

Item 23-1083: 2023 Weather Impact on the Appleton Wastewater Treatment Plant

Utilities Committee

Tue, Sep 12, 2023, 4:30PM

Aldersperson Vered Meltzer (District 2) 06:23

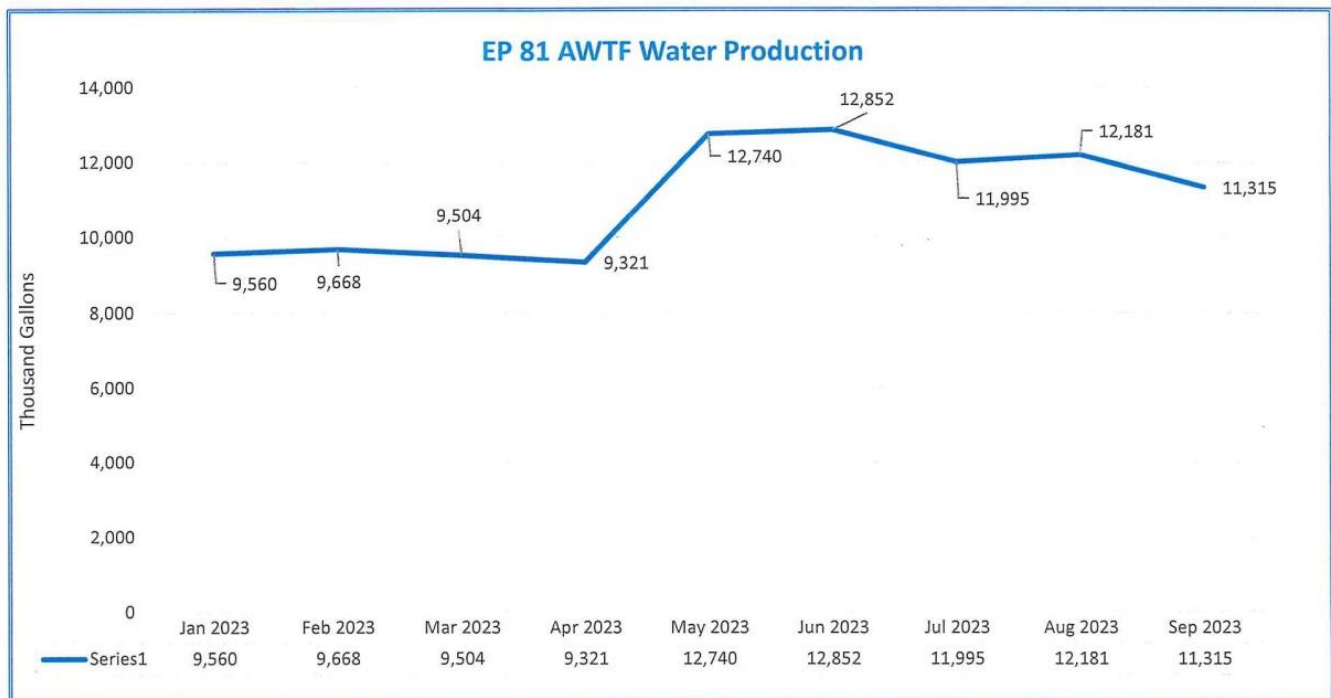
We have a couple of information items here. We'll start with 23-1083 the 2023 weather impact on the Appleton wastewater treatment plant.

Director Chris Shaw (Utilities) 06:33

Thank you, Chairperson Meltzer. At the last utilities committee meeting, I alluded to how a drought can have an impact on the utilities department. And I talked about the wastewater treatment plant. So, I'd like to just further elaborate. I spent like 30 seconds on it, or whatever. I just said that there was, there was an impact to treatment and cost and that sort of thing.

Director Chris Shaw (Utilities) 06:55

So, I put a little presentation together for you. If you could start, it's just a double-sided page. **[Off microphone, he worked on getting the presentation called up.]** And if you could start on the EP 81, which is our water treatment facility. I'd like to just start with what happens in a drought with a water utility. Okay. So, we compete with Mother Nature. When the skies open up and provide rain that's providing water—I just want to point that out—at no cost to you. And so, the water treatment facility also produces water. And so, you're not going to take rainwater and wash your clothes or anything like that. We don't have cisterns and that sort of thing anymore, you know. But they do—the weather does compete with the water treatment facility.



