



# BENTON UTILITIES

## BENTON, ARKANSAS

January 30, 2018

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 2017 report on the City of Benton's wastewater collection system, and affirm our efforts to satisfy the demands of the Consent Administrative Order issued in 2011. Overall, we have had a productive year in a rapidly growing city with expanding infrastructure and capacity demands. The Shoppes of Benton, The Links Apartments (692 units), The Manor Assisted Living, and other significant development all came online. There is significant development on the north side of Hurricane Lake and the I-30, Exit 144 corridor. 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 2017 has brought changes. For example, Benton Utilities' former General Manager, Mr. Terry McKinney, retired at the close of 2016. Mr. David Vondran, P.E. came onboard and has done an outstanding job as our new General Manager meeting many challenges head on and raising the bar for excellence in quality standards.

Another mention regarding changes is the implementation of the terminology "Wastewater Conveyance Department" for "Wastewater Collection Department". This was done to address public misunderstanding. Customers were actually coming to the "Wastewater Collection Department" to pay their bills or open an account after our Customer Service Center was moved from City Hall to 1827 Dale Avenue. This new terminology seems to better signify the broader scope of the sewer system in that it not only serves to "collect," but to "convey" wastewater from homes and businesses to the treatment plant by way of both gravity and pressure lines.

Still another change involves the recognition of two separate departments with as many department heads. The Wastewater Treatment Department is managed by Mr. Jonathan Buff, and the Wastewater Conveyance Department by Mr. Randy Hawkins. This was done, in part, because of the enormity of the management involved within both departments and the demands incumbent from growth and the C. A. O.

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.



The following chart represents statistical data of the sewer system.

| Benton Wastewater Conveyance Statistical Data-2017 |         |        |         |        |         |        |        |         |        |        |         |        |         |
|--|---------|--------|---------|--------|---------|--------|--------|---------|--------|--------|---------|--------|---------|
| JOB DATA:  | JAN     | FEB    | MAR     | APR    | MAY     | JUNE   | JULY   | AUG     | SEP    | OCT    | NOV     | DEC    | TOTAL   |
| Generator inspections                              |         | 11     |         | 11     |         |        |        |         |        | 11     | 11      | 11     | 55      |
| MANHOLES TREATED/smoke tested                      | 1       | 0      | 0       | 5      | 0       | 0      | 3      | 2       | 1      | 1      | 0       | 0      | 13      |
| MHs - SSES/CAO - work/inspection                   |         |        |         | 63     | 29      | 71     | 35     | 78      | 33     | 43     | 9       | 3      | 364     |
