

Rukmini

Hey everybody, this is Rukmini from NRPA and you're listening to the Guardians of Greenspaces podcast, the show that explores water conservation from a park-and-recreation maintenance lens.

Today we're talking about grey water reuse with Cory Styron and Emmanuel Abetya from Los Alamos County and John Blue from City of Purcell. We'll discuss the different methods of grey water reuse, its impact on water savings, and community benefits.

Could you all introduce yourselves briefly for our listeners?

Cory Styron

I'm Cory Styron, I'm the Community Services Director in Los Alamos County, New Mexico.

Emmanuel Abeyta

Hello, my name is Emmanuel Abeyta and I'm the Parks Assistant Superintendent for Los Alamos County.

John Blue

My name's John Blue. I'm the director of parks and recreation for the city of Purcell in Oklahoma.

Rukmini

Can you give us some background on grey water reuse and what it looks like in your city?

Cory Styron

So I guess we just want to start this off with understanding definitions. So when we're talking gray water, gray water is a classification of wastewater that typically involves non bodily fluids. So this is typically water that would come out from your washing machine, you're doing dish washes, potentially a bathtub. Black water is the one that would have bodily fluids.

And then if it goes through a treatment process, it can become effluent and there's four different grades of effluent water. Los Alamos has a long history of looking at effluent water that dates back to the Manhattan Project and we've recently upgraded our wastewater system to be a grade A effluent water system.

John Blue

Yeah, we were constructing a trail project at Purcell Lake back in 2020 and had a prefab restroom in that plan and we didn't have any sewer infrastructure nearby. And so the solution was to look at using an aerobic septic system. That's pretty common in our rural areas. We would be able to treat the water basically on site and then spray that water out onto a, the idea was a little wildflower garden that we could just spray it out and that way we were reusing and recycling right on site.

If, if you do not have any kind of sewer infrastructure nearby, the cost of installing an aerobic septic system versus, you know, laying a whole new set of infrastructure to this site. You know, for us, it's, it's almost a couple of miles to the nearest, nearest tie-in. So it would have been significantly more expensive, almost more expensive than the trail project to, to install that, that infrastructure. if you're looking at a space that's further out, especially for like us around our lake, it makes a lot more sense to have that in that, you know, proximity to the restroom itself.

Emmanuel Abeyta

Yes, so with Los Alamos County, the price of potable water that we would be putting on our athletic fields is double the price that our effluent water is. So we use that for cost savings on our end for athletic fields.

Cory Styron

And I think just for context too is New Mexico is up in the high desert. So we have, like most Western communities, we have a really high reliance on water and our water tables continue to decline. So using all of our water to the best of ability is really important.

This is really important in the state of New Mexico. We range from the high desert to the low desert. And we have a lot of communities that are looking at reclaimed water on their golf courses as well as athletic fields. Some of our friends in the Four Corners area as well as

far south are using this in various forms or fashion to supplement their watering and save that really good water for important life saving needs.

Rukmini

So I've heard you kind of talk about how Los Alamos County is a pioneer in this field. You've been doing this for a long time. And I just want to ask you all, know, as the sort of gains traction as more park and recreation agencies are facing issues of drought or otherwise are trying to be conservation minded when it comes to water, what are some challenges that agencies might face in implementing this solution? So what has come up for you all as you've been working with effluent water over the past decades?

Emmanuel Abeyta

So for Los Alamos County, we have a higher nitrogen level due to the solids that are in there that are harder to break down. So we intermittently have to flush our athletic fields with fresh water just to keep everything pH and all that as healthy as possible.

Cory Styron

I think also there's a cost associated with effluent water. So there needs to be a couple of thoughts given to one, it is the right thing to do to manage our water use. But two, what is the return on investment? Setting up a water treatment facility that meets the EPA requirements of A through D is not cheap.

It's a long-term investment for the community. It's a long-term investment for your agency. Also, it requires a separate system and some notification depending on what your local rules and regulations are. So I would explore all of those options so you have a very good, well-rounded thought process when you make this decision.

It's going to vary on cost depending on a variety of things. How close are you to your effluence or a resource? How large of an area are you doing? But it's still something that, like in John's situation, was readily available in a small supply close by where some places it may be different. So there is a cost associated to it. I just want to let people know they just need to weigh the savings as well as the cost before you jump into it at first.

Rukmini

So of these challenges, how would you say that using effluent water impacts your maintenance staff? So I know Emanuel, you mentioned like there needs to be a flush every

so often. Would you say that this causes more work for your maintenance staff? How are they sort of adapting to the effluent water system?

