

## Item 24-1061: Final Update on December 26, 2022 AWWTP Polymer Incident

### Utilities Committee

Tues, Sep 24, 2024 4:30PM

#### **Aldersperson Vered Meltzer (District 2) 04:11**

We have two information items. We have three information items. The first one 24-1061, the final update on the December 26, 2022, Appleton wastewater treatment plant, polymer incident. Director Stempa, go ahead. Benn waiting a long time for this report.

#### **Director Chris Stempa (Utilities) 04:30**

I think the last update Chris Shaw had provided was back in February or March of 2023. So really, in terms of the costs, and just start with the costs, and maybe skip over the lunar escape landing photos here, which is just where the waste resided for a year and a half. There really hasn't much of a change in the cost projections. If you page through that, and I'll touch upon each one of these, because I want to—I do want to give context to the operations, because this also has meaning—we are working for some other—towards some other projects, in terms of cost impact as well.

#### **Director Chris Stempa (Utilities) 04:30**

Me too. And it wasn't by design necessarily that I didn't have a presentation attached or a memo. So, I put something together like an hour before the meeting, just to give some context to where we're at—where we were at and where we are at. And Aldersperson Hartzheim, I think Chad may have asked about cost. So, if I may, I got four copies not five.

#### **Director Chris Stempa (Utilities) 05:16**

So, in the third or fourth page, there's a summary of costs. So, these costs, by and large, were the same numbers that Chris Shaw had provided back in February 2023. I did do a review of the first remediation response line item. That really did not change. The natural gas costs, and that delta was that at the time. So, we had, we had records leading up to that, to give some kind of benchmark comparison to what we would consume.

#### **Director Chris Stempa (Utilities) 06:28**

And I will apologize if I confuse as we go back and forth here, but the bar chart here with the leader pointing to where the incident was really highlights our dependence on biogas, right? So, when those digesters are running, they do save a tremendous amount of energy. And so those two months in which the digesters were down is the difference and the added cost in comparison to what we normally would spend on natural gas, when we're utilizing biogas to heat the building and processes. So, for those two months, it was about 50—\$50,000 each month. That's the difference in natural gas consumption versus utilizing the biogas from the digesters. So that that number was about, for the most part, the same.

#### **Director Chris Stempa (Utilities) 07:16**

The hauled waste numbers when you compared to the for the loss of the revenue over those two months that the receiving stations were down and we could not feed the digesters was about \$7,000 more than what Chris had initially put together. Again, and that's projecting forward, so it's based on averages both prior and then after. I just want to give an accurate representation of what that was.

**Director Chris Stempa (Utilities) 07:41**

The other numbers are the same; they remain the same. So, the just to go on that list, on the summary. The \$46,264 estimated offset—so if we're not taking in these ways, yes, you're not getting the revenue, but you're not spending chemical energy in treating them. So that number as an estimation remain the same.

**Director Chris Stempa (Utilities) 08:02**

The last number is really the one I want to highlight. It's a conservative number, but I did want to be as transparent as accurate and reflective of as possible, as once everything was taken care of over those first three months back in 2023, the waste sat in the tank, in part because (a) we weren't sure how we're going to process it yet. In fact, we didn't know if we could process it. So, there was attempts made early on to analyze that material. I mean, it's a co-mingled, raw and neat polymer that's used in process, but it's co-mingled with a bunch of cheese fat, right? And that's what you see in those pictures. And so, it sat there for a while.

**Director Chris Stempa (Utilities) 08:41**

So, the strategy up front was, let's hold it. Let's blend it to break down the polymer chains 'cause this stuff's like if you could imagine a spring full of duct tape; that's essentially how it works. It grabs anything in the solids treatment train and ties it together. That's what helps us dewater. That's what it's used for. So, in this tank, yet, (even though there were 70,000 gallons, 3000s of which is polymer) in a normal process application in our dewatering operations, we're feeding maybe 1% of that solution in a normal process, right? So, this is a really rich and smelly problem that we had. So, letting it cook and blend and break down those polymer chains as it's mixing was a strategy as we tested it, as we confirmed it was breaking down, and as we felt comfortable and had the staffing levels. We did how we hire a process specialist; that was a new position. We needed somebody to babysit this.