| MHs - Lined/patched/cleaned                        | 38      | 4      | 16      | 9      | 4       | 2      | 8      | 4       | 7      | 0      | 1       | 4      | 97      |
| NO. of L/S failures or work done                   | 23      | 13     | 10      | 16     | 35      | 8      | 20     | 33      | 29     | 16     | 16      | 18     | 237     |
| NO. of Lift Station overflows                      | 1       | 0      | 1       | 4      | 2       | 0      | 0      | 2       | 0      | 0      | 1       | 1      | 12      |
| No. Sewer Main overflows                           | 0       | 0      | 0       | 1      | 0       | 0      | 0      | 0       | 1      | 2      | 0       | 1      | 5       |
| NO. of manhole overflows                           | 3       | 3      | 3       | 2      | 1       | 1      | 1      | 2       | 1      | 2      | 3       | 5      | 27      |
| Air relief valve/tight line overflows              | 0       | 0      | 0       | 0      | 0       | 0      | 0      | 0       | 0      | 2      | 1       | 0      | 3       |
| NO. Line blockage calls (not ours)                 | 5       | 9      | 4       | 5      | 11      | 10     | 5      | 8       | 5      | 3      | 7       | 7      | 79      |
| NO. of sewer mains blocked                         | 3       | 5      | 6       | 3      | 1       | 3      | 4      | 2       | 3      | 3      | 5       | 1      | 39      |
| Linear feet of sewer mains cleaned                 | 15,073' | 3,613' | 14,262' | 8,062' | 15,304' | 2,263' | 2,488' | 15,025' | 4,586' | 3,197' | 11,160' | 3,000' | 98,033' |
| Linear feet of lines pipe bursted                  | 1,762'  | 1,399' | 364'    | 0      | 0       | 0      | 2309'  | 0       | 0      | 0      | 0       | 0      | 5,834'  |
| No. of line point repairs                          | 1       | 2      | 1       | 2      | 0       | 1      | 2      | 2       | 2      | 3      | 2       | 2      | 20      |
| Stations/easements/MHs-spray,cut                   | 0       | 0      | 40      | 42     | 109     | 29     | 47     | 31      | 48     | 3      | 0       | 1      | 350     |
| NO. of lift stations cleaned                       | 28      | 15     | 21      | 19     | 29      | 9      | 19     | 28      | 19     | 25     | 6       | 27     | 245     |
| NO. of lift station inspections                    | 320     | 347    | 426     | 293    | 360     | 289    | 346    | 250     | 399    | 453    | 373     | 452    | 4,308   |
| NO. of building sewer inspections                  | 23      | 23     | 30      | 31     | 33      | 25     | 25     | 36      | 26     | 28     | 25      | 26     | 331     |
| NO. of grease trap inspections                     | 141     | 0      | 142     | 1      | 2       | 0      | 144    | 0       | 153    | 11     | 3       | 0      | 597     |
| Linear feet of sewer line videoed                  | 423'    | 1,398' | 465'    | 580'   | 186'    | 420'   | 595'   | 608'    | 253'   | 365'   | 901'    | 370'   | 6,564'  |

