

Kelly Baker

From: Jennifer Enos
Sent: Wednesday, April 8, 2020 11:30 AM
To: grimes@adeq.state.ar.us; Bolenbaugh, Jason; healey@adeq.state.ar.us
Cc: Heath Ward; Brad Stewart; Loren Sharp; Kelly Baker
Subject: RE: NPDES Permit #AR0022063 TSS violations: 7-day average concentration, monthly average concentration
Attachments: Written report - TSS violations - March 2020.docx

All:

Attached please find a detailed report outlining the specific TSS violations and their causes in March 2020. I apologize for its delay. We are working on limited split shifts per our pandemic protocol, and it has been a challenge to accomplish all of our tasks in a timely manner with half of our staff at home at any given time. Mr. Heath Ward, Executive Director and authorized signee, is copied on this email and has approved the report. It will be attached to our March DMR in CDX which he certifies.

Please advise if you need additional information or require a different format for this report.

Sincerely yours,

Jennifer E. Enos
Wastewater Facilities Director
Springdale Water Utilities
PO Box 769
Springdale, AR 72765-0769
jenos@springdalewater.com
cell: 479-841-3473

From: Jennifer Enos
Sent: Monday, March 23, 2020 4:17 PM
To: grimes@adeq.state.ar.us; Bolenbaugh, Jason <BOLENBAUGH@adeq.state.ar.us>; healey@adeq.state.ar.us
Subject: FW: NPDES Permit #AR0022063 TSS violations: 7-day average concentration, monthly average concentration

All:

I was given misinformation that all ADEQ emails were changed to first name.last name@adeq.state.ar.us. Please see the following.

Thanks,

Jennifer E. Enos
Wastewater Facilities Director
Springdale Water Utilities
PO Box 769
Springdale, AR 72765-0769

jenos@springdalewater.com

From: Jennifer Enos

Sent: Monday, March 23, 2020 3:20 PM

To: Richard.healey@adeq.state.ar.us

Cc: Heath Ward <hward@springdalewater.com>; Brad Stewart <bstewart@springdalewater.com>; Loren Sharp <lsharp@springdalewater.com>; Christina.brown@adeq.state.ar.us; Garrett.grimes@adeq.state.ar.us; Jason.bolenbaugh@adeq.state.ar.us

Subject: NPDES Permit #AR0022063 TSS violations: 7-day average concentration, monthly average concentration

Dear Mr. Healey:

Please allow this to serve as notice of two excursions of Springdale Water Utilities' NPDES Permit No. AR0022063. As I am alternating with other staff working at home following our pandemic protocol, specific details and timelines will follow. If there is anyone else at ADEQ that needs to be notified, please forward this email to them and let me know so they can be included in future correspondence.

Specifically, the 7-day average TSS limit for March is 23 mg/L but the average for the week of March 15 – 21, 2020 was 64.4 mg/L. The monthly average limit is 15 mg/L. While there are days remaining in the month, leaving the specific value to be determined, this limit will be exceeded as well. We anticipate a value in the upper teens to twenties, barring any more heavy rains this month.

The general causes are:

1. Saturated ground, and repeated heavy rains over many days.
2. Poor settleability affecting clarifier throughput.
3. The decision to wash out clarifier blankets and bypass polishing filters rather than overflowing the headworks of the facilities or plugging the filters as the best, most environmentally protective option available.

Although by permit we could have chosen not to sample on the two days that created the violation, we opted, as always, to do so in order to insure that our reporting was truly representative of our discharge.

Mr. Heath Ward, Executive Director (signing official and cognizant official) is copied on this email and is fully aware of the issues involved. His signature will be appended to the report that will follow.

In the meantime, if you need any additional information or a general explanation ahead of the report, please do not hesitate to call me on my cell phone at 479-841-3473.

Sincerely yours,

Jennifer E. Enos
Wastewater Facilities Director
Springdale Water Utilities

PO Box 769
Springdale, AR 72765-0769
jenos@springdalewater.com

Timeline and Actions Taken, WWTF excursions:

TSS 7-day concentration, week of March 15 – 21, 2020; TSS monthly concentration and loading

Springdale Water Utilities – AR0022063

Ground saturation and poor final clarifier settleability at the WWTF resulted in flow-limited discharges in February and on into March, 2020. A new polymer feed system had been ordered in February but was not due to arrive for another 4 to 8 weeks. Polymer that was jar tested in November and pilot tested in January had not yet been ordered, waiting for the new system to arrive. Polymer was ordered to use in the pilot polymer feed system in anticipation of heavy rain. The polymer arrived on March 13. A secondarily contained system was cobbled together on March 14 to help improve settleability. It took several days before any improvement in settleability was seen. In the meantime, nearly 3 inches of rain forced the WWTF to fill all empty basins (one 7 MG process train and two primary clarifiers totaling 0.5 MG) and part of the 12.5 MG EQ basins.

