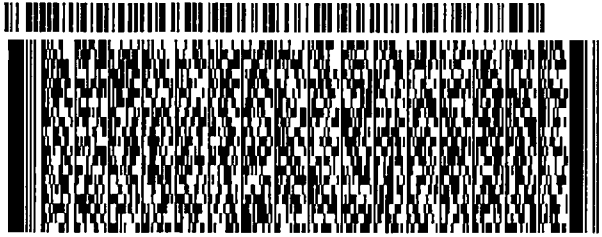
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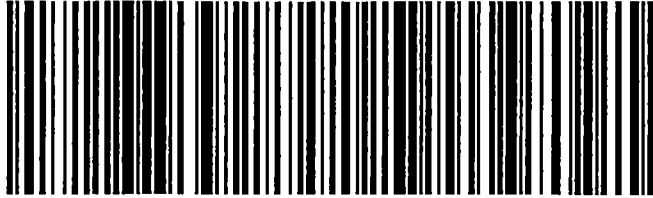
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