

January 29, 2019

Miles Johnson, Enforcement Analyst
Water Division / Enforcement Branch
Arkansas Department of Environmental Quality
5301 Northshore Drive
North Little Rock, AR 72118

RE: NPDES Permit No. AR0036498, AFIN 63-00063
CAO LIS 11-069 / SSES Review

Dear Mr. Johnson,

I am pleased to offer the following 2018 report on the City of Benton's wastewater conveyance system, and affirm our efforts to satisfy the demands of the Consent Administrative Order issued in 2011. I am grateful to report that we have had a very productive year in our efforts to reduce sanitary sewer overflows as well as infiltration and inflow issues. Overall, we have had a productive year in a rapidly growing city with expanding infrastructure and capacity demands. With the help and support from our General Manager, Mr. David Vondran, P.E. and Benton Public Utility Commission we were able to add a 2017 Vac Con Jet Vac for better suction strength, more tank capacity, capability to cover more ground cleaning and maintaining our sewer mains, reducing sewer stoppages and overflows. We have had numerous subdivisions, commercial buildings, assisted living complex, and other significant development all come online. Consequently, this growth has challenged our resources, but we still feel we are on our way of satisfying the demands of the C.A.O. long before the 2023 deadline.

The year 2018 has brought changes for this department. For example, Benton Utilities' Conveyance Manager, Mr. Randy Hawkins, retired at the close of 2018 and I have taken the position as Benton Utilities' Conveyance Manager.

In keeping with the objectives outlined in the Sewer System Evaluation Study (SSES), we continue to place special emphasis on the significant reduction of sanitary sewer overflows as well as inflow and infiltration issues throughout the system. We have pursued these objectives by (1) gravity line repairs and replacement, (2) manhole rehabilitation, repairs and replacement, (3) addition of equipment, (4) upgrades and rehabilitation of lift stations, (5) proactive and preventative maintenance, and (6) strategic planning.

Some of our highlights of the year has been significant, we were able to decommission a lift station that has caused continuous problems in the area of Winstone Ave. and Hoover St., replacing it with gravity sewer. We have upgraded our major lift station on Willow St. with two 60 hp Flygt pumps. The creek bank beside the Thomas Pasture Lift Station was significantly damaged during the April 30, 2017, heavy rain event. McNeil Creek running dangerously close to this major sanitary sewer, pump station located about 150 yards from its confluence with the pristine Saline River. The concrete shoring that protected the bank was collapsed into the creek channel. The bank is approximately 8 to 9 feet in elevation over the creek channel. We have stabilized the bank from anymore erosion and any chances of washing away the

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22-inch diameter force main, or any damage to our lift station. We also stabilized the bank and recovered our 12” gravity main from Saline Memorial Hospital.

The following chart represents statistical data of the sewer system.