Summarily, the spreadsheet documents problems within the system, but also significant efforts that were made in preventative and proactive maintenance to curtail these issues. Consequently, even though 47 sanitary sewer overflows (SSO's) were recorded in 2017, this averages less than 4 per month. At the same time, some 98,033 linear feet (or 18.6 miles) of sewer main was cleaned with our jet-vac. For a collection system the size of Benton, we only had 39 sewer main blockages (or 3.25 per month). This is largely due to the amount of line cleaning that was done, but also the targeted pipe bursting (5,834 linear feet) done in areas plagued with inflow and infiltration (I & I) problems. Moreover, there was 6,564 linear feet of sewer line video inspected to identify line deficiencies and issues. There were a total of 474 manholes in which repairs and rehabilitation work were performed. There were 12 lift stations that had SSO's (an average of 1 per month), but there were also 245 lift station cleanings (jet-vac) done with a total of 4,308 lift station inspections. In an effort to keep oil and grease out of the system and from entering the treatment plant, 597 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                | 10                    | 0             | 3            | 0             | 3      | 76    | 18   | 81                       | 2   | 3   | 14  | 10                                       | 0                  | 3                             | 2            | 0             | 15        | 18                    | 6   | 0                   |   |   |
| Manhole Repairs Still Needed on CAO                          |                    |                       |               |              |               |        |       |      |                          |     |     |     |  | 0                  | 0                             | 0            | 0             | 0         | 0                     | 0   | 0                   | 0 | 0 |
| BASIN NO. 2  | 495                | 116                   | 12            | 96           | 9             | 0      | 221   | 57   | 351                      | 0   | 14  | 14  | 116                                      | 0                  | 14                            | 4            | 6             | 115       | 7                     | 9   | 0                   |   |   |
| Manhole Repairs Still Needed on CAO                          |                    |                       |               |              |               |        |       |      |                          |     |     |     |  | 0                  | 0                             | 0            | 0             | 31        | 0                     | 2   | 33                  | 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  | 0                   |   |   |
| Manhole Repairs Still Needed on CAO                          |                    |                       |               |              |               |        |       |      |                          |     |     |     |  | 0                  | 0                             | 4            | 0             | 55        | 0                     | 3   | 62                  | 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  | 0                   |   |   |
| Manhole Repairs Still Needed on CAO                          |                    |                       |               |              |               |        |       |      |                          |     |     |     |  | 0                  | 0                             | 0            | 0             | 7         | 1                     | 0   | 8                   | 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  | 0                   |   |   |
| Manhole Repairs Still Needed on CAO                          |                    |                       |               |              |               |        |       |      |                          |     |     |     |  | 0                  | 0                             | 0            | 7             | 20        | 0                     | 1   | 28                  | 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  | 0                   |   |   |
| Manhole Repairs Still Needed on CAO                          |                    |                       |               |              |               |        |       |      |                          |     |     |     |  | 0                  | 0                             | 0            | 0             | 4         | 0                     | 1   | 5                   | 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   | 0                   |   |   |
| Manhole Repairs Still Needed on CAO                          |                    |                       |               |              |               |        |       |      |                          |     |     |     |  | 0                  | 1                             | 1            | 0             | 14        | 0                     | 0   | 16                  | 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   | 0                   |   |   |
| Manhole Repairs Still Needed on CAO                          |                    |                       |               |              |               |        |       |      |                          |     |     |     |  | 0                  | 1                             | 0            | 0             | 61        | 0                     | 0   | 62                  | 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   | 0                   |   |   |
| Manhole Repairs Still Needed on CAO                          |                    |                       |               |              |               |        |       |      |                          |     |     |     |  | 0                  | 11                            | 3            | 1             | 3         | 15                    | 0   | 33                  | 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   | 0                   |   |   |
| Manhole Repairs Still Needed on CAO                          |                    |                       |               |              |               |        |       |      |                          |     |     |     |  | 0                  | 117                           | 26           | 18            | 48        | 134                   | 7   | 350                 | 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   | 0                   |   |   |
| Manhole Repairs Still Needed on CAO                          |                    |                       |               |              |               |        |       |      |                          |     |     |     |  | 1                  | 30                            | 4            | 2             | 26        | 71                    | 0   | 134                 | 0 | 0 |
| Total number of repairs we started from on the CAO report:   |                    |                       |               |              |               |        |       |      |                          |     |     |     |  | 2                  | 444                           | 116          | 79            | 574       | 316                   | 340   | 1871                | 0 | 0 |
| Total number of repairs left from all basins:                |                    |                       |               |              |               |        |       |      |                          |     |     |     |  | 1                  | 160                           | 38           | 28            | 269       | 221                   | 14  | 731                 | 0 | 0 |