Director Chris Shaw (Utilities) 07:44

So, in general, if you can just follow with me on the blue line, we have a baseline or normal demand by the community. And so, this is year to date. If we go back into the winter months, January February, you'll see about

the same rate. It's about nine—nine and a half million gallons per day, constant from people washing dishes, industry, right? I mean, just showers, toilets flushing, all those water uses. Okay? And the summer comes around, we do increase demand. So, what's occurring in the summer that's a little bit different. The weather's nice, people plant gardens, they fill their pools if they have pools, they constantly water their flower boxes if it's not raining. So that's occurring. And that's usually about a one and a half—one to one and a half million gallon demand. So, we're gonna see, you know, a bell curve come up in the summer, because there's just more uses for water.

Director Chris Shaw (Utilities) 08:36

However, within a drought—like we're currently in a moderate drought. We're about four inches dry right now for the year. Typically, annually, you'll get about—in this in this latitude—you'll get about 30 inches of rain, just every year, year after year. You know, you go to an arid region of the United States or of the world, it's gonna be a lot less. But in this region, typically, statistically, you're gonna get that much. And so, when we don't get that much, we're in some form of a drought. And right now, we're in a moderate drought. We're not in extreme drought. Some places in the state aren't in a drought at all, but we are right now in a moderate drought.

Director Chris Shaw (Utilities) 09:12

And if you look at this bell, it should have been half the size. So, what's ending up happening is people are taking—because they're not getting rainwater, they're watering gardens, flower boxes, that sort of thing. Okay. So, in general, if you look at what's going on, I said, "Well, this is good for the water plant." So, a drought is actually good for a water plant, but it's the competition between Mother Nature, right, and the treatment facility.

Director Chris Shaw (Utilities) 09:38

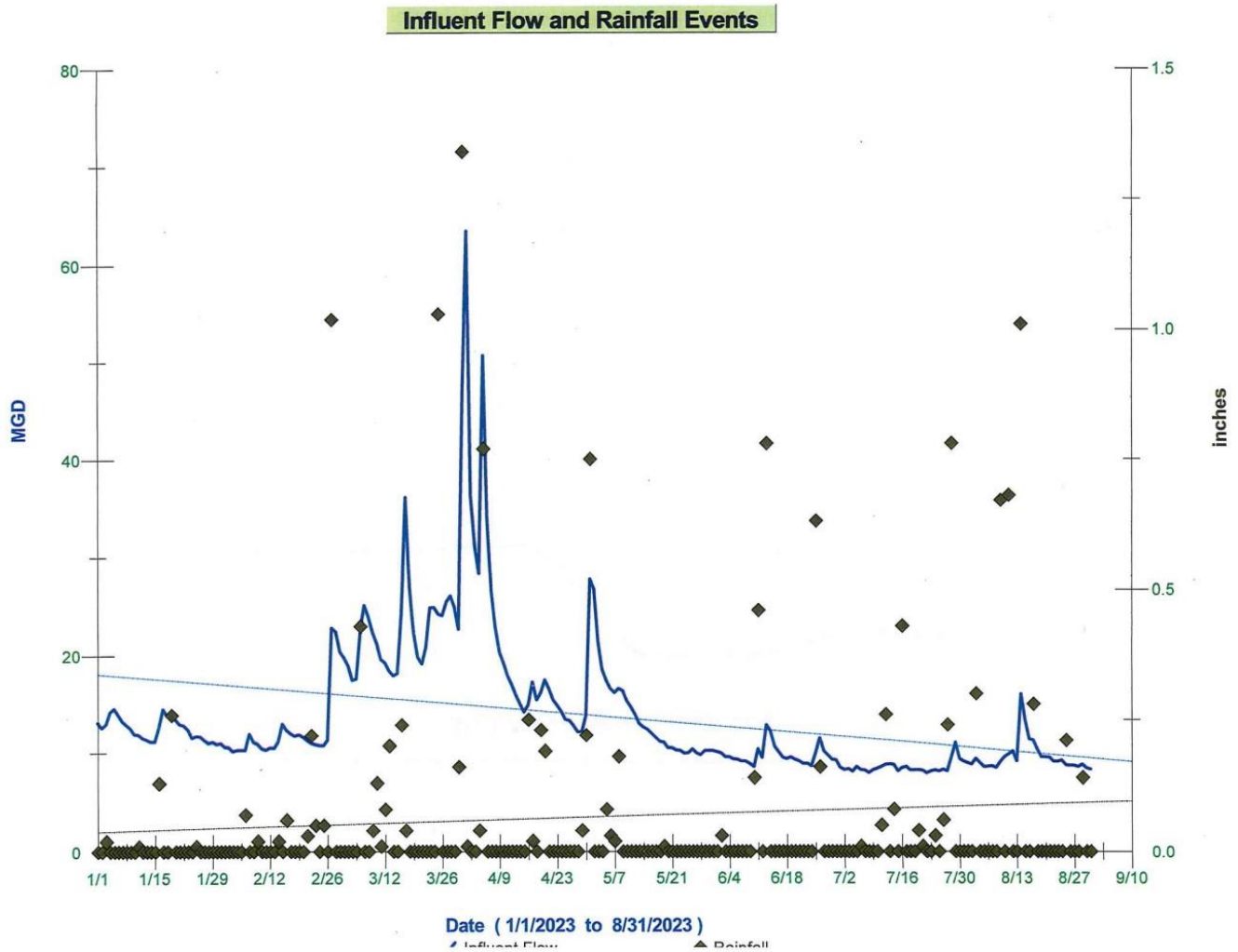
So, we're producing water that would otherwise be rainwater. So, if you look at what that difference is, normally, the water treatment facility does revenues every day, by selling this water about \$50,000 a day. Every day we sell water. In fact, if you wanted to do something real simple here that I did, before coming to the meeting, is I put this into 1000 gallons. Every 1000 gallons we sell is about \$5. Now, that's just, that's not the correct rate. If you go to our rate structure, there's different tiers. We actually if you buy more water, we give you a discount. We have wholesale customers that pay a different rate. We have fire protection. But just in general, \$5 per 1000. All right? So, you can actually buy a 55-gallon drum of water for under 50 cents. So instead of getting a bottle of water, think about that 55-gallon drum and what you get the value here at Appleton. It's just great, isn't it? It is hard to believe right? And we'll bring it to your house. You don't have to go to the gas station and buy it. Anyway, I'm just joking a little bit.