Benton Wastewater Conveyance Statistical Data-2018													
JOB DATA:	JAN	FEB	MAR	APR	MAY	JUNE	JULY	AUG	SEP	OCT	NOV	DEC	TOTAL
Generators check	10	15	0	15	15	0	15	16	16	3	16	9	130
CAO GRAVITY REPAIR-PIPE BURST	0	0	0	0	0	1,330	564	701	1,065	1,479	0	0	5139
Manhole SSES/CAO- work/inspect.	17	30	3	1	25	3	80	36	0	39	14	0	248
M.H -Lined/Patched/Repair/cleaned	2	10	4	9	3	2	0	4	4	2	1	0	41
NO. OF L/S FAILURES or work done	23	17	25	39	17	17	13	23	13	21	23	9	240
NO. OF LIFTSTATIONS OVERFLOW	1	1	0	2	0	0	0	2	1	2	0	0	9
NO. OF LIFT STATIONS CLEANED	19	1	29	27	34	0	36	31	36	23	23	7	266
Survey sewer mains/ manholes	0	0	7	4	2	2	6	0	0	5	5	0	31
No. Sewer Main overflow	1	0	2	0	0	0	0	0	0	0	0	1	4
NO. OF MANHOLES OVERFLOW	4	18	5	5	1	2	0	1	2	1	0	4	43
AIR RELIEF /Force main- Overflow	0	0	0	0	1	0	0	0	0	0	0	0	1
Call out not sewer-storm water issue	5	3	3	1	3	1	0	2	0	1	0	4	23
NO. Line blockage call (not ours)	10	12	8	3	7	6	10	5	7	8	7	9	92
NO. OF SEWER LINES BLOCKAGE	9	4	14	12	2	5	1	7	2	3	4	7	70
NO. OF FT OF SEWER LINE CLEANED	15,780'	5,983	6,216	15,660	685	3,626	10,708	1,491	11,391	710	14,071	5094	91,415
NO. OF FT PIPE BURSTED	0	0	0	0	0	0	0	0	477	40	0	0	517
SEWER POINT REPAIRS	1	0	4	2	1	3	0	3	3	2	1	0	20
Station/ Right a way/M.H-spray,cut	0	0	26	38	46	86	7	26	36	26	0	0	291
NO. Monthly Liftstations Inspected	453	417	465	397	411	350	388	414	351	348	385	396	4,775
NO. OF SEWER INSPECTIONS	32	31	23	30	31	21	32	28	18	15	15	17	293
NO. OF GREASE TRAPS INSPECTED	156	0	0	156	2	0	158	0	2	161	0	3	638
NO. OF FT OF SEWER LINE CAMERA	638	75'	203	295	568	403	694	218	0	50	140	49	3333
ASST. OTHER DEPT.	3	1	2	2	1	2	3	1	0	1	0	0	16

Summarily, the spreadsheet documents problems within the system, but also significant efforts that were made in preventative and proactive maintenance to curtail these issues. We have had 43 manhole sanitary sewer overflows (SSO's) were recorded in 2018 from 47 sanitary sewer overflows (SSO's) recorded in 2017, Five air relief and force main overflows hit by contactors. At the same time, some 91,415 linear feet (17.3 miles) of sewer main was cleaned with our jet-vac. This success is largely due to the amount of line cleaning that was done, but also the targeted pipe bursting (5,656 linear feet) done in areas plagued with inflow and infiltration (I & I) problems. Moreover, there was 3,333 linear feet of sewer line video inspected to identify line deficiencies and issues. There was a total of 289 manholes in which repairs and rehabilitation work were performed. There were 9 lift stations that had SSO's from 12 lift stations recording SSO's in 2017, (an average of less than 1 per month), but there were also 266 lift station cleanings (jet-vac) done with a total of 4,775 lift station inspections. In an effort to keep oil and grease out of the system and from entering the treatment plant, 638 inspections were performed on grease traps.

These numbers demonstrate that real effort and resources are being expended in the war against system failures. We feel, both statistically and practically, that we are making good progress in satisfying the requirements of the C.A.O. The following spreadsheet further illustrates this regarding manhole repairs.