**Director Chris Stempa (Utilities) 09:37**

So not to get off tangent, but you do need people watching this. And we were—we had vacancies, we had turnover. And so, we, as we lived through that, and then staffed accordingly, we were able to attack that, and this, this year, early on, we devised a strategy to finally process it. But baby steps into it.

**Director Chris Stempa (Utilities) 09:57**

So, a lot of the effort up front was just bench scale testing it and making sure that at certain ratios we weren't going to hurt ourselves on the backside. And so, we did that. So, the first couple months was doing just that—just easing into it and then slowly ramping up how we could process it.

**Director Chris Stempa (Utilities) 10:18**

So, the initial projections—we thought we would be feeding this in and bleeding it into our dewatering operations for about a year and a half, and we got it done in less than, less than six months—or seven months. And that that was outstanding, and that's all credit to the staff and the diligence they had in working toward it. So that \$18,000 is a conservative estimate. It's probably higher than what it what it actually was in terms of staff time dedicated to this. But there was some materials, some piping, and some various things we had to procure to do workarounds with some existing equipment. We did not buy any new pumps. Everything was existing. The only thing we purchased were fittings and hoses to make this work, so that that was really outstanding.

**Director Chris Stempa (Utilities) 11:03**

The estimated cost—if we had to have relied on a hazardous waste cleaning service, would have been easily, well into the six figures. So, at \$18,000—and I know it's an avoidable incident, that that incident that created

this, but I believe with what we had to work with, the staff did a nice job taking care of it. And so, the pictures, as you look at it as a timeline from left to right on that last row is it's really just giving you an idea.

**Director Chris Stempa (Utilities) 11:33**

I mean, I know yet for most of you have been to the plant, you don't know what this tank is. That's about 66,000 gallons of material that was initially taken from two receiving station, purged from different lines in the process when the incident first happened, and then conveyed to that tank where it sat, and then ultimately it was processed finally, in August of this year.

**Director Chris Stempa (Utilities) 11:56**

I'm gonna back up a little bit. And so, each one of these graphs just represent some of the larger costs, and that's reflective of our hauled waste program. This is something that we track internally, and I don't get caught up in the revenues and the wastes types and this and that. Just—it's just to show that that discretionary revenue—and I just want to remind the committee that our hauled waste program that we lost revenue for, we're utilizing excess treatment capacity. We're not obligated to run this program, but it is a tremendous vehicle to generate revenue to pay for things around that plant, and it's something that we want to continue to maximize and leverage to the extent possible. And because of that program—back to this page—and again, noting that the cost savings in natural gas—that hauled waste is a significant generate—a primary generator to that biogas production, and the reason that we can shave costs and do some creative things with renew renewable energies, like the [Hurst?] boiler system and some of their projects that FMD is working on our behalf.

**Director Chris Stempa (Utilities) 13:08**

Paper's not in order. So, in summary, I just want to touch upon those major points. And if there's any questions, either now or after the meeting, I could certainly follow up. And if there's a need to follow up with some other update—if there's some additional resolution that somebody wants, I could provide that.

**Aldersperson Vered Meltzer (District 2) 13:28**

Thank you very much. First, I really want to commend you and your team. This incident was a really—a very significant impact, and I think having it all wrapped up now, instead of continuing for the next year to be feeding it in slowly, that that's a really great job, and a lot of hard work and dedication that made that happen.

**Director Chris Stempa (Utilities) 13:52**

And I know our neighbors appreciate it too, because it was starting to smell.

**Aldersperson Vered Meltzer (District 2) 13:55**

Yeah, I visited the—it was earlier this spring that I visited the plant, so maybe right around the May picture, and seeing the pictures reminds me of the smell. Congratulations on finally being free of that burden.

**Director Chris Stempa (Utilities) 14:13**

We are liberated.

**Aldersperson Vered Meltzer (District 2) 14:16**

All right, any comments or questions from the committee? We'll start with, I think I saw Alder Doran's hand up first.

**Alderson Chad Doran (District 15) 14:24**

Thank you. I guess just, can we just for the benefit of the community I guess, just talk a little bit about kind of—I know this was sort of an unfortunate incident, but what plans have sort of been put in place to prevent things like that from happening again?