Emmanuel Abeyta

Yes, for us we use Hunter I 40 sprinkler heads and we take a zone per field and we go out and we clean out the screen because there is solids that get caught from, you know, our treatment center, whether it would be sticks, algae, whatever is in our filtering systems. So we go through there and we do clean it but the cost versus potable, it outweighs it and we're being conscious with our water source.

John Blue

Yeah, so our spray field, that small wildflower garden space I mentioned turned into an 11,000 square foot area. So we have a large enough space for the amount of water that's used in the restroom that can be treated in that space. And since it's going out into a basically a wildflower garden slash prairie remnant, however, there's a lot of grasses and a lot of flora and a lot of plants that are just taking all of those nutrients and, and, treating it on site.

So we don't have to do like what they're having to do at Los Alamos where they're dealing with their turf and it has to be balanced. We're not as concerned about that because the plants will, will take care of it for us. And it's the distance to any bodies of water, anything, you know, even this space is a ways from anything else. So it even-- once it leaves that space, if it doesn't soak in, it's still being infiltrating as it goes. So it's a lot simpler for us as far as that piece.

John Blue

I don't know if anybody mentioned the episodes of Park and Rec where Ron's in his little circle desk trying to spin away from the lady who's like, you know, talking about the treated water for her tea, but it's, kind of that initial knee jerk reaction of, actually just did our fifth grade outdoor classroom and I did a presentation on pollinators and poo and how the water cycle and, and, and how we were treating it.

And, know, that initial reaction from the kids is like, what? And once you show them how it's treated and how it, it fits into the water cycle, the environmental piece of it, then they're a lot cooler. They went from being like, ooh, to picking wildflowers around the area and being okay with it. So it is that initial knee-jerk reaction of, it's treated water from a restroom. And then they see the benefit of it. So it's not quite so bad.

Then like with as far as maintenance and things goes, is the, us, it's air filters and making sure the pumps are running and things of that nature. Those are kind of some of the things

that. I think that was part of what the maintenance piece you guys were talking about was what, you know, how does that tie in for us? It's making sure like, like Emmanuel said that the sprinklers are clear and then that the air filters and things are in place. And then, you know, we have our bleach additives that you have to make sure that everything's being treated correctly. But those are the major.

Rukmini

Yeah, I just wanted to ask, like, has it been a more of a challenge for your maintenance staff, like getting used to the new system? Has it been easier on them in any way? Like, so what are their responses to your implementing this?

John Blue

It's the, you know, regular maintenance is the most important because, you know, we, is, it is tanks, that are holding all of this. So you have to make sure that the, the bleach is filled, you know, regular maintenance of checking on the system. You're basically, you're, you're farming a bacterial colony, right? So you're having to make sure that it's healthy and that everything's working correctly.

So it's them just taking the time out of their week to make sure they're going by, they're checking, you know, are we good on bleach? Is the system running properly? The timers are all set. So for them, it's not a huge deal to go by and, you know, a good 15 minute checkup and you're in pretty good shape.

Yeah, it cuts down major on, you know, we already have prairie remnants and restorations that, you know, we mow it once a year, maybe twice. And this is one of those spaces where they'll go in and just keep kind of around the sprinkler heads mowed down. So that way we're not affecting the range of the spray. But I mean, it's a big, you know, it's one more piece of property that we don't have to go in and mow every single week.

So there's a fuel savings, a time savings, just the labor piece of it. And it ties into, you know, we're registered with the National Wildlife Federation and Monarch Watch and all these different groups. So the signage, you know, this is a registered place. It's supposed to look this way. It cuts down significantly on, you know, just, yes, it's supposed to look like this and saves us money, saves us time, saves fuel, saves pollution, you know.

It's a long list of benefits.

Rukmini

Awesome, I mean that's a perfect segue into, I wanted to ask more generally, what are the benefits that you all have experienced using grey water, effluent water? Cory, I'd love to start with you.

Cory Styron

So we again, we have a high desert. We have a highly educated community that is very passionate about sustainability. So it fits right in our wheelhouse that we're using our water to the best of our ability and not sending treated water downstream to others in our community. Our main runoff area here is the Rio Grande. So this allows another opportunity.

It's also a savings because our water treatment program under our utilities department is an enterprise fund. So they have to sell us the water either way. So for us to be able to use the less expensive effluent water financially makes sense for us. And we're other than the laboratory, we are the largest user of water in our community with our golf course and athletic fields.

So again, we set the standard and we also try to be the leaders in showing others appropriate water conservation uses and can step out and be a leader that way that we're using this limited resource and changing resource that we have in our community that we're using it to the best of our ability.