Benton Utilities Wastewater Conveyance Manhole Repair Record																							
Basin Number	Total No. Manholes	Surface Above Manhole								Priority Need for Repair					Repair Requirement						Total number of manholes still needing repair		
		Unable to Access	Concrete Pave	Asphalt Pave	Sidewalk Pave	Gravel	Grass	Wood	None	1st	2nd	Low	No Access/Not able to perform inspection	Replace Manhole	Bench & Trough or Around Pipe	Remove Roots	Replace Cover	Raise Rim	Seal Rim or Extension	Cementitious Lining			
BASIN NO. 1	110	13	0	3	0	3	76	18	77	2	5	13	13	0	3	2	0	15	18	6	44		
Manhole Repairs Still Needed on CAO														0	0	0	0	0	0	0	0	0	0
BASIN NO. 2	496	117	20	103	9	1	246	57	351	0	14	14	117	0	14	4	6	115	7	9	155		
Manhole Repairs Still Needed on CAO														0	0	0	0	33	0	0	0	0	0
BASIN NO. 3	657	128	30	241	0	11	226	90	445	8	36	40	128	0	40	22	10	106	19	33	230		
Manhole Repairs Still Needed on CAO														0	0	1	0	46	0	1	48	0	0
BASIN NO. 4	217	26	3	125	6	7	63	7	173	0	13	5	26	0	3	1	1	27	3	11	46		
Manhole Repairs Still Needed on CAO														0	0	0	0	7	0	0	7	0	0
BASIN NO. 5	594	35	4	344	4	20	160	62	458	4	67	30	35	0	49	17	18	45	2	56	187		
Manhole Repairs Still Needed on CAO														0	0	0	7	19	0	0	26	0	0
BASIN NO. 6	210	14	2	75	0	16	78	37	130	0	18	48	14	0	22	5	3	24	26	16	96		
Manhole Repairs Still Needed on CAO														0	0	0	0	4	0	0	4	0	0
BASIN NO. 7	124	37	1	38	0	4	34	4	72	0	6	9	37	0	2	4	0	36	8	2	52		
Manhole Repairs Still Needed on CAO														0	1	1	0	13	0	0	15	0	0
BASIN NO. 8	388	72	2	134	0	12	183	37	291	0	6	19	72	0	8	4	4	79	4	1	101		
Manhole Repairs Still Needed on CAO														0	0	0	0	14	0	1	15	0	0
BASIN NO. 9	107	2	5	29	0	6	43	20	70	1	4	30	2	0	15	4	1	4	18	7	49		
Manhole Repairs Still Needed on CAO														0	0	0	0	0	5	0	5	0	0
BASIN No. 10	949	46	34	239	21	12	531	78	456	4	157	286	46	1	256	48	34	76	140	195	749		
Manhole Repairs Still Needed on CAO														0	117	26	18	63	56	0	280	0	0
BASIN NO. 11	540	5	26	54	94	15	337	12	409	1	8	117	5	1	32	5	2	47	71	4	162		
Manhole Repairs Still Needed on CAO														0	16	4	1	17	29	0	67	0	0
Total number of repairs we started from on the CAO report:														495	2	444	116	79	570	316	340	1871	
Total number of repairs left from all basins:														0	134	32	26	216	90	2	500		

This chart offers a summary of both significant progresses made as well what remains to be accomplished relating to manhole repairs. There is continued effort directed towards locating and evaluating manholes that are under asphalt or inaccessible otherwise. Examination of these manholes will reveal what additional repairs will be needed. In turn, cost projections for labor and supplies for repairs can be made for budgetary planning.

There has also been significant manhole rehab that was done outside the scope of the C.A.O. For example, we have repaired and replaced eight air relief valves on the 16” force main from Hurricane Lake, and rehabbed 10 manholes with epoxy coated lining and new ring-lid gaskets. This Hurricane Lake 16” force main drained into this gravity sewer main and was causing major odor complaints and manhole corrosion with the possibility of manholes collapsing.

A key component of line system improvement is pipe bursting. There was more than a mile (5,656 linear feet) of pipe bursting done in 2018. Some of this work, however, was done in areas outside the scope of the C. A. O. For example, it became necessary to pipe burst where the line was collapsing, and I & I was rampant in the vicinity of W. Hazel St. There was also a major area near Edison and East St., four 8” sewer mains flowed into an 8” trunk line that was allowing the creek water into the trunk line, and was collapsed causing major overflows during rain events. We pipe burst the 8 “gravity line to 12” and have not had an SSO since. The wastewater overflow was close to the Benton school and other institutions, and this became an urgent task.

The following spreadsheet offers a snapshot of what has been accomplished to date and that which remains under the C. A. O.