Director Chris Shaw (Utilities) 10:37

So that difference—that difference, if you look at what happened this year, that's about \$7,500 every day that we're making, because there's a drought. Or increased revenues; we're not making that—that's not accurate. But that ends up being about \$225,000 a month, for every month that we endure this this drought in additional revenues. So that's what I meant by it's good for the water plant.

Director Chris Shaw (Utilities) 11:07

In general, does that make sense? Okay. So now, if you go to the back of the page, there's the wastewater utility. This is a little a little more complicated. It's not meant to be. But this is year to date to. And what we have here is flow at the wastewater treatment plant. And that's the spike line going up and down. And then the dots are actually rain fall events. So everywhere you see a diamond, that's a rainfall event. Those are—the accumulation of those rain fall events are the total amount of rain for the year, year to date, and it's about 20-20 inches, but we're still shy about 4.



Director Chris Shaw (Utilities) 11:48

What happens here is I've got a trendline that shows you that we're actually going down. The dashed blue line that matches the line, the blue line, that which is our flow to the treatment facility, that is going down. That's because why? We don't have any infiltration going from broken pipes. So I hate to say it. Every community has broken pipes. Nobody puts in new pipes in the ground—laterals, collector sewers, interceptors—every 20 years. There's a certain amount of leakage, and it ends up being like a tile, right for the whole community. That's just the way it is. You get too much we have a peaking factor. It's engineered out. Hey, we have to correct our leaky sewer systems. And that's done by actually Public Works. They do a great job. They televise 10% of the collection system. And then we determine how much leakage there is—right? And we put together a plan, capital plan, that addresses those.

Director Chris Shaw (Utilities) 12:40

At any rate—kind of going off a little bit. We're not seeing, because of the drought, that factor from infiltration/inflow. So, we've got wastewater coming to the plant really slowly. Well, what happens then? Well, the contaminants that are in the wastewater, end up spending more time at the wastewater treatment plant. That's a good thing. Chemical reactions are time and temperature dependent. And a good example of this this time and temperature is say you had a stain in a shirt, and you wanted to get it out, and you had some bleach

solution, and you put the garment in, right? Right? So, you put it in, and it's gonna take a certain amount of time, and the spot's gonna come out. If you leave it too long in the bleach solution, what's going to happen? It's going to disintegrate, whatever you add in there, because it's an oxidizer, and it's just going to sit there, you know, break down, right and oxidize, right? So, the longer we can spend time in the treatment plant, the better the chemical reactions.

