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Pekin
ILLINOIS

SPECIAL CONDITION 21 CITY OF PEKIN NARP PLAN

The leadership roles in the city of Pekin have changed over the last two years with different goals changing also . I have been in charge for two years and over that time have been involved in several watershed study meetings and have also been in contact with several managers of local wastewater plants . We all have different goals with NARP and different ideas of what will work and won't work . Each plant has different challenges and circumstances to deal with as well as each study group. The only thing we have found in dealing with NARP challenges it is most beneficial to take in information we can but when dealing with solutions come up with our own individual plan and implement it . This will work best for us financially and with our unique set of circumstances .

The city of Pekin completed construction on our updated plant in 2012 . The plant was designed with four anoxic zones before our aeration zones for the purpose of nutrient removal . The four zones are ran at all times other than when we bypass them for cleaning and maintenance . These zones were designed foremost for Nitrogen but also Phosphorous removal . Nitrogen is a monitor only for our permit right now but Phosphorous has a limit set on our effluent so it has been our major focus on meeting those limits.

We have found through the years that Phosphorous most days enters the plant around 4 to 6 mgl in our influent and through biologic treatment alone we can make the under 1mgl limit for most of the time other than when we get in to the hotter weather months . We have found through constant testing that the phosphorous problem is in our sludge . The highest concentration is in our supernatant of our sludge press . The press supernatant drains into a wet well and that well is pumped back into head works so that we get to deal with these magnified levels of phosphorous again . This presents a problem because we have to run the press daily and have found in past years our effluent levels were much higher than our influent . We have improved the issue by pumping wet well to drying beds when room allows so that the high levels are not returning to head works .

We have found the other high concentration is in our anoxic zones . This seems like a great result but we are a CSO so when it rains and flow goes up we get a washout of anoxic zone that then settles in our secondary clarifiers and ends up in our final chlorination zone . We have drastically reduced the levels by implementing a drain and clean of both final chlorination zones every two weeks or large rain event , whichever comes first .

We have through several changes in operations drastically reduced our effluent levels . We have tried in the past the so called quick fix and the use of chemical addition but found that we can't afford 40 k a month to put chemicals in our system that still did not get us below our limit in summer temperatures and with the problems in the plant it caused by making sludge levels go through the roof and dropped ph to levels almost unacceptable . This left us with one option and the only option we can see is more room to dry sludge without going back in system and this is not always an option . This year we had monthly averages so far of January .91 mgl ,February .37 mgl , March .24mgl , April .28mgl , May .98 mgl , June 1.16 mgl , July 2.18 mgl , August 2.02 mgl . You can see once the hotter weather came in to play levels rose but not near as much as past years when operation changes were made . I also feel we are on the peak of levels and we will drop below limits in next 2 months . I believe we can make your limits set 6 to 8 months a year but during hot months I can't see no matter what we do and we do a lot that we will make these numbers . I believe as you see other plants reporting you will see we are one of the best levels reporting for a plant our size . We believe there are still a few things we can make a few more changes to help things but these are expensive and will list those later in report .

We don't know what the best answer as a whole to the state of Illinois is but believe some changes are needed on states side as well . I do not believe some plants can afford or have the room to make limits set by state . I think limits are starting too high and maybe we can come up with better alternatives than excursions . I believe each plant has to be looked at individually and are they doing all they can ? We don't understand how putting a limit on our plant is going to help the Illinois River at all when you have Lamarsh Creek pumping into the river upstream from our outfall with all the runoff and outrageous levels being dumped into river from farm fields but they have no limit at this time that can be measured . The same applies for the Mackinaw River that dumps millions of gallons into the river downstream full of Nutrient packed runoff from farm fields that can not be measured and attached to one address so we are left with a terrible taste in the mouth of those that can . I think if there is a problem in the river lets look at it from a few perspectives . Let people be assessed a reasonable levy if they cannot make their limits and pay it on yearly permit fees on mgd that is over limit and use that money to fix the problem . Lets make that levy affordable and instead of forcing people to use chemicals that cause more problems use that money where it is needed and also determine a runoff levy per acre so everyone that is part of the problem can fix it . I feel this was rushed and decisions were made with out getting information and feedback from everyone .

I know this is not an opinion poll but if you are asking for a NARP plan these are solutions to get everyone on board . You can't put a plan in action if only half of the problem causers are held accountable . I believe at least a seasonable limit should be inforced not same level all year so try 6 month in cooler months below 1 then hotter months below 3 .

We looked back in our records and have seen a large reduction in phosphorous levels over a 4 year period . The levels in August of 2019 were 5.11 monthly average . The levels in August of 2020 were 3.56 monthly average . The levels this year were a 2.02 . The numbers are over the limit but I think you can clearly see that we are getting results . We have dropped levels by 60 % from 2019 to 2023. The limit is 1.0 but the reduction that we have achieved has not been easy and is still a positive result .

NARP is not just about phosphorous it is about nutrients and I know Nitrogen is another issue . We do not have near as much data on Nitrogen removal . We are at a monitor only still on our permit and test once a month . The anoxic zones are for nitrogen removal but as discussed earlier we are a CSO so rain events do hurt when the zones get washed out . We do not know what levels are going to be set so we do not know if we can meet those limits . We usually have a 28-30 mgl on influent and a 18-22 mgl on effluent . We do not see a major reduction in treatment and realize it is from same issues we have on phosphorous and it being held in sludge and through daily operations and rain events it is released back in system .

We do have a few more things that may help if we do not get limits adjusted but they will require room in plant and money to be able to put theses plans in action . The first idea would be able to pump supernatatant pits directly to drying beds instead of to headworks . This will require a lot of space that we do not have at this time . We would need to empty drying bed by hauling all sludge to landfill and disposing of it there so we have full bed to work with to empty pit weekly to drying bed and giving time to dry .

The other idea we have is to install a series of electric valves in anoxic zones and replace by-pass valves with electric actuated valves that are tied into our scada system . The plan being that if flow rises from rain we will have a 6.0 mgd on influent set so when that is reached both valves will shut so that it will keep nutrients from washing out from changes in flow . This will be expensive but is an option depending on what is done with current limits in the future .

The NARP is a great idea but needs some fine tuning and adjustments made at each plant . I do believe we have put a lot of money time and labor and have gotten some great results . I feel until everyone is doing the same how can one be responsible without everyone . We will continue to do all we can to get levels where they are desired but ask for some thought in raising limits as a seasonal limit . Higher levels in warm months lower in cooler . I feel it always makes an operator feel better when he is doing his job well and making all requirements set by IEPA but don't feel this will happen until things are looked at closer and adjustments made . We feel that chemical addition is looked at first when we believe all other options should be tried first . We do not see how chemical addition can be paid for with budget strapped plants and the negatives out weigh any positives . I thank you for your time and look forward to continued success at achieving our and your goals .