Another thought is if we use this effluent water up here, it'll percolate back through the soil surface. We do have a lot of aquifers up here, so hopefully that by containing it up here, it percolates through the soil and recharges the aquifers and we kind of reuse the water eventually at some point in time.

John Blue

Yeah. Yeah. And, and also wanted to kind of build on what Cory just mentioned-- is that was a big piece of telling the kids at the presentation of, know, we, we have a well field where the city resources its water from. And so was kind of a nice cycle to be able to say, we're pulling that water out. We're using that water, but then we're allowing it to percolate back into the aquifer for that reuse.

Cause I don't think a lot of people really get the idea of-- we need to be actively recharging our aquifers. It is limited resource. As far as outsourcing the maintenance piece for us, the nice part about it is any septic system company can come in and maintain our system.

It's simple enough, it's widespread enough that it's very cookie cutter that if you have this facility anywhere. It's a simple enough system anybody can maintain it. And that has a lot of benefit of if we want to build another piece of trail with another restroom, we already kind of have that pattern. It's just here's the pieces, we know exactly what needs to go into that space.

Rukmini

Awesome, I'll come to our last question here, which is if other agencies are inspired by what you're sharing here today, or maybe moving to grey water systems has been on their list for some time and they're ready to make a move, do you have any tips for agencies that are looking to make a pivot into using grey water?

Emmanuel Abeyta

Yes, so on our part for our athletic fields and our golf course, just getting a system that will help with the treatment of it for usage. We at our golf course, we have implemented a Rainbird system that has sensors. It has the ability to backwash any filtering systems that go through there, allows so many microns to get through there.

Once the system gets to a certain point it actually has a backwash station that allows any of the gunk to be released and In filter can so we could dispose of it So the system is very clean it helps with all of our piping and it ensures that our heads can Can consistently get our throw and keep that head-to-head ratio.

Cory Styron

I would also add, you know, talk to your local water authorities, whether they're your municipality or you're part of a regional distribution system. There are a lot of funding mechanisms out there that are doing this, that are helping to do this type of work because especially out west here, everybody knows that water is a huge, huge challenge for the next generation.

So there is quite a bit of funding to look at to either retrofit or water treatment plant or think about options on how you can apply this into your facility. And then my second piece was just make sure you do some really good education as John indicated earlier with your community. You're not throwing raw sewage out there. You're throwing water that unless you knew it was not treated you would think that it's the water coming out of your water

hose. So it's really good water that you wouldn't want to drink on a regular basis but it does perform the necessary requirements to keep vegetation alive.

Well, you know, what we do is we check our water annually for mainly a chemical test. We want to know what type of nutrients, what the pH is. Are there any other total dissolved solids that we need to worry about? Because that directly impacts on our case, how do we fertilize the golf course or the athletic field? So I would highly recommend most people do athletic fields and golf courses on a pretty frequent basis.

But if you're using this system, check your source water on a regular basis as well. You might need to tweak your nutrients just a bit depending on what the water is that particular season. And as Manny said earlier, ours first came out, it was pretty high nitrogen and we went a number of years without having to really need to apply any nitrogen to our athletic belts. So again, just test your water so you know what you're putting on your spaces.

Rukmini

All right, I think that's everything we wanted to cover. I wanted to leave some space in case there's something that any of you wanted to mention that we didn't get a chance to cover yet or any words of inspiration or encouragement for other parking recreation agencies or folks who might be listening to this.

John Blue

I was going to throw on with the, you know, considering it, you know, be sure to work with your architects. We worked with DEQ on, there were certain, you know, percolation tests or certain things we had to do. There's also, if you're within so many feet of a body of water, you may have to put in a nitrogen reducing system that, know, there's, different components compared for every situation.

There's going to be something different, but for us, I think it is the education piece and it's, it's connecting it back to the community, connecting it back into the picture overall of the purpose of this and how it all fits into the greater conservation theme that makes it all worth it. To where it's not a weird thing out at the lake that they spray the water. It's a good thing that's out at the lake.

Yeah, think it's well worth it, especially small communities or remote communities. It's a good thing.

Cory Styron

Yeah, I would again emphasize talk with your local health departments, water quality control board, natural resource commissions at the local and state level. Each state and the EPA is the guiding force for this, but each state kind of has some nuances within that. So work with your local officials and boards to understand what the requirements are so that you can have a very successful project.

Rukmini

Thank you Cory, Emmanuel, and John for sharing your expertise on grey water reuse and how it supports water conservation. Check out our other episodes on water conservation tools, including green infrastructure and sustainable turf, on Guardians of Greenspaces. We appreciate everyone listening and reminder— answer our key question and you could win a \$50 NRPA store gift card!

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