Director Chris Shaw (Utilities) 13:42

And for biological activity, it also increases—right?—like composting or anything a little longer the reaction time, the more time, the more surface area, you know, being in contact allows for better degradation, right. So, it's a good thing for the wastewater treatment plant. So that's what I was trying to say.

Director Chris Shaw (Utilities) 14:01

Unfortunately, even though our—go to the front page—our raw water revenues are based on a meter, right? So, we're selling water through a meter, right? And that's how we know how much to charge. And the wastewater plant uses that same meter to charge the amount of wastewater. It doesn't happen that way in the summer. In the summer, we allocate for people filling pools, watering their gardens, and we say that water doesn't hit the city sewer service, right? So, it doesn't get to the treatment plant. So, we make that assumption that there's a certain amount that you're not going to have to pay for as a resident. So, we look at the past two quarters, and we take that amount from the winter rate, and we just apply it in the summer. So, everybody gets a discount in the summer. So, it doesn't really help for increasing revenues, but it's fair, right? Does that make sense?

Director Chris Shaw (Utilities) 14:49

So, I just wanted to put that together to kind of further elaborate on my little one minute sentence, but that's what I meant by sometimes a drought can be good. Overall drought is not good because really if you're having droughts or anything with a climate that goes up and down, we just want a steady state, regular weather pattern, right? That's what we really want. You don't want three inches of rain at once, and no rain at all. We just want steady, steady, traditional precipitation events. There you have it. Thanks.

Aldersperson Vered Meltzer (District 2) 15:23

Thank you.

Director Chris Shaw (Utilities) 15:23

If there's any questions I can...

Aldersperson Vered Meltzer (District 2) 15:26

Any questions from anyone? So, I do have a question. So, with the water production being up but then the stormwater discount being applied, realistically, are we actually seeing an increase in revenue? Or is it all kind of balancing out and getting...?

Director Chris Shaw (Utilities) 15:51

Right, based on these general assumptions that I just made, and we've had a four month drought, we've increased revenues by about \$800,000. So, we didn't gain anything on the wastewater side, because we're being fair, and we do the adjustment and—right?—it's not hitting the sewers, just, like if you were filling a pool, it's not hitting it. That water that we're selling is still not—so that policy is very fair on the wastewater side. But we're still increased revenues overall, because of the drought up about 800,000 for the year.

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Alderson Vered Meltzer (District 2) 16:25

Does—is there any impact as far as, because it's the wastewater is spending more time with the chemicals? Does that mean that we're using less chemicals? Or is that all kind of still the same?

Director Chris Shaw (Utilities) 16:36

No. Principally—right?—theoretically, that's what's happening. I can't put that together. That's a huge endeavor. I'd probably need computer modeling to put that all together. Overall, we should see a slight reduction in chemicals, energy, that sort of thing.

Alderson Vered Meltzer (District 2) 16:50

Okay.

Director Chris Shaw (Utilities) 16:50

You know, but it'd be very difficult to put that all together.

Alderson Vered Meltzer (District 2) 16:55

All right. Thank you.

Director Chris Shaw (Utilities) 16:56

About \$800,000, increased revenue. Now, if it's really wet, and there's a lot of rain—right?—it's the opposite. Remember, revenues just have to match our expenses. There's not a profit margin in the utility. So overall, the benefit still to the rate payer what it is. So, we're, you know—

Alderson Vered Meltzer (District 2) 17:17

Thank you.

Director Chris Shaw (Utilities) 17:17

—good to go.

Alderson William Siebers (District 1) 17:21

Just—

Alderson Vered Meltzer (District 2) 17:22

Go ahead.

Alderson William Siebers (District 1) 17:25

Are you saying our rates aren't fixed. They're...?

Director Chris Shaw (Utilities) 17:31

No, that's good—that's a good question. The rates are fixed.

Alderson William Siebers (District 1) 17:35

Okay.

