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January 8, 2024

ADEQ
5301 Northshore Drive
North Little Rock, AR 72118

Attn: Thomas Harrington

RE: City of Dyess

Dear Thomas,

I received the information on the City of Dyess that you sent January 4, 2024. This problem goes back to the previous Mayor and has suffered some delays and lack of attention.

One of the items that has caused this delay is the time wasted waiting on smoke testing to be done by Rural Water Association.

The term, detailed sewer system evaluation survey (SSES), goes back to public law 92500 which established EPA as an agency. In the early days of determining excessive infiltration inflow, a program had to be established to smoke test in order to find points of inflow, then determine the cost of fixing the leak and to estimate the amount of extraneous water that would be removed by fixing each leak. Back in the early 80's, when a lot of this work was completed under EPA's grant program, there was not a lot of success. First of all, as some of the leaks were fixed, it simply allowed water to enter other leaks far in excess of what was estimated simply because this volume was waiting "it's turn" to be carried away by the collection system. We also found numerous incidences of roof drains tied into the city sewer and clean out caps removed from the residential plumbing in order to drain water out of people's yards.

To highlight some of the problems with fighting infiltration/inflow, I have used information from the City of West Memphis that we developed in the early 80's. As we were going through a detailed SSES program, we measured flows at the sewage treatment plant. With a good 2" rain, we would measure flows that would increase from 3 to 33 million gallons per day. Even though this was a tremendous amount of I and I, when we looked at the annual flows, it only amounted to about 25% of the total; the problem was that it all occurred at one time.

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I would suspect that the City of Dyess has very similar circumstances in their collection system, such as manholes that flood, private sewer service lines with severe openings (this is commonly found because the service lines are the shallowest part of the collection system). As one goes back and reviews the discharge violations for Dyess, they are going to follow rainfall events that cause extreme flows that will wash mixed liquor suspended solids out of the extended aeration treatment plant that will then require some time to rebuild an active amount of sludge. If the plan is to rebuild this treatment system with a new and improved extended aeration type plant, a great deal of time and attention must be spent locating sources of inflow, determining the cost of fixing these leaks and further "guessing" how much extraneous water will be removed.

Now what has been outlined above is extremely hard to do because a lot of the leakage is going to be on private service lines. Just keep this figure in mind: if subdivisions in the town are 100' wide lots and with houses on both sides of the street connected to the collection system, that means each house has about 50' of main collection system; it also means that each house has approximately 50' of service line. It is not hard to now determine that there is as many feet of private service line as there is publicly owned sewage collection system.

Now this shines a light on the problems that small systems, such as Dyess, have to contend with. Limited revenue from fewer houses means that they cannot afford a full time maintenance staff to minimize leakage in the sewer system. Just like the city of Dyess, they end up contracting with a licensed operator to let them meet the requirements of the law, yet he is not in a position to monitor collection system problems and fix them under a full time maintenance program.

For all of the information stated above, the City of Dyess needs to think in terms of building a treatment system that can operate even while receiving large amounts of infiltration/inflow. Because of their size, I have recommended that the Mayor visit the City of Cash to view the system they installed a few years ago. Cash is about the same size and has similar discharge requirements. They built a waste stabilization pond that is divided into two ponds in series with the pond effluent pumped through intermittent sand filters. By managing the pond depth, storage can be provided for those periods of rainfall and a more uniform flow can be passed through the filters, then a uniform flow rate can be managed through Chlorination and de-Chlorination to let the city meet their discharge requirements.

I have discussed this in detail with the Mayor and he concurs.

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I have attached certified bid tabs from the City of Cash. We will add approximately 20% to these figures along with recommendations that have been added for the main pumping station. This approach will be less time consuming than going through the smoke testing, fixing leaks found, monitoring revised flow rates and then successfully building a new extended aeration treatment facility.

We will proceed with this corrective action plan. The big challenge will be to find funding that the City of Dyess can afford. As soon as we get these items started, we will prepare a milestone schedule.

On behalf of the City of Dyess, we thank you for your patience in this matter.

Sincerely,

Jerome Alford, P.E.

City of Dyess

MAyor