Over three inches of rain the week of the 15th forced staff to make a difficult decision. Once the EQ basins were nearly full, part of the incoming flow was diverted to extreme final clarifiers for settling using alum followed by blending with the rest of the discharge, chlorination, dechlorination, oxygenation, and then discharge. The decision to start utilizing the extreme finals early allowed the facilities to maintain normal discharge for nearly 24 hours longer. Finally, on Thursday March 19, there was no more room anywhere in the facility to store wastewater and higher flow could not be pushed through the extreme finals due to piping limitations, so only two options were available. Either overflow the system at the influent pump station and from there directly into Spring Creek following screening and grit and scum removal, or push more wastewater through the facilities than the final clarifiers could handle resulting in sludge blankets going over the weirs.

The decision was made that fully treated wastewater with high solids from MLSS overflowing the weirs was far preferred to the discharge of millions of gallons of untreated wastewater. As much as possible continued to be sent to the extreme finals while the remaining wastewater coming in was allowed to run through the system. Polishing filters were bypassed to prevent them being plugged with high solids washing out of the final clarifiers.

On March 19, with a peak flow of 50.7 MGD, the effluent TSS was 174 mg/L, and on March 20 with a peak flow of 41.5 MGD, it was 188 mg/L. By late March 21, flow had subsided enough that blankets were no longer washing out as much and polishing filters were placed back into service. TSS was back down to 28.5 mg/L and had dropped to below 3 mg/L by the latter part of the following week.

Although MLSS was washed out of the system, enough was retained to fully treat all wastewater. Therefore, no nutrient or other violations occurred. It should be noted that several QC fails the week of March 15 resulted in the reporting of only 3/7 effluent CBOD results (1/week is required by NPDES permit). It is believed that if the results would have been able to be reported for the two highest TSS concentration days that a 7 day CBOD violation would have been likely as well (full disclosure). It should also be noted that while the NPDES permit only requires 1/week effluent TSS results to be reported, it was decided to analyze and report all seven days to insure that what was reported was representative of the actual WWTF discharge that week.

Following is a summary of the violations incurred:

	<u>Reported value</u>	<u>Permit Limit</u>
TSS (7 – day ave. conc., March 15 – 21, 2020):	64.4 mg/L	23 mg/L
TSS (monthly ave. conc., March 2020):	22.9 mg/L	15 mg/L
TSS (monthly ave. loading, March 2020):	4678.9 lb./day	1952 lb/day

In summary, the operational decision was made to push more wastewater flow through the WWTF than it was capable of handling in its final clarifiers. This resulted in the discharge of fully treated wastewater exceeding TSS limitations for the month of March 2020 but prevented a multi-million gallon overflow of wastewater from the influent pump station. It was further decided to self-report the high TSS values resulting from this operational decision in order to ensure that sampling was representative of Springdale WWTF discharge during the event.

Jennifer Enos, Wastewater Facilities Director, emailed Richard Healey, ADEQ et al on March 23, 2020 to report the effluent TSS 7 day violation. Now that all TSS samples have been analyzed and results validated, the monthly average violations are also being reported via this report.

Conclusion

Despite saturated ground and heavy rainfall, SWU’s WWTF was able to meet all permit parameters with the exception of TSS for the month of March 2020. The excursions were unlikely to have caused any environmental impact as the excess solids were discharged into a raging receiving stream already loaded with sediment from the massive runoff and washout caused by the deluge. The substantial, multi-million dollar, ongoing work done by SWU to reduce I & I into its collection system likely aided in the rapid recovery of the system and reduced the amount of flow that had to be treated. A \$500K WWTF Master Plan development by Garver Engineers just approved by the Water and Sewer commission this month will help identify what if any improvements in the existing system might allow the facilities to better weather storm events resulting in excess flows such as that experienced October 5 and 6, 2019. In addition, an agreement was approved this month for Garver Engineers to start the process of developing plans for additional clarifiers and headworks flow improvements to allow the WWTF to handle and treat higher influent flows during rainfall events.

The March 2020 TSS limit excursions are only the second ones in over three decades of successful wastewater treatment, the only other one having occurred in October 2019 during a 500 year storm event. Neither resulted in any observed environmental impact and both were followed by rapid recovery to full compliance.