Director Chris Shaw (Utilities) 17:36

It's \$6.08 per 1000 gallons for the residential for the first 500,000 gallons or whatever. And then it goes down. And there's a tier system. What I'm saying is our expenses are not fixed. We pay more. We're paying less—or we're paying, we're paying more to produce this, but we're getting more revenues. And we'll be in excess of

revenues over expenses. Do you know what I mean? Because our debt service will be the same. Or mortgage payment on the plant will be the same, right? But all of a sudden, we've got this side hustle—now I'm talking [...]—and we're making a little bit more money. Right? But it's not going to last, because it's a side hustle, because it's a drought. And you know, it's going to return back to normal. So, it's just, you know, an anomaly within, you know, weather patterns and then it impacts our treatment.

Alderman William Siebers (District 1) 18:23

So, what do we do with that excess funds?

Director Chris Shaw (Utilities) 18:26

Well, that's great. We're over under, right? We're chasing either over or under. And then eventually, we end up having to go for a rate case, right? Because if we keep the rates constant over time, like we have for the past 10 years—right?—and we don't have an inflationary factor, every year, we're actually giving a small discount, because—right?—electricity goes up, chemicals have all been going up, salaries for staff have been going up. All those kinds of—projects costs have been going up, right? So eventually, you're going to end up having to raise your rates to cover expenses. I don't know if that makes sense. So, it's been 10 years. So.

Alderman William Siebers (District 1) 19:05

Why have we waited that long?

Director Chris Shaw (Utilities) 19:07

Because there's a there's a formula for it.

Alderman William Siebers (District 1) 19:09

Okay.

Director Chris Shaw (Utilities) 19:10

There's a regula—regulatory formulas for all for all of that.

Alderman William Siebers (District 1) 19:13

Okay.

Alderman Vered Meltzer (District 2) 19:15

So, if we go from this drought situation, and if we suddenly have like a really, really wet fall and or really, really wet going into the winter, are there any issues that that can create as far as transitioning or the sudden...?

Director Chris Shaw (Utilities) 19:35

No—the wet part—when it gets too wet is the peaking factor on the wastewater treatment facility. And eventually, just like everything—right?—you could drive AR peaking factor or the amount of rain and the amount of infiltration or inflow that's getting into our system—you would have to address it, either through projects or you're mandated to regulatorily. We're trying to stay on top of it. In fact, we are shifting right now to address inflow and infiltration. That's a large, large issue. So, rain affects the wastewater treatment facility and the collection system too much.

Alderman Vered Meltzer (District 2) 20:13

Thank you. Go ahead. Alderman Doran.

Alderman Chad Doran (District 15) 20:16

Thank you. Director Shaw, could we—the excess revenue stays in the utility because it's a separate utility. Do we use that additional revenue than for paying down debt? Do we use it to maybe advance some projects that we either had to push off or could try and capitalize on getting done sooner?

Director Chris Shaw (Utilities) 20:35

Right. It's in the in the budget, but, no, we do not advance like pay down debt. We pay down our debt. And the fund the—we'll be talking about this in the budget cycle, but we're either over or under, not that much. \$800,000. While it looks great, and this is a very unusual year, represents 2% - 3%. So, 2% - 3%, one year up 2% - 3% with inflation increasing, it doesn't amount to much. And we aren't tight for expenses and revenues matching, right? We're always going to be over or under. But if we're if we're under over time, we have to increase rates. So, I don't know if that helps.

Alderman Chad Doran (District 15) 21:16

Yes, more or less. What you're what you're trying to explain is, is that, you know, it's great to have a little bit of a surplus, but it doesn't necessarily mean it's a windfall for us that we're looking at in the future maybe being able to offset some increased expenses with it. It's not a sign a huge bonus from that standpoint.

Director Chris Shaw (Utilities) 21:32

And the bonus would be a deferred rate increase. That's what—that's how you see it as a rate payer. My rates stayed the same. They didn't go up the inflationary factor of 2% this year. They stayed down—or 3%.

Alderman Vered Meltzer (District 2) 21:46

Given the we have, you know, the 10 years, I think deferring the rate increase is something that is valuable, even if it's not necessarily a significant financial amount. Even if we're just deferring it by one year, I think that that's something that helps the ratepayers.

Director Chris Shaw (Utilities) 22:04

Yeah. Year over year.

Alderman Vered Meltzer (District 2) 22:08

Any other comments or questions? All right. Thank you very much, Director Shaw.