This chart offers a summary of both significant progress made as well what remains to be accomplished relating to manhole repairs. There was a focus in 2017 on making many of the small, but numerous, manhole repairs. Moreover, 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.

A key component of line system improvement is pipe bursting. There was more than a mile (5,834 linear feet) of pipe bursting done in 2017. 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 deep segments (14 feet) where line was collapsing, and I & I was rampant in the vicinity of Dixie Street. There was also a deep segment in Edison Street (Highway 35) near Border Street that collapsed. The wastewater from the high school and other institutions were affected, 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.



| <b>BENTON UTILITIES SS GRAVITY MAIN REPAIR RECORD</b> |                                |          |               |       |                 |                         |                      |                   |              |                      |   |                         |                      |                   |              |                      |
|---|--------------------------------|----------|---------------|-------|-----------------|-------------------------|----------------------|-------------------|--------------|----------------------|---|-------------------------|----------------------|-------------------|--------------|----------------------|
| Basin No.   | Pipe Defect/Repair Requirement |          |               |       |                 |                         |                      |                   |              |                      | Repair Completed                                      |                         |                      |                   |              |                      |
|   | 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 |
| 1   | 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            | 1846                 | 0   | 1                       | 0                    | 0                 | 0            | 357                  |
| 3   | 0                              | 6        | 0             | 10    | 2               | 13                      | 0                    | 0                 | 0            | 3629                 | 0   | 5                       | 0                    | 0                 | 0            | 2028                 |
| 4   | 0                              | 1        | 0             | 5     | 0               | 3                       | 2                    | 0                 | 3            | 1191                 | 0   | 3                       | 2                    | 0                 | 3            | 1191                 |
| 5   | 2                              | 11       | 0             | 12    | 16              | 19                      | 4                    | 0                 |              | 5740                 | 2   | 3                       | 1                    | 0                 |              | 1594                 |
| 6   | 0                              | 0        | 0             | 3     | 6               | 6                       | 0                    | 0                 | 0            | 1566                 | 3   | 3                       | 0                    | 0                 | 0            | 304                  |
| 7   | 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            | 979                  | 0   | 0                       | 0                    | 0                 | 0            | 0                    |
| 9   | 0                              | 0        | 0             | 0     | 0               | 0                       | 0                    | 0                 | 0            | 1032                 | 0   | 0                       | 0                    | 0                 | 0            | 0                    |
| 10  | 0                              | 19       | 1             | 24    | 13              | 36                      | 1                    | 0                 | 10           | 10016                | 6   | 8                       | 1                    | 0                 | 1            | 9410                 |
| 11  | 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           | 25999                | 11  | 23                      | 4                    | 0                 | 4            | 14884                |
|   |                                |          |               |       |                 |                         |                      |                   |              |                      | Total number of feet left to be pipe bursted: 11,115' |                         |                      |                   |              |                      |

Out of the total 25,999 linear feet of pipe bursting required under the C. A. O., 14,884 feet has been completed. This leaves 11,115 feet to be done. It is conceivable that this residual footage can be completed in 3 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. Most generally now, the three, 40-hp pumps in the Willow Street pump station are able to handle this level of rainfall.

On the subject of lift stations, the two remaining Universal Sanitary Equipment Manufacturing Company (USEMCO), dry pit, flooded suction, lift stations were converted to wet well, submersible pump systems. These lift stations were approximately 40 to 45 years old. Parts were almost impossible to find. Typically, these stations had entry tubes to the dry pits below that were 15 to 25 feet deep. If plumbing ruptured in the dry pits, workers could drown if they were not able to escape quickly. The electrical panels were also subject to flooding and posed a risk of electrocution to the workers. We now have all of the original 8 USEMCO lift stations converted to the wet well, submersible design.

There were three lift stations on the east side of Hurricane Lake that were upsized in pump capacity to accommodate the remaining build-out of Hurricane Lake Estates on the north side of the lake. Two of these stations (LS # 2 and 3) had 10-hp, submersible pumps that were upsized to 15-hp submersibles. The other station (LS # 4) was upsized from 15-hp to 20-hp submersible pumps. New electrical control panels were also installed at each of these lift stations.

One significant accomplishment is the installation of cellular notification equipment in a total of 22 lift stations. These units provide 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 found these units to be absolutely reliable. Our goal is to continue to install them in all of the lift stations that serve a considerable number of customers.

(Page 5, 2017 SSES/CAO Report)

Another noteworthy development in 2017 is the 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:

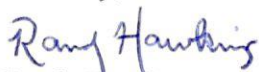
- 1,051 feet of 8-inch diameter with 7 new manholes
- 451 feet of 10-inch diameter with 5 new manholes
- 1,525 feet of 15-inch diameter with 7 new manholes
- 364 feet of 24-inch diameter with 5 new manholes
- and over 900 feet of 8-inch force main

Some of this replacement will be advantageous such as the 10-inch sewer 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, 2017 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 [rhawkins@bentonar.org](mailto:rhawkins@bentonar.org) with any questions or comments you may have.

Sincerely,



Randy Hawkins,  
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.