BENTON UTILITIES SS GRAVITY MAIN REPAIR AND PIPE BURST RECORD (SUMMARY)											CORRECTED sewer lines needing to be pipe burst: 2018						
Basin No.	Pipe Defect/Repair Requirement										Repair Completed						Repairs Left
	Storm Drain	Asph Pav	Side walk Pav	Grass	Line Sag/Grease	Separation joints/Roots	Objects through main	Replace Pipe size	Point Repair	Pipe Burst Length Ft	Line Sag/Grease	Separation joints/Roots	Objects through main	Replace Pipe size	Point Repair	Pipe Burst Length Ft	Feet left on CAO report:
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	1	0	2	1	2	0	0	0	1,871	0	1	0	0	0	357	1,514
3	0	6	0	10	2	13	0	0	0	3,294	0	5	0	0	0	3,294	0
4	0	1	0	5	0	3	2	0	3	2,910	0	3	2	0	3	2,502	408
5	2	11	0	12	16	19	4	0	0	7,266	2	3	1	0	0	2,758	4,508
6	0	0	0	3	6	6	0	0	0	1,566	3	3	0	0	0	304	1,262
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	19	1	24	13	36	1	0	10	10,505	6	8	1	0	1	9,410	1,095
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	38	1	56	38	79	7	0	13	27,412	11	23	4	0	4	18,625	
																Total number of feet left to pipe burst:	8,787

Out of the total 27,412 linear feet of pipe bursting required under the C. A. O., 18,625 feet has been completed. This leaves 8,787 feet to be done. It is conceivable that this residual footage can be completed in 2 years. Emergency deviations as described above can alter this projection, but this is a realistic goal.

A noticeable reduction in I & I has occurred. For example, during moderate to heavy rains (c. 2 inches), the Willow Street pump station required the use of the adjacent, auxiliary lift station (two 75-hp pumps) to handle the heavy flow and convey it to the 52-million-gallon equalization basin. With the upgrade of the 60 hp Flygt pumps, The Willow Street pump station is able to handle this level of rainfall. During the pipe burst projects, we found three sections of gravity sewer mains that have been taking in creeks during heavy rain events.

With the installation of over 25 cellular notification equipment in our lift stations, these units have provided instantaneous text notification to 3 phones for high level alarms and the return to normal level. Texts are likewise sent for power failure and power restoration notification. Other less critical information can also be sent via text. We have learned towards the end of 2019 the notification equipment will be going from 3g to 4g and these devices will not continue to work, we have been looking at different upgrade notification equipment options and will continue to achieve our goal to continue to install notification equipment in all of the lift stations that serve a considerable number of customers.

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Another continuing development in 2018 has been the ongoing state widening project of I-30 between the Highway 70 and the South Street exits. This is significantly affecting existing sewer infrastructure requiring relocation of certain sewer mains. Engineering was finished in 2017 with the following linear feet of sewer relocation:

- 1,051 feet of 8-inch diameter with 7 new manholes
- 451 feet of 10-inch diameter with 5 new manholes
- 1,525 feet of 15-inch diameter with 7 new manholes
- 364 feet of 24-inch diameter with 5 new manholes
- and over 900 feet of 8-inch force main

Some of this replacement will be advantageous such as the 10-inch sewer main with manholes that will replace infrastructure that is in poor condition by the Saline County fairgrounds. However, the overall expense of this construction must be fronted by Benton Utilities with only partial reimbursement expected in time. Unanticipated projects like these constrain available financial resources that are needed for system maintenance.

In conclusion, 2018 was a productive year with demonstrable progress in meeting the demands of the Consent Administrative Order. The integrity of the system infrastructure was ensured and expanded. Inflow and infiltration have been noticeably reduced. We will continue to place emphasis again this year on the priority basins identified in the Sanitary Sewer Evaluation Study. It is both our goal and our work to improve Benton's sanitary sewer collection system for public health, for good stewardship of the environment, and for the demands of the vibrant growth of this city.

Please feel free to contact me at 501-776-5955, or you may email me at nathan@bentonar.org with any questions or comments you may have.

Sincerely,

Nathan Schultz,
Benton Utilities Wastewater Conveyance Manager

Cc: David Vondran, P.E., and General Manager of Benton Utilities
Gary Ferrell, Chairman of the Benton Utilities Public Utilities Commission
Byron Hicks, P.E. and C.E.O. of McClelland Consulting Engineers, Inc.
Jonathan Buff, Benton Utilities Wastewater Treatment Manager