**Director Chris Stempa (Utilities) 14:39**

So, there was a bunch of immediate steps taken post incident investigation. So those are in place, and whether it's things as simple as more explicit signage, ramping up and being more explicit on the front gate with more signage. There's been a revamping of some of the procedures and protocols internally. And then we are concurrently working on wholesale changing our training and refresher training programs.

**Director Chris Stempa (Utilities) 15:09**

That is the—not a small amount of work. The evolution of the season staff and what we have internally—we don't have the same kind of structure that we had 10 years ago. Got a lot of people coming in and out, and we are working on keeping pace with that level of turnover. It is a large facility. It's a complex facility. There's a lot of truck traffic, and right now there's a lot of construction work, in addition to there just makes workarounds more challenging. At the same time, it's an absolutely great opportunity with the work we got going on, because, out of necessity, people are learning things they probably wouldn't otherwise. But just back to what we've done. In summary, that's really what we've done. The larger task is really now and moving forward, having a training program that matches the experience levels of the people that are working at our facility.

**Alderson Vered Meltzer (District 2) 16:10**

Thank you. Alder Hayden.

**Alderson Patrick Hayden (District 7) 16:13**

Thank you, Chair. I was wondering looking at these lost revenue, if we currently have enough volume to look at purchasing a second Digester, because the drop in revenue was rather significant. And if it is bringing in that kind of revenue—and I'm assuming the digester is producing methane—if we could potentially increase the revenue by getting a second digester that essentially might pay for itself rather quickly.

**Director Chris Stempa (Utilities) 16:44**

So, we conceptually looked at that about a year ago, and actually more recently, like, six months ago. If you're to build that wastewater plant today, you're looking at about a 500 million plus dollar project. The digesters, because of the geography of the plant, and what it would take to make a mirror image, to build in redundancy, would take more than just a digester, unless you wanted it idle—is that the plant has all been built in concert to handle what's coming into it. So, you're basically building another vessel to handle something. You can only push so much sausage through this thing, right? So, you could have one there as a backup, and we build a lot of redundancy. This n minus one philosophy, right? Where you have two pumps or three pumps. So, because something, whereas you take it down, you replaced it without interrupting operations or treatment.

**Director Chris Stempa (Utilities) 17:38**

This is a different animal, that because of the scale, the cost you'd have to excavate, you'd have to relocate probably parts of buildings, and the ballpark figure on it was into—probably the cost of what the upgrade was in the 90s by the time it's all said and done. If it's something that the committee would least like to entertain conceptually to have some kind of cost analysis done, I could probably have somebody do that, but that would take some level of effort, other than me, just talking about the conversation we had based on projections of what it what it was to build one of those in 1990 1990—it's an '89 to '94 project, so. But we have, we have talked about it.

**Director Chris Stempa (Utilities) 18:21**

And again, just to keep in mind too, is that in the absence of some of the waste that we're taking in in the discretionary hauled waste program, these vessels are built on a minimum amount of hydraulic retention time, which is 15 days. We're using excess capacity. So, we're bypassing other parts of the treatment train. Because this waste is really rich, we do not want to send it down there, because it—to the liquid train, as we call it—because it's more energy and chemical intensive to treat it, and you produce more solids on the backside. So, when we when we peel off these higher gas producing wastes that we charge to treat, it also is a direct feed in the digester. That directly felt affects how much retention time you have. So instead of 15 days minimum, right now, we're on average about 24. In the absence of the hauled waste program a number of years ago, we had up to 30 to 35 days of retention time. That's a long retention time. In other words, if I was to drop a eye dropper in Laura's glass here, just pretending it would take 30 some days for it to come out—right?—flow in flow out. So, we don't have that luxury. We're using as much capacity as we can, but yet, providing a buffer from that regulatory 15-day HRT. And again, the plant was all designed in concert. So, it's built right now to handle what it was projected in terms of loadings. We're just maximizing that excess capacity in parts that help maximize return to help pay for things.

**Alderman Patrick Hayden (District 7) 19:49**

Thank you.

**Director Chris Stempa (Utilities) 19:49**

I don't know if that was confusing.

**Alderman Patrick Hayden (District 7) 19:51**

No, that was very helpful. Thank you.

**Alderman Vered Meltzer (District 2) 19:53**

Thank you. Any other comments or questions? All right? Thank you again. And convey our gratitude to the rest of your team for the wonderful work they've been doing to finally get us to the